



RESEARCH PAPER

The Mediating Role of Academician Interaction in the Relationship between Psychosocial Learning Environment, Social Media Use, and Student Engagement in Higher Education

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ABSTRACT

This study intends to investigate the mediating role of academic interactions in psychosocial learning environments, social media use, and student engagement. Multifaceted constructs like psychosocial learning environment, student engagement, and academic interactions that influence learning have also been lately manifested. However, the concept of academic interactions and social media use within the psychosocial learning environment and student engagement in Pakistan's higher education context is obscure. Utilizing the correlational design, 385 graduate students were randomly selected to examine the relationship between the psychosocial learning environment, social media use, and student engagement among university students from Rawalpindi and Islamabad. The findings indicated a negative relationship between the psychosocial learning environment and student engagement and a positive association between social media use and student engagement among university students. The study offered a valuable vision for educators and policymakers to implement strategies that boost the quality of interfaces between students and educators.

KEYWORDS Learning Environment, Social Media Use, Student Engagement, Higher Education, Teacher-Student Interaction

Introduction

The combination of technology in education has intensely rationalized educational practices. The advent of smart equipment, e-learning platforms, and social media has deeply altered the dynamics of teacher-student relationships, instructional methods, and classroom interactions (Calvo et al., 2020; Caniglia et al., 2018; Muzaffar, et al., 2019 Asghar, et. al., 2026). These advancements are important for adopting an effective and engaging learning atmosphere that can inspire and encourage learners (Meng et al., 2023). A multifaceted concept that covers the psychological, social, cultural, and physical setting in which learning occurs, experiences, and expectations are co-created among its contributors is known as the psychosocial learning environment (Rusticus et al., 2020). Student engagement is what students dedicate to positive social, cognitive, emotional, and behavioral magnitudes of learning and their classroom and institutional contribution as pivotal agents.

Globally, there were 4.95 billion users as of January 2024 (Statista, 2024). Among the most widely used social media spots are Facebook, YouTube, WhatsApp Messenger, Instagram, TikTok, WeChat, and Telegram (Statista, 2024; Salam, et. al., 2024). Their effect has spread beyond the realm of education and affected not just our way of life, politics, and communication. Dragseth (2020) notes that interactive media, an extremely powerful tool of communication and collaboration, enhances student engagement by way of

interaction, knowledge sharing, and feedback in real-time. The inclusion of social media in education helps fill the communication gap between students and academicians, creating active engagement and a feeling of belonging (Ansari & Khan, 2020). Social media is making its record on academia as it unlocks new possibilities for academics to publicize their work and participate with an extensive audience, including the public, stakeholders like students and practitioners, as well as other academics within and outside their discipline (Carrigan 2019). Dragseth (2020) claims that using social media in the classroom has been shown to increase peer networks, social digital proficiency, and student engagement. Academic interactions, including those between peers and teachers, play a critical role in forming the psychosocial learning environment in higher education. A supportive and involved environment where students feel appreciated and driven is fostered by positive interactions between teachers and students, and this improves both academic performance and personal development. Teachers who connect with their students through good communication, prompt responses, and encouragement, assist students in developing academic confidence and emotional stability (Hamre & Pianta, 2006).

Literature Review

Studies demonstrate a significant relationship between psychosocial environments, academic satisfaction, and completion of studies and highlight the need to address various factors that play their role in student dropout rates within higher education institutions (Grøtan et al., 2019; Lipson & Eisenberg, 2018; Truta et al., 2018; Muzaffar, et. al., 2020). Studies advocate that student engagement symbolizes anticipated learning outcomes and, consequently, a holistic measure of student academic achievement. It has been deliberated a key procedure that catalyzes retention, determination, achievement, deep and lifelong learning, curricular significance, increased citizenship behavior enriched institutional reputation, and work readiness (Bowden et al., 2019; Goldspink & Foster, 2013; Green, 2018). Studies indicated that social media helps people develop project-related skills as well as other essential 21st-century abilities like cooperation and communication (Alshuaibi et al., 2018).

Studies that use online media as a platform for supportive learning in higher education settings have also discovered that there are positive associations with the following: peer and teacher interaction, virtual exchange of information, student engagement, cooperative learning, reductions in social media difficulties, students' goal to use social media, and virtual knowledge exchange (Ansari & Khan, 2020; Social media is being used by more instructors and students in higher education for both personal and academic reasons (Sabah, 2023). Lastly, Social media encourages communication and cooperation between teachers and students, which enhances learning and performance when used as a teaching tool (Sarwar et al., 2019; Asghar, et. al., 2025). Peer Interaction through the practice of social media offers possibilities for community building amid learners (Abraham et al., 2019; Liu et al., 2011). Other researchers stated that the availability of quick and effective communication technology is the primary factor that promotes the usage of social media for educational commitments (Akçayır, 2017).

This study, therefore, intends to address such gaps in knowledge as well as the limitations of the model by Ansari and Khan (2020), by investigating the result of the psychosocial learning environment on social media utilization and engagement of students with academic interaction as a mediating variable. This creates more understanding of how psychosocial and academic factors together determine outcomes for students in higher education. The research has shed light on devising effective

strategies for building and sustaining a nurturing educational environment. Moreover, the findings are especially relevant to educators and policymakers in developing countries such as Pakistan, which has cultural and institutional barriers restricting the effective utilization of technologies and social media in education (Moges et al., 2023). This research also fills an understanding gap about how multidimensional constructs, like psychosocial learning environment, social media usage, and academician interaction, interact in influencing students' engagement and learning outcomes.

Conceptual Framework

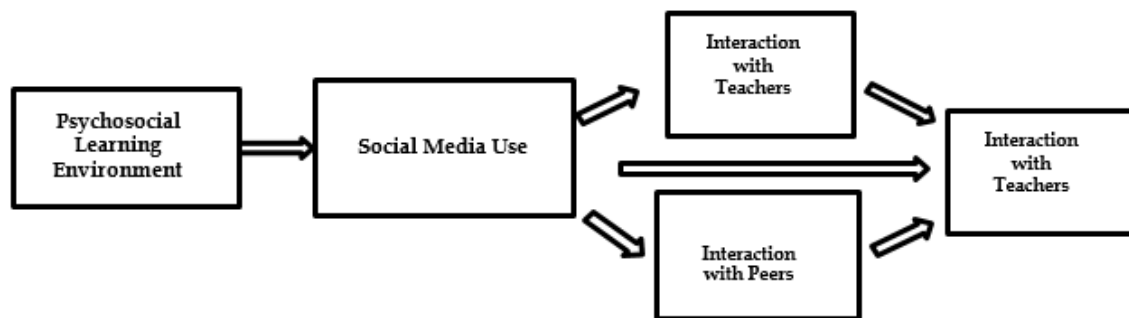


Figure 1 Proposed Conceptual Model

Material and Methods

The current study employed a correlational, cross-sectional research design, utilizing a quantitative approach. Data collection was conducted using a survey method. The study was conducted on 348 undergraduate and postgraduate university students from various institutes and universities in Rawalpindi and Islamabad. The sample included (N=151) females and (N=234) with the age range of (18-53) years. A random sampling technique was utilized for the collection of the sample. Participants were instructed about the informed consent procedure, which defined the study's goals, and the voluntary character of their participation, assured their data's privacy, and reinforced their rights before the questionnaire was given out. To maintain data quality over the course, regular assessments and follow-up correspondence have been set up. Lastly, the data assembled were protected with strict procedures to be totally in line with ethical principles ensuring the anonymity and privacy of the subjects.

Measures

Psychosocial Learning Environment Scale

The instrument was developed by Frostad et al. (2015) which inspects the psychological and social surroundings of groups in the classroom that offer experiences. It embodies the psychosocial learning environment through four interrelated classifications: intention to quit, which examines the learners' aspiration to cease their schooling due to dissatisfaction with the learning environment; solitude, which assesses feelings of social isolation and connectedness with the surroundings; learning-related sentiments that incorporate emotional responses, such as feeling engaged, pleased, or irritated with the learning activities; and test-related emotions that consider feelings such as frustration, confidence, or anxiety in evaluative circumstances. The instrument is made up of 30 items rated on a 4- point Likert Scale (1=Totally Disagree and 4=Totally

Agree), with higher scores on an item demonstrating a more substantial psychosocial challenge.

Student Engagement Scale

It was intended to capture the active engagement and contribution of pupils in different parts of their educational experience. It designates seven dimensions: academic engagement, which evaluates student-state involvement in educational responsibilities and studies; online engagement, measuring active involvement in virtual learning tasks; cognitive engagement, reflecting the depth of thinking effort in learning; social engagement with teachers, measuring the collaborations and relationships that exist with teachers; social engagement with peers, focusing on collaboration and interaction amid students; beyond class engagement, evaluating the use of activities that promote learning beyond the classroom; and lastly, affective commitment, which reviews into students' emotional attachments with learning and other educational experiences. The scale has 28 items, rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) in which higher scores indicate a higher level of students' engagement in those dimensions.

Social media Use Scale

The Social Media Use Scale adapted from Gerald et al. (2013) assesses the use of social media for educational commitments. The scale encompasses five dimensions: i) social media learning, which assesses the use of platform to educational content; ii) social learning communications that assess interactions enabled through social media between students and teachers; iii) interactive learning represented by engagement in collaborative and participatory learning activities; iv) information seeking, measuring extent of students using social media to search for academic information; and v) information sharing that covers dispersal of knowledge and ideas through social media. The scale items are rated using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) whereby The higher the score indicates the greater extent to which students utilize social media for educational purposes.

Academician Interaction Scale

The Academician Interaction Scale constructed by McMillan and Hwang (2002) is meant to evaluate the quality and frequency of interactions that occur within teaching and learning environments. The scale assesses the dynamics that exist among the students and instructors, as well as between one another in academic settings. On a 7-point Likert scale, subjects responded directly with ratings about the development and quality of interactions and communication they sometimes received. A high score shows increased frequency and quality of connections among students and teachers and the students themselves.

Analytic Strategy

To begin this research, we employed SPSS software to conduct descriptive statistics and assess psychometric properties. This foundational step will enable us to test the study's hypotheses through Pearson's correlation and mediation analysis, enhancing the clarity and depth of our findings.

Results and Discussion

Table 1
Cronbach's Alpha and Descriptive Statistics of Study Measures and Subscales used in the main study (N=385)

Variables	<i>a</i>	<i>M</i>	<i>SD</i>	<i>Potential</i>	<i>Actual</i>	<i>Skew</i>	<i>K</i>
Academic Interaction	.83	41.32	8.67	7-54	15-56	-.99	.37
Interaction with Peers	.76	19.89	5.10	7-28	4-28	-.77	-.22
Interaction with Teacher	.88	21.42	5.22	7-28	4-28	-1.23	.73
student engagement	.90	142.24	22.77	7-196	77-192	-.48	-.33
Psychological Learning Environment	.93	48.99	15.31	4-120	30-120	1.03	.99
Social media	.94	110.74	16.83	5-150	68-150	-.18	-.04

Table 1 presents the established psychometric properties of the scales. Internal consistency was estimated using Cronbach's alpha reliability coefficients. All variables showed good to excellent reliability, ranging from $\alpha = .76$ (Interaction with Peers) to $\alpha = .94$ (Social Media). Student Engagement ($\alpha = .90$, $M = 142.24$, $SD = 22.77$) and Psychological Learning Environment ($\alpha = .93$, $M = 48.99$, $SD = 15.31$) showed strong internal consistency. Social Media usage ($\alpha = .94$, $M = 110.74$, $SD = 16.83$) also exhibited high reliability. Moreover, Academic Interaction ($\alpha = .83$) and Interaction with Teacher ($\alpha = .88$) had slightly negative skewness, indicating higher reported interactions.

Table 2
Pearson Product Moment Correlation Matrix Among Study Variables(N=385)

S.no	1	2	3	4	5
Psychosocial learning Environment	-				
1					
Peer interaction	-.11*	-			
2					
Teacher interaction	-.08	.41**	-		
3					
Student engagement	-.10*	.23**	.53**	-	
4					
Social Media use	-.19**	.27**	.46**	.59**	-
5					

Table 2 reveals the correlation values among study variables. The psychological learning environment has a significant negative correlation with social media ($r = -.19$), interaction with peers ($r = -.11$), interaction with teacher ($r = -.08$) and student engagement ($r = -.10$). Social media use showed a positive correlation with interaction with peers ($r = .27$) and interaction with teachers ($r = .46$). The results showed that interaction with peers ($r = .23$) and interaction with teachers ($r = .53$) has significant positive correlation with student engagement. Moreover, there is a significant positive correlation between social media use and student engagement ($r = .59$).

Table 3
Mediation by Teacher Interaction and Peer Interaction between Psychosocial Learning Environment and Student Engagement (N=385)

Variables	Model 1 B	Model 2 B	95% CI
Mediation by Teacher Interaction			
Constant	23.29	98.13	[86.12, 110.05]
Psychosocial Learning Environment	-0.03*	-0.08	[-0.21, 0.04]
Teacher Interaction		2.31**	[1.93, 2.68]

R ²	0.10	0.29	
F	2.79	77.21**	
ΔR ²		0.284	
ΔF		149.014***	
Mediation by Peer Interaction			
Constant	22.33	129.81	[116.11, 143.51]
Psychosocial Learning Environment	-0.04*	-0.11	[-0.26, 0.03]
Peer Interaction		0.99**	[0.55, 1.43]
R ²	0.01	0.06	
F	4.98*	11.85**	
ΔR ²		0.07	
ΔF		19.160	

Table 3 indicates that in Model 1, the Psychosocial Learning Environment had a small but significant negative effect on Student Engagement ($B = -0.03$, $p < .05$). When Teacher Interaction was included in Model 2, the direct effect of the Psychosocial Learning Environment on Student Engagement decreased to -0.08 (95% CI [-0.21, 0.04]), suggesting partial mediation. Similarly, in Model 2, the Psychosocial Learning Environment had a significant negative effect on Student Engagement ($B = -0.04$, $p < .05$). When Peer Interaction was included in Model 2, the direct effect decreased to -0.11 (95% CI [-0.26, 0.03]), indicating partial mediation.

Table 4
Mediation by Teacher Interaction and Peer Interaction between Psychosocial Learning Environment and Student Engagement (N=385)

Variables	Model 1 B	Model 2 B	95% CI
Mediation by Peer Interaction			
Constant	22.33	105.71	[95.73, 115.68]
Psychosocial Learning Environment	-0.04*	-0.18	[-0.29, -0.07]
Peer Interaction		-0.84	[0.50, 1.15]
R ²	0.10	0.10	
F	4.98	20.93	
ΔR ²		0.23	
ΔF		98.595***	
Mediation by Teacher Interaction			
Constant	23.29	90.65	[81.37, 99.92]
Psychosocial Learning Environment	-0.03*	-0.17	[1.16, 1.73]
Teacher Interaction		1.45**	[-0.27, -0.07]
R ²	0.10	0.23	
F	2.79	58.31**	
ΔR ²		0.094	
ΔF		26.53***	

Peer Interaction does not significantly mediate the relationship. The R^2 remained at 0.10, showing no increase in explanatory power, though the change in R^2 ($\Delta R^2 = 0.23$) and significant ΔF (98.595, $p < .001$) indicate some model improvement. When Teacher Interaction was added in Model 2, the direct effect became more negative ($B = -0.17$, 95% CI [1.16, 1.73]), and Teacher Interaction significantly predicted Social Media Use ($B = 1.45$, $p < .01$).

Discussion

The current study was a cross-sectional and correlational research design that aimed to examine the association amongst the psychological learning environment, social media, and student engagement in higher education contexts. Moreover, this study intended to see the mediating effect of academic interaction (Interaction with Peers and Teachers) between study variables among university students.

The first hypothesis (H1) of the study proposed that there would be a significant relationship between the psychological learning environment and student engagement among university students. However, the result showed a negative correlation between the psychological learning surroundings and student commitment suggesting that as the perception of students about the psychological learning environment increases, their engagement level decreases slightly. This finding is opposite to the existing literature which showed that a positive psychological learning environment enhances student engagement (Fredericks et al., 2024; Wang & Holcombe, 2010). For example, a study by Shank et al (2024) focuses on increased participation and motivation in academic activities. This research study concludes that some extents of the psychological learning environment such as high pressure to live up to positive expectations may unknowingly suppress the student's engagement.

The second hypothesis (H2) of the study proposed the relationship of having a meaningful connection between students' utilization of social media and the engagement of the students and that there was a supporting result found out in the present study concerning showing a significantly positive correlation that exists between student engagement and students' social media use, which means greater social media utilization is accompanied by increased academic activity engagement. Studies indicated social media provides an opportunity for the exchange and interaction of information with students, which also is supportive of the principles of participatory learning (Hew and Cheung, 2014).

The (H3) of the study pointed that interaction with teachers and interaction with peers would mediate the association amid the psychological learning environment and student engagement. The mediation analysis showed that there is a negative direct effect of the psychological learning background on student engagement. This suggests that a positive psychological learning environment did not positively link to pupil engagement, potentially reflecting the underlying factors within the environment that discourage engagement. In the later stage, it was evident that interaction with teachers showed a substantial positive impact portraying the vital role in successful student engagement. On the other hand, engagement with class fellows did not determine any impact. By adding interaction with peers and interaction with teachers in the model, the analysis showed that interaction with teachers has a significant positive effect showing its important role in successful student engagement. These findings underscored the implication of teacher contribution in imaginative psychological learning settings that promote student involvement, approving earlier studies that concentrate on the crucial function of teacher-student connections in attaining educational success (Wang & Eccles, 2012).

Lastly, Hypothesis 4 stated that academician interaction would mediate the association among psychosocial learning environments. The exploration has shown that integrating peer and teacher collaboration significantly enhanced student engagement and that teacher interface plays a crucial role in this regard. However, peer interaction

had no discernible impact, suggesting that peer interaction might not be sufficient on its own to upsurge engagement. The results were inclined with the previous studies which showed the critical impact of teacher-student connections in academic success (Wang and Eccles, 2012) and highlighted the value of teacher involvement in pioneering psychological learning settings that stimulate student engagement.

Conclusion

The study examined the interconnections among the psychological learning environment, social media utilization, academic interactions, and student engagement. It highlighted the focal role of interactions with educators and peers in improving student engagement, principally in the context of social media. This research demonstrates the obligation for educational institutions to substitute a compassionate psychological environment and to bind the capabilities of social media to augment student engagement and interface. By implementing strategies that boost the quality of interfaces between students and educators, institutions can endorse advanced levels of student engagement, which may result in upgraded academic performance. Furthermore, the results underline the significance of continuous evaluation and adaptation of educational practices to efficiently address the progressing needs of students in the digital age. This study improves the prevailing body of literature by providing empirical suggestions on the associations among these factors and offers practical insights for educators and policymakers pursuing to enrich student engagement across various learning environments.

Recommendations

Employing the study's findings, a number of remarkable suggestions can greatly recover student involvement through the creation of a psychologically conducive learning environment and the effective usage of social media. Higher institutions should take the inventiveness to create inclusive classroom environments that substitute productive relationships between teachers and students. Additionally, putting in place proficient development seminars for teachers will provide them tools they need to actively inspire student involvement and teamwork, which will improve the educational understanding for all parties. Social media tools must be assimilated into the curriculum in order to improve student collaboration and communication. To guarantee efficient use of social media, which will endorse academic exchanges and foster a strong sense of community, schools must offer thorough training to both teachers and students.

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