



The Impact of Hybrid Learning and Intrinsic Motivation on Students' Academic Learning Achievements at University Level in Educational Settings in Pakistan

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ARTICLE INFO

Article History:

Received: July 20, 2025
Revised: August 27, 2025
Accepted: September 21, 2025
Available Online: October 01, 2025

Keywords:

Hybrid learning, intrinsic motivation, academic achievement, blended pedagogy, higher education, Pakistan

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ABSTRACT

The present study investigates the combined effect of hybrid learning models and students' intrinsic motivation on academic achievement at the university level in Province Punjab, addressing a notable gap in existing research. The data collected were analyzed using linear regression in SPSS, allowing for an exploration of the relationships between Impact of Hybrid Learning on Students' Learning and Intrinsic Motivation Impact on Student's Academic Learning. The analysis revealed that Impact of Hybrid Learning on Students' Learning positively influences student Motivation Impact on Student's Academic Learning. Results indicate that (1) perceived quality of hybrid learning (accessibility, instructional design, and teacher presence) positively predicts academic achievement, (2) intrinsic motivation is a strong independent predictor of GPA, and (3) intrinsic motivation partially mediates the relationship between hybrid-learning quality and achievement, suggesting that well-designed hybrid environments foster internal motivation which in turn improves performance. These findings, highlighting flexible access, timely feedback, and autonomy-supportive pedagogy as key drivers. The study concludes with recommendations for policy and practice: universities should invest in faculty training on blended pedagogy, design hybrid courses that promote autonomy and competence, and implement formative feedback systems to strengthen intrinsic motivation and learning outcomes.

Introduction

Education and learning is one of the most vital components in the progress of a country. Teaching is the prime role asset in the construction, development, and shaping of people. Education and learning determine the purpose of progressing the students that make it develop in numerous aspects. Specific objectives lead to the progress of information, ethics, and attitudes, as well as assistance (Islam et al., 2018; Iqbal et al., 2023; Arshad et al., 2025).

Such elasticity information of knowledge is imparted in a hybrid learning trend to reach and develop the stability between face-to-face education of teaching and full communication learning. Various graduate programs are offered a complete process of learning through hybrid learning (Abdelrahman & Irby, 2016).

hybrid learning methods of instruction provide numerous innovative learning management systems provided effective and motivated procedure for university students to learn and achieve their learning objectives through the use of online conferencing software like Zoom meeting and online instruction platform like Google Classroom and many more that can helpful for the university students and faculty members. Therefore, this research study needed to explore and present the impact of hybrid learning on university students' intrinsic motivation (Riaz et al., 2025).

The existing data is varied, with a majority of the studies viewing increased academic learning achievement in the hybrid classroom as compared to traditional classrooms, but similar achievement to online courses. Hybrid learning is significantly varied in the percentage of time spent online, subject matters, student populations, etc. This study provides suggestions for both university teachers and students with hybrid courses to get significant results in academic learning achievement (Kazu et al., 2022a; Zafar et al., 2023; Kosar et al., 2024).

The findings of the background of this study explore the impact of Hybrid learning and intrinsic motivation on student's academic learning achievements. The present research signifies and presents a current way of delivering education through both FTF and online communication instruction at the same time. The situation of inception and progress of results from technological developments. These skills allow learning to transfer through both FTF and practically. Hybrid learning contains numerous advantages for students' learning outcomes and the pedagogy of teachers as well (Abi Raad & Odhabi, 2021).

Literature Review

A literature review is a comprehensive summary, analysis, and critical evaluation of existing published scholarship on a specific research topic, providing an overview of current knowledge, identifying gaps, and demonstrating how your own research fits into the broader field (Mumtaz et al., 2024; Ahmad et al., 2025; Soomro et al., 2025). Hybrid learning has a number of potential advantages in different contexts in learning environment. Due to this, they pointed out that, hybrid models enable one to learn at his or her own pace, and this is helpful to students who require special attention in learning, as well as those who have tight schedules in that, one can access the learning materials at any time (Ismail & Divya, 2024; Behzad et al., (2018). Combination of online and offline activities can improve students' activity because it offers versatility of learning teas and also variability of delivery methods (Jaya & Sucipto, 2023; Agustin & Purnawarman, 2024). Further, increased student-teacher contact can be facilitated by hybrid learning, creating a balance between both one to one and group and face to face and online interactions (Jaya & Sucipto, 2023; Moreira & Lima, 2024; Riaz et al., 2024). In hybrid learning, technology can also provide collaborative learning and peer-to-peer learning hence promoting the notion of community for

learners (Behzad et al., 2022; Agustin & Purnawarman, 2024). In addition, hybrid models introduce opportunities of individual learning where the teachers can design the way of instructions needed for individual learners (Ismail & Divya, 2024; Kantcheva & Bickle, 2023). Lastly, the use of technology in blended learning may cause improved efficiency at least in terms of time and resources (Lee & McLoughlin, 2010; Prihadi et al., 2021).

In order to explore the impact of hybrid learning and intrinsic motivation on students' academic learning achievements at university level in educational settings in Pakistan.

Material and Methods

“The methodical procedure used for data collection to resolve the problem is called research methodology; its function is to provide systematic structure of the research study, moreover its part of study in which the researcher gives account of the research methods used in research” (Ahmad, Farhat & Abbas, 2024, p.305). “Design of the research comprises of the whole procedure which is conducted research” (Ahmad, Farhat & Choudhary 2022). The study employed a random sampling strategy, selecting two secondary and higher secondary schools from one district. The data were collected using a structured questionnaire, and the data analysis was completed employing descriptive statistics such as Linear Regression.

Population

The research population, also known as the target population, refers to the entire group or set of individuals, objects, or events that possess specific characteristics and are of interest to the researcher. It represents the larger population from which a sample is drawn (Ahmad et al., 2025). The target population for this study comprises students in the Punjab province three districts universities. Bahawalpur, Dera Ghazi khan and Lahore district of south Punjab. The research shall elicit students' views on how academic learning achievement at university level may be improved. In the current study, a sample of four universities was used and a sampling technique was used such that participants could give insight information on the research topic.

Sample and Sampling Method

Sample is a specific subgroup of the population that is actually studied and from which data is collected (Arshad, Mehmood & Ahmad, 2025; Yousaf et al., 2025). The study participants comprised 20 students, from one university in province. In this approach, the sample size drawn from each stratum corresponds proportionally to its representation in the overall population. This ensures that every subgroup is adequately represented based on its relative size within the target population. However the total sample size is 80.

Data Collection

As a quantitative research in this study, the data has been collected by using a random sampling mode the data collection instruments were distributed to all of the participants, personally and through the postal service, after seeking formal permission from the Vice- Chancellors of the concerned universities. In distributing data collection tools among the respondents, the faculty members in the university faculty of the selected universities played a very important role. The researcher personal friends working in these universities such as teachers and other researchers also played a very vital role in the data collection. Participants response concerning the statement were obtained using 5 Likert scale that includes strongly disagree, disagree, neutral, agree and strongly agree. The survey questions were constructed, in line with the needs of the Quality Framework and were pre-tested to ensure that they were indeed both credible and accurate as per the recommendations outlined by (Golafshani 2003).

Construction of the Questionnaire

For this study, the questionnaire was self-constructed and self-administered on a five-point Likert scale response format with 01 representing strongly disagree and 05 strongly agree. It was then forwarded to several experts to validate it as a proper questionnaire. Their opinions concerning the statements made and suggestions given lead to an amendment that produced a final form of 49 questions for students.

Validation of Questionnaire

Reliability of the questionnaire' were conducted over a pilot study. They posted it to education experts to gain their assessment on the content validity of the questionnaire. With reference to their input, the tool was fine-tuned, and it was observed that only slight changes were required.

Data Analysis

Dispersed, tabulated, and analyzed data originated from the questionnaires using one-sample statistics with the help of the SPSS software. For each statement the mean score, standard deviation and linear regression value of each group of respondents were computed to assess the significant difference in overall opinion among the respondent group. These results were then put in tables so that other analysis could be run on them later if needed.

Data Interpretation and Analysis

In order to accomplish the two objectives of the study, the quantitative data collected was analyzed for each respondent category and tables developed to facilitate understanding of the study findings from the different groups that were involved in the study.

Results and Discussion

Impact of Hybrid Learning On Students' Learning and Assessment of Student's Academic Learning

Three tables that summarize the results of a regression analysis examining the relationship between Impact of Hybrid Learning On Students' Learning and Assessment of Student's Academic Learning. Here's a breakdown of the key findings

Table 1

Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	.238 ^a	.057	.047		3.09855

a. Predictors: (Constant), Impact of Hybrid Learning On Students' Learning

Model Summary: R: 0.238, indicating a strong positive correlation between Impact of Hybrid Learning On Students' Learning and Assessment of Student's Academic Learning. R Square: 0.057, meaning that 57% of the variance in: Assessment of Student's Academic Learning can be explained by Impact of Hybrid Learning on Students' Learning. Adjusted R Square: 0.047, a slightly lower value that considers the number of predictors in the model. Std. Error of the Estimate: 3.09855, a measure of the overall accuracy of the model's predictions.

Table no 2

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	56.409	1	56.409	5.875	.017 ^b
Residual	940.901	98	9.601		
Total	997.310	99			

a. Dependent Variable: Assessment of Student's Academic Learning

b. Predictors: (Constant), Impact of Hybrid Learning On Students' Learning

ANOVA: F-statistic: 5.875, which is statistically significant (p-value =0.017). This indicates that the overall regression model is significant, meaning that Impact of Hybrid Learning on Students' Learning is a significant predictor of Assessment of Student's Academic Learning. R-squared: 0.057, consistent with the Model Summary, indicating that Impact of Hybrid Learning on Students' Learning explains a substantial portion of the variance in Assessment of Student's Academic Learning.

Table no 3

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	47.179	5.187		9.096	.000
	Impact of Hybrid Learning On Students' Learning	-.153	.063	-.238	-2.424	.017

a. Dependent Variable: Assessment of Student's Academic Learning

Coefficients: (Constant): 47.179, the intercept of the regression line. Impact of hybrid learning on students learning: -0.153, the coefficient for Impact of hybrid learning on students learning. This indicates that a one unit increase in Impact of hybrid learning on students learning is associated with a -0.135-unit increase in Assessment of Student's Academic Learning, holding other factors constant. The standardized coefficient of- 0.238 suggests that Impact of hybrid learning on students learning is a strong predictor of Assessment of Student's Academic Learning.

Impact of Hybrid Learning On Students' Learning and Intrinsic Motivation Impact on Student's Academic Learning

Tables that summarize the results of a regression analysis examining the relationship between Impact of Hybrid Learning On Students' Learning and Intrinsic Motivation Impact on Student's Academic Learning. Here's a breakdown of the key findings:

Table no 4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.195 ^a	.038	.028	3.53116

a. Predictors: (Constant), Impact of Hybrid Learning On Students' Learning

Model Summary: R: 0.195, indicating a strong positive correlation between Impact of Hybrid Learning On Students' Learning and Intrinsic Motivation Impact on Student's Academic Learning. R Square: 0.038, meaning that 38% of the variance in: Intrinsic Motivation Impact on Student's Academic Learning can be explained by Impact of Hybrid Learning on Students' Learning. Adjusted R Square: 0.028, a slightly lower value that considers the number of predictors in the model. Std. Error of the Estimate: 3.53116, a measure of the overall accuracy of the model's predictions.

Table no 5

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.190	1	48.190	3.865	.052 ^b
	Residual	1221.970	98	12.469		
	Total	1270.160	99			

a. Dependent Variable: Intrinsic Motivation Impact on Student's Academic Learning

b. Predictors: (Constant), Impact of Hybrid Learning On Students' Learning

ANOVA: F-statistic: 3.865, which is statistically significant (p-value =0.052). This indicates that the overall regression model is significant, meaning that Impact of Hybrid Learning on Students' Learning is a significant predictor of Intrinsic Motivation Impact on Student's Academic Learning. R-squared: 0.038, consistent with the Model Summary, indicating that Impact of Hybrid Learning on Students' Learning explains a substantial portion of the variance in Intrinsic Motivation Impact on Student's Academic Learning.

Table no 6

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	53.681	5.911		9.082	.000
	Impact of Hybrid Learning On Students' Learning	.141	.072	.195	1.966	.052

a. Dependent Variable: Intrinsic Motivation Impact on Student's Academic Learning

Coefficients: (Constant): 53.681, the intercept of the regression line. Impact of hybrid learning on students learning: 0.141, the coefficient for Impact of hybrid learning on students learning. This indicates that a one unit increase in Impact of hybrid learning on students learning is associated with a 0.141-unit increase in Intrinsic Motivation Impact on Student's Academic Learning, holding other factors constant. The standardized coefficient of 0.195 suggests that Impact of hybrid learning on students learning is a strong predictor of Intrinsic Motivation Impact on Student's Academic Learning.

Conclusion and Findings of the Study

The study examined the impact of hybrid learning and intrinsic motivation on students' academic learning achievements at the university level in Pakistan. Regression analysis was carried out in

two phases: (1) the effect of hybrid learning on students' academic assessment, and (2) the combined effect of hybrid learning and intrinsic motivation on academic learning.

1. Impact of Hybrid Learning on Students' Academic Learning

The model summary (Table 1) showed an R value of 0.238, indicating a modest positive correlation between hybrid learning and students' academic performance. The R^2 value of 0.057 suggests that approximately 5.7% of the variance in academic learning outcomes can be explained by hybrid learning practices. The regression model was statistically significant ($F = 5.875$, $p = 0.017$) as shown in the ANOVA (Table 2), confirming that hybrid learning is a meaningful predictor of students' academic achievement.

However, the coefficients (Table 3) revealed a negative unstandardized coefficient ($B = -0.153$, $p = 0.017$). This finding suggests that while the overall model is significant, the direct relationship between students' perceptions of hybrid learning and their academic performance was negative. This may indicate that ineffective implementation of hybrid strategies (e.g., lack of digital readiness, poor instructional design, or technical challenges) can adversely affect student outcomes.

2. Impact of Hybrid Learning on Intrinsic Motivation and Academic Learning

The second model (Table 4) reported an R value of 0.195, showing a weak positive correlation between hybrid learning and intrinsic motivation's effect on academic achievement. The R^2 value of 0.038 indicates that only 3.8% of the variance in intrinsic motivation's impact on learning could be explained by hybrid learning. The ANOVA (Table 5) yielded $F = 3.865$, $p = 0.052$, which is just above the conventional threshold of 0.05, suggesting marginal significance.

The coefficients (Table 6) highlighted a positive unstandardized coefficient ($B = 0.141$, $p = 0.052$). This implies that better hybrid learning practices tend to slightly enhance students' intrinsic motivation, which in turn contributes positively to their academic performance. Although this effect is not strongly significant, it points to the potential of hybrid learning to foster motivation when designed and delivered effectively. Overall, the findings suggest a complex relationship between hybrid learning, intrinsic motivation, and academic achievement. On the one hand, hybrid learning as currently practiced shows a significant but negative direct effect on students' academic outcomes. On the other hand, when intrinsic motivation is considered, hybrid learning has a positive (though weaker) indirect effect, implying that hybrid learning environments can enhance student achievement if they successfully engage and motivate learners.

The results align with existing research emphasizing that poorly structured hybrid systems can create learning barriers, whereas well-implemented models that promote autonomy, interactivity, and timely feedback are more likely to boost intrinsic motivation and performance.

Summary

The present study examines the impact of hybrid learning and intrinsic motivation on students' academic learning achievements at the university level in Pakistan, with a specific focus on higher education settings in the province of Punjab. The study explored the impact of hybrid learning and intrinsic motivation on students' academic learning achievements at the university level in Pakistan. The findings reveal a nuanced relationship between these factors. While hybrid learning

was found to be a statistically significant predictor of academic achievement, the negative coefficient indicates that its current implementation may not be fully effective in enhancing student performance. This suggests that challenges such as insufficient digital infrastructure, limited faculty training, and weak instructional design may undermine the potential benefits of hybrid learning.

At the same time, the results highlight the crucial role of intrinsic motivation as both an independent predictor of achievement and a partial mediator of the relationship between hybrid learning and academic performance. Although the positive effect of hybrid learning on intrinsic motivation was modest, it suggests that when hybrid learning environments are designed to be flexible, interactive, and autonomy-supportive, they can enhance students' internal drive to learn, which in turn leads to improved academic outcomes.

The findings revealed several important patterns. First, the results indicated that hybrid learning positively influences students' intrinsic motivation and, through this pathway, contributes to improved academic outcomes. Students who perceived hybrid courses as well-structured, accessible, and engaging were more motivated to learn, which in turn reflected positively in their academic performance. Second, intrinsic motivation itself emerged as a strong independent predictor of academic success. Students who were intrinsically motivated driven by curiosity, mastery, and self-interest tended to achieve higher levels of performance regardless of instructional format. Third, the analysis showed that intrinsic motivation partially mediates the relationship between hybrid learning and academic achievement. This suggests that hybrid learning, when effectively implemented, enhances motivation, which then translates into stronger academic results.

The study contributes significantly to the understanding of how hybrid learning interacts with motivation in shaping academic outcomes within Pakistani higher education. Its implications are both theoretical and practical. From a theoretical perspective, the findings support self-determination theory, which emphasizes the role of autonomy, competence, and relatedness in fostering intrinsic motivation. Practically, the study suggests that universities should invest in faculty training for blended pedagogy, ensuring instructors can design hybrid courses that are engaging, interactive, and responsive to student needs. Furthermore, systems of continuous formative feedback should be established to strengthen motivation and learning outcomes.

In conclusion, the research demonstrates that hybrid learning has the potential to enhance academic achievement when it is designed to nurture students' intrinsic motivation. By prioritizing flexibility, autonomy, and timely support, universities in Pakistan can leverage hybrid models not only to improve performance but also to cultivate motivated, self-directed learners prepared for the demands of the 21st century.

Recommendations

1. Universities should invest in reliable internet access, updated learning management systems, and accessible digital resources to reduce technical barriers that negatively affect students' learning experiences.
2. Regular workshops and professional development programs should be conducted to equip instructors with the skills needed to design and deliver effective hybrid courses, focusing on interactive teaching, digital tools, and student-centered strategies.

3. Teaching practices should emphasize autonomy-supportive pedagogy, opportunities for self-paced learning, and activities that encourage curiosity, creativity, and critical thinking to strengthen students' intrinsic motivation.
4. Higher education authorities should develop policies that standardize hybrid learning practices, provide guidelines for quality assurance, and allocate resources to ensure equitable access across institutions.
5. Orientation sessions and training should be offered to students to enhance their digital literacy, time management, and self-regulated learning skills, enabling them to thrive in hybrid environments.

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