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Multilevel Variability in Student Engagement across Universities, Departments, Academic Years, and Residential Contexts

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ABSTRACT

Student academic success and talent cultivation in higher education is firmly reinforced as a high priority that depends on a multitude of factors: personal, institutional, contextual, and social dimensions. This study intends to investigate multilevel variability in student engagement, streamlining the role of university-type, departments/schools, students' year of study, and residential status. A causal-comparative research design was employed to collect the data from 617 university students enrolled in three public-sector universities of Sindh province of Pakistan through a questionnaire by applying a stratified random sampling technique. Results reveal startlingly reduced levels of students' engagement. In academic activities, behavioral engagement was relatively greater, followed by emotional engagement, cognitive engagement, and social engagement. Moreover, multilevel variability in student engagement was found across universities, departments, academic years, and residential contexts. Students from the University of Sindh exhibited substantially greater levels of engagement than the students who belong to the Shah Abdul Latif University and GC University Hyderabad. Department-wise assessments reveal that learners registered in Faculty/Department of Education described superior engagement than the students of Faculty of Natural Science, Faculty of Arts and Humanities, Departments of Commerce and Business Administration, Faculty of Social Sciences, and Departments of Computer Science, IT, and Mathematics, with the lowermost level of engagement witnessed among the students of Computer Science, IT, and Mathematics Departments. Academic year differences showed that sophomore students were found to experience greater engagement than freshmen, juniors, and seniors. Residence status appeared to be an important element, with learners living off-campus describing greater engagement in comparison to their on-campus counterparts. For student success, numerous initiatives are needed that focus on enhancing the students' academic experiences. The government should develop a framework for quality assurance that monitors student engagement activities, encourages the use of student-oriented and evidence-based pedagogical strategies, improves boarding facilities, and addresses the specific needs and challenges of freshmen and senior students.

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INTRODUCTION

Higher education institutions (HEIs) face various and complex challenges; however, equitable access to learning opportunities, teaching quality, student retention, and successful graduation are among the major concerns. These concerns encapsulate the concept of student engagement, which, according to researchers, is a main protective factor for students' accomplishments in HEIs and reflects their learning experiences (Pepple, 2022). This carries close linkage with main outcomes, for instance, academic accomplishment, retention, and satisfaction (Acosta-Gonzaga, 2023; Al-Obaydi et al., 2023; Prananto et al., 2025). The current expectations from HEIs are not based on their capability for the delivery of knowledge and information, but their capacity for the production of graduates trained in critical thinking, resourcefulness, and adaptability (Marginson, 2016; Zwaan, 2025). In higher education, engagement signifies the energetic and effortful investment by learners in their curricular and co-curricular activities, and symbolizes "how students act, feel, and think" in the learning environment (Hu & Kuh, 2002; Kuh, 2009; Kahu, 2013). Under the current globalized environment, the impact of educational engagement influences not only students' personal accomplishment but also affects wider socio-economic areas (Prananto et al., 2025). Engaged learners feel capable of handling the intricacies of the current complex world, to be capable, knowledgeable, and professionally

ready for meaningful contribution (Al-Obaydi et al., 2023). HEIs highlight and foster an aura of educational engagement and, in turn, enhance knowledge, foster social progress, and novelty (Biggs et al., 2022).

Based on the current advances, higher education systems globally have consistently emphasized the importance of learner-oriented instructional approaches, which tend to produce active students who are capable of performing group tasks (Kuh, 2009; Biggs et al., 2022). Therefore, HEIs are faced with a mounting burden to plan educational environments that assist in educational accomplishments and foster persistent engagement among students. Among the most influential aspects, institutional elements are important in determining the engagement experiences of learners. Policy choices and executive decisions have a direct impact on institutional variables, for instance, university context, values practiced at schools/ departments, boarding facilities, and educational advancement. Studies have argued that substantial variations in students' engagement levels are caused by diversity in HEIs and schools/ departments (Pascarella & Terenzini, 2005; Umbach & Kuh, 2006), which may include HEI size, infrastructure, and instructional practices.

In a wider perspective, the construct of engagement has a close connection with frameworks of institutional quality assurance. OECD (2025) and UNESCO (2025) emphasize that to enhance educational outcomes and ensure the durability of higher education systems, students' engagement level should be enhanced. This applies to underdeveloped states like Pakistan, where HEIs are experiencing fast growth and transformation. Nevertheless, there are concerns regarding instructional quality, student involvement, and job preparedness (Zwaan, 2025). Researchers, for instance, Hammad and Naseem (2022) contended that Pakistani HEIs, for most learners, are partially successful in supporting a level of academic resilience and students' engagement, ensuing inactive learning experiences. Considering these issues in Pakistan's higher education, investigating how institutional aspects influence students' engagement becomes crucial. In-depth knowledge of these underlying forces in higher education may offer a constructive understanding to policymakers and educationalists.

Research Gap and Rationale of the Study

Although there is no question about the indispensability of institutional elements in determining students' engagement, there are substantial gaps in current literature, especially with reference to underdeveloped states, for instance, Pakistan. The major gap pertains to observing institutional variables independently instead of studying their collective influences. For example, researchers center their attention individually on HEI characteristics, practices at schools/ departments, or boarding facilities with no intention of investigating the interactive impact of these elements on student engagement (Pascarella & Terenzini, 2005). Another significant gap pertains to reduced interest in exploring intra-institutional variations, especially at the school/ department level. Though studies have emphasized the significance of major and school/ department, there is a need for empirical research that thoroughly evaluates student engagement with reference to schools/ departments in the same HEI. It is especially true in the case of Pakistan, where diverse instructional practices and available resources across schools/ departments may substantially influence students' learning experiences.

Furthermore, there is paltry research on the role of boarding facilities on students' engagement with reference to HEIs in Pakistan. Although international investigations have concluded about the useful effects of university residence for students, Pakistani researchers have hardly attempted to examine how boarding facilities affect students' engagement. Moreover, a narrow number of studies have examined how student engagement advances across various steps of the educational journey. Though a number of investigations have discovered freshmen experiences, the research on how engagement evolves from freshmen to seniors in Pakistan's HEIs is restricted. This research gap must be filled, keeping in view the prospective effects for student retention and accomplishment.

Moreover, another important gap pertains to the dearth of a wide-ranging theoretical and empirical framework that integrates numerous institutional elements. Previous research relies on single-variable investigations that may fall victim to oversimplification. According to Kahu (2013), student engagement is a multidimensional variable impacted by a blend of institutional and psycho-social dynamics, requiring an all-inclusive approach. Existing studies about student engagement are established on Western backgrounds, requiring verification regarding their pertinence to underdeveloped states. Hence, the current investigation aims to address the mentioned gaps by investigating the influence of major institutional elements: university variations, department/school variances, students' housing context, and study year on students' engagement in Pakistani HEIs. We adopt a thorough and contextual approach and aim to make an insightful contribution to the existing literature for refining learning activities and policies in the Pakistani context.

Theoretical Framework

According to Kahu (2013), student engagement is a psychosocial notion. Scholars have examined the fundamentals of students' engagement, investigating constructs, for instance, students' involvement (Astin, 1985), socio-academic assimilation (Tinto, 1993), students' interactions and outcomes (Pascarella & Terenzini, 2005), and students' engagement (Kuh, 2009). In order to recognize the effects of institutional factors on students' engagement, the current investigation builds on three main theoretical approaches: the Theory of Student Involvement by Astin

(1985), the Model of Student Integration (Tinto, 1993), and the Institutional Theory of Student Engagement by Kuh (2009). Astin (1985) argues that the investment of both physical and mental energies for educational experiences by students is useful for their advancement and learning. This theoretical approach highlights personal efforts of students and recognizes the importance of the environment around HEIs in limiting or enhancing student involvement. Institutional elements, for instance, students' boarding facilities, teacher-interaction, and on-campus environment, substantially impact student involvement (Astin, 1985). Current research has advocated this view, indicating that institutional elements influence student engagement (Pascarella & Terenzini, 2005). The model of Student Integration by Tinto (1993) helps researchers understand the construct of student engagement. He contended that student retention and accomplishment are dependent on their capability to socialize at the HEI. Institutional factors, for instance, department/school environment, peer collaboration, and university social services, are important in enabling this social integration. Tinto's model emphasizes the significance of classroom experience and institutional dedication in advocating for students' engagement. The Institutional Theory of Student Engagement by Kuh (2009) focuses on students' amount of time and efforts devoted to purposeful academic activities, which is closely linked with learning outcomes, persistence, and academic achievements of students. This theory recognizes academic challenge, mutual learning, teacher–student interaction, and inclusive and collaborative campus environments (Zhao & Kuh, 2004; Kuh et al., 2006; Kuh, 2009). In light of all these pioneering theoretical approaches, Kahu (2013) offered a theoretical framework integrating structural and psycho-social impacts on student engagement.

In Pakistan, these theoretical backgrounds are especially appropriate because of the multifaceted interaction of institutional, socio-economic, and cultural considerations. Through the integration of the proposed theoretical approaches, the current investigation theorizes student engagement as an effect of diverse socio-cultural environments at HEIs, which form prospects for students' involvement, integration, and participation. The submitted framework supplies a broad foundation for investigating how students' engagement is influenced by various elements due to variations in terms of university-level, department/school, boarding status, and study year.

Hypotheses Development for Institutional Influences on Student Engagement

Student engagement refers to the energetic and effortful investment by learners in their curricular and co-curricular activities, influencing the anticipated results (Hu & Kuh, 2002). Another scholar defined engagement as the use of energy, time, and resources for increasing knowledge at HEIs (Krause & Coates, 2008). These characterizations pertaining to students' engagement attend both curricular and co-curricular activities. This investigation defines the notion of students' engagement as the qualitative and quantitative aspects of learners' behavioral, emotional, cognitive, and social responses to the educational process, and curricular and co-curricular endeavors in order to attain fruitful academic performance. In comparison to other levels of education, such as junior and senior students' engagement in HE, the impact of out-of-the-classroom life on students' progress.

Existing research suggests that students' engagement is the product of two factors: students' personal attributes and institutional atmosphere (Kahu, 2013; Zepke, 2018). Apart from other determinants, institutional features, which include university size, location, major, study year, departmental/school culture, boarding facilities, and educational development, either enhance or impede student involvement in the educational process (Astin, 1991). Among the most important institution-related factors affecting students' engagement is university-level variation. Studies indicate that variance among HEIs regarding resources, organizational setting, pedagogical methods, and mission of HEI may cause variance in students' levels of engagement. Research submits that HEIs vary considerably as they are of different types; simultaneously, similar kinds of HEIs also vary (Astin, 1991). The findings of Pascarella and Terenzini (2005) suggest a significant impact of institution-related attributes on the academic achievement of students regardless of any relevance to personal differences. Studies have highlighted the impact of various elements on students' engagement, for instance previous experiences (Astin, 1991), university regulations, university size, faculty, and boarding facilities (Kuh et al., 2006), type of university (Hu & Kuh, 2002), and characteristics of HEIs, for instance nearby campuses (Kuh et al., 2006). In view of Astin (1985), students' engagement in various kinds of HEIs may exhibit inconsistency. The students of publicly-owned universities were found to have a lower level of engagement than those of privately-owned HEIs (Hu & Kuh, 2002). Hence, we propose the following hypothesis:

H1: There is multilevel variability in student engagement across different HEIs.

Besides inter-university variations, department/ school-level differences signify an additional fundamental institutional element. Departments/ schools are the fundamental places for teaching-learning activities and student-teacher communication, enabling them to play a key role in engagement practices. According to Kuh et al. (2006), learners of STEM majors experience diversity meagerly, whereas learners belonging to social sciences and humanities understand diversity far more efficiently. In view of Umbach and Wawrzynski (2005), teachers' behavior in departments/ schools has a significant impact on students' engagement, especially through active educational approaches and student-teacher communication. The results reveal that students' engagement is affected by policies of HEIs and by school/ department subcultures. According to Umbach and Porter (2002), special features of schools/

departments, for instance, research reputation and percentage of females, significantly affect students' engagement. Students' choice for a particular major influences the interaction of students with faculty and contemporaries, also influences students' educational experiences, and engagement level (Porter & Umbach, 2006). Hence, we propose the following hypothesis:

H2: There is multilevel variability in student engagement across different departments.

The study year is another key institutional element that implies student advancement through educational majors. Studies indicate that the level of students' engagement is dynamic and evolving as time goes on. According to Krause and Coates (2008), freshmen encounter challenges in adjusting to university experience that can influence their preliminary level of engagement. On the contrary, seniors show a greater level of educational engagement because of their improved experience with the university. Scholars also point out that students' engagement drops as time passes by because of academic stress, underscoring the intricacy of engagement (Krause & Coates, 2008). In view of Hu and Kuh (2002), freshman students participate in a variety of ventures with more interest than sophomore, junior, and senior students. Hence, we propose the following hypothesis:

H3: There is multilevel variability in student engagement across different academic years.

Students' choice of residence during their university years, within campus and out of campus, is acknowledged to be an important institutional element affecting engagement. During their study at HEIs, students' on-campus residence choice appears to be an essential element. In view of Cheng (2001), hostel/dormitory life develops students' advancement and accomplishment, boosts their social capital, improves their support system from peers, and uplifts their socio-cultural involvement. Pascarella and Terenzini (2005) indicated a similar impact of hostel residence on retention, while Astin (1985) highlighted the impact of boarding at university on students' critical thinking and greater involvement and satisfaction with their HEIs. Conversely, day scholars meet multiple challenges, for instance, time spent on commuting and restricted use of institutional resources (Kuh et al., 2006). According to Zhao and Kuh (2004), on-campus residence can increase students' involvement. Hence, we propose the following hypothesis:

H4: There is multilevel variability in student engagement across different residential contexts.

With reference to Pakistan, institutional aspects are influential because of the diverse nature of resources, students, and faculty at HEIs. Researchers, for instance, Hammad and Naseem (2022) have demonstrated that variations between publicly-owned and privately-owned HEIs, and among departments/schools at respective universities have considerable influence on students' academic resilience, engagement, and educational experiences. Moreover, in Pakistan, the constrained accessibility of hostels in most HEIs can aggravate inequalities in terms of engagement between hostlers and day scholars. Conversely, a Pakistani study argued about students' dissatisfaction with boarding facilities, specifically the mess (Yusfani et al., 2024). The said contextual elements highlight the necessity for a broad investigation of institutional impacts on students' engagement. The existing literature recommends that institutional elements are important in affecting students' engagement. However, it is necessary to conduct integrative investigations, which explore numerous institutional elements concurrently, especially with respect to non-Western backgrounds. Together, all the proposed hypotheses offer a broad framework for observing the influence of institutional elements on students' engagement. Through testing the proposed associations in the Pakistani perspective, as shown in Figure-1, this investigation is likely to add rich insight into how the environment at HEIs forms learners' educational experiences.

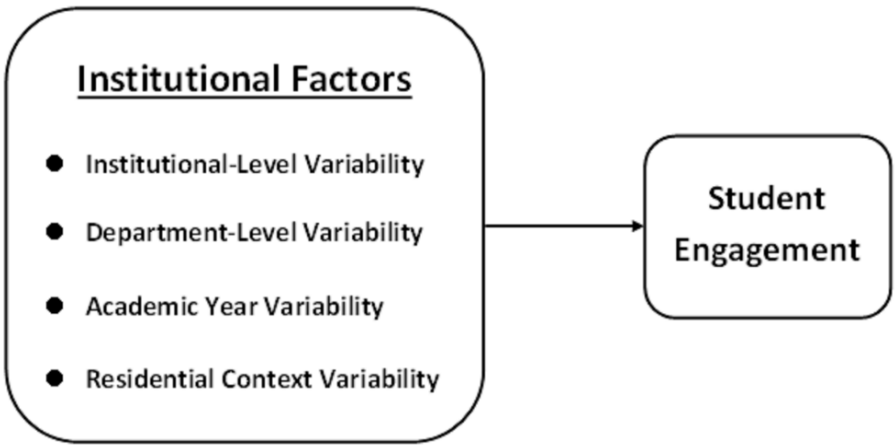

Figure 1: Conceptual Framework

Research Design

The current investigation has adopted a quantitative research approach employing a causal-comparative research design to analyze how institutional features, i.e., variations in types of HEIs, department/major, students' residence status, and study-year influence students' engagement in Pakistani HEIs. Quantitative method is especially suitable for the current investigation since it allows for systematic measurement of variables and the statistical inspection of effects. We chose a causal-comparative research design on account of its capability to acquire naturally occurring changes in students' characteristics and their engagement level. In view of Cohen et al. (2017), causal-comparative investigation is extensively employed in the domain of education to discover predictive effects, which help in policymaking as well as practice. The current investigation examines institutional level, department level, academic year, and residential contexts variability as independent variables, while student engagement acts as a dependent variable.

Research Tool

This investigation used an adapted measure of student engagement obtained through two famous and psychometrically certified tools: the University Student Engagement Inventory designed by J. Maroco et al. (2016), and the Higher Education Student Engagement Scale developed by F. Zhoc et al. (2019). The tool determined four-dimensional engagement of students: behavioral, emotional, cognitive, and social, employing a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree', covering a total of 20 statements, five for each dimension. We employed the Cronbach's Alpha coefficient to verify the internal consistency of the adapted tool. Cohen et al. (2017) advised that a value of the Cronbach alpha coefficient close to one exhibits the perfect reliability of the tool, while the threshold value is greater than or equal to 0.70. Table 1 presents the values of alpha for overall student engagement, including all 20 items and for each dimension of student engagement separately, which shows the range of values from 0.889 to 0.950, demonstrating high reliability of the tool.

Table 1: Reliability of the Research Tool

Factors	Cronbach's Alpha	Items
Overall Student Engagement	0.950	20
Behavioral Engagement	0.894	05
Cognitive Engagement	0.912	05
Social Engagement	0.905	05
Emotional Engagement	0.889	05

Population, Sample, and Sampling Technique

We chose undergraduate students registered in publicly-owned HEIs in Sindh province of Pakistan as the target population. Keeping in view the huge variance in Pakistani HEI contexts, for instance, variations in institutional structure, fields of study, and boarding facilities, we drew a sample that reflected this divergence. For this study, a sample size of 617 was established on the basis of available procedures for quantitative methodology. Normally, a sample of 300 is regarded as appropriate for multivariate statistical analyses (Hair et al., 2019). We used a stratified random sampling technique in order to confirm representation of all the essential institutional factors, which included HEIs, department/school, students' boarding status, and study year. By employing stratification, we aimed to ensure sample representation by confirming that all significant subgroups of the target population are part of the study (Cohen et al., 2017). In every stratum, we selected study participants employing simple random sampling, thus reducing selection bias. Learners from various fields of study were included to capture variation with regard to students' departmental affiliation.

Data Analysis

Analysis of data was carried out employing SPSS statistical software. In order to ascertain a thorough inspection of the collected data, the analysis followed multiple stages. To start with, we computed descriptive statistics to summarize the demographic attributes of the sample population and the distribution of key variables. Measures, for instance, means, standard deviations, frequencies, and percentages were employed to offer a data overview (Cohen et al., 2017). Later, t-test and ANOVA analysis were carried out to observe the multilevel variability in student engagement across universities, departments, academic years, and residential contexts. Assumptions of statistical analysis, including normality, linearity, homoscedasticity, and multicollinearity, were thoroughly reviewed to ascertain the validity of results. These procedures enhance the credibility and reliability of the findings.

Participants

The data were collected from 617 undergraduate students registered in the three general universities of Sindh, Pakistan, including Government College University, Hyderabad (n = 178, 28.8%), Shah Abdul Latif University (n = 166, 26.9%), and University of Sindh (n = 273, 44.2%) (See Table 2). Students' distribution based on year of study

indicates freshmen (*n* = 88, 14.3%), sophomores (*n* = 104, 16.9%), juniors (*n* = 219, 35.5%), and seniors (*n* = 206, 33.4%). Students' distribution based on their current residential contexts indicates off-campus (*n* = 317, 51.4%), and on campus (*n* = 300, 48.6%). Students' distribution based on their departments indicates commerce and business administration (*n* = 65, 10.5%), natural sciences (*n* = 171, 27.7%), arts and humanities (*n* = 89, 14.4%), education (*n* = 62, 10.0%), social sciences (*n* = 95, 15.4%), and students belong to computer, IT and mathematics (*n* = 135, 21.9%).

Table 2: Participants

Institutional Factors	Category	Frequency	%age
Name of University	University of Sindh	273	44.2
	GC University, Hyderabad	178	28.8
	Shah Abdul Latif University	166	26.9
	Total	617	100.0
Year in University	Freshmen	88	14.3
	Sophomore	104	16.9
	Junior	219	35.5
	Senior	206	33.4
	Total	617	100.0
Current Residence	Off Campus	317	51.4
	On Campus	300	48.6
	Total	617	100.0
Faculties/ Departments	Commerce and Business Administration	65	10.5
	Natural Sciences	171	27.7
	Arts and Humanities	89	14.4
	Education	62	10.0
	Social Sciences	95	15.4
	Computer, IT and Mathematics	135	21.9
	Total	617	100.0

Descriptive Results of Student Engagement

Table 3 displayed the descriptive results for student engagement, comprising twenty items and four dimensions. Results reveal that student engagement levels fall significantly short of anticipated standards. In terms of overall levels of student engagement were rated (*M* = 2.82, *SD* = 0.63, 45.70%). With regard to behavioral engagement levels were rated (*M* = 2.86, *SD* = 0.70, 46.50%), cognitive engagement levels (*M* = 2.61, *SD* = 0.763, 40.47%), emotional engagement levels (*M* = 2.68, *SD* = 0.71, 42.14%), and social engagement levels (*M* = 2.58, *SD* = 0.72, 39.50%). This suggests that most undergraduates are less engaged in their various purposeful activities within the universities.

Table 3: Status of Student Engagement

Name of Factors	Sample (*n*)	*Mean*	*SD*	*%age*
Overall Student Engagement	617	2.8282	.63424	45.70%
Social Engagement	617	2.5802	.72779	39.50%
Cognitive Engagement	617	2.6191	.76393	40.47%
Emotional Engagement	617	2.6856	.71283	42.14%
Behavioral Engagement	617	2.8622	.70399	46.50%

Results of Institutional-Level Variability in Student Engagement

To find out the multilevel variability, the one-way ANOVA and Games-Howell post-hoc comparisons were calculated after ensuring the assumption of homogeneity of variances. Table 4 illustrates that there were statistically significant

differences between different university groups mean scores on student engagement, $F(2, 614) = 81.372$, $p = 0.001 < 0.01$. The results of Games-Howell post-hoc comparisons and the descriptive results as displayed in Table 4 show that there were three different groups of universities that differed significantly from one another in student engagement. Students belonging to the University of Sindh ($M = 2.57$, $SD = 0.50$) earned significantly higher average scores and differed from the other two groups of universities in student engagement, such as Shah Abdul Latif University ($M = 2.09$, $SD = 0.52$) and GC University, Hyderabad ($M = 2.04$, $SD = 0.43$). It clearly indicates that the levels of student engagement at different universities were significantly different. Students enrolled at the University of Sindh were engaged more than at the GC University, Hyderabad, and the Shah Abdul Latif University.

Table 4: Institutional-Level Variability in Student Engagement

University	*N*	*Mean*	*SD*	*F* (2, 614)	Post-hoc Comparisons
University of Sindh	273	2.5766	.50383		
GC University, Hyderabad	178	2.0441	.43411	81.372***	[1>2,3]
Shah Abdul Latif University	166	2.0994	.52504		

Note: ***p < 0.001; **p < 0.01, *p < 0.05

Results of Department-Level Variability in Student Engagement

The results of one-way ANOVA, as displayed in Table 5, were obtained after ensuring the assumption of homogeneity of variances. According to the results, there were statistically significant differences between different departments and student engagement, $F(5, 611) = 9.858$, $p = 0.001 < 0.01$). The results of Games-Howell post-hoc comparisons and descriptive statistics as displayed in Table 5 show that Education department ($M = 2.68$, $SD = 0.67$), earned significantly higher levels of student engagement as well as differed significantly from other all five groups of departments include Natural Science ($M = 2.32$, $SD = 0.54$), Arts and Humanities ($M = 2.31$, $SD = 0.46$), Commerce and Business Administration ($M = 2.28$, $SD = 0.54$), Social Sciences ($M = 2.22$, $SD = 0.50$), and Computer, IT, and Mathematics ($M = 2.12$, $SD = 0.49$). Moreover, the faculty of Natural Science ($M = 2.32$, $SD = 0.54$) also differed significantly from the departments of Computer, IT, and Mathematics ($M = 2.12$, $SD = 0.49$). Conversely, all other groups of faculties and departments were at the same level of student engagement and did not differ from one another. It clearly indicates that the levels of student engagement at different faculties and departments of the universities were significantly different. Students enrolled at the Department of Education, and the faculty of natural sciences were engaged more than all other departments.

Table 5: Department-Level Variability in Student Engagement

Faculty / Department	*N*	*Mean*	*SD*	*F*(5, 611)	Post-hoc Comparisons
Commerce & Business Administration	65	2.2815	.54058		
Natural Sciences	171	2.3216	.54614		
Arts & Humanities	89	2.3101	.46203	9.858***	[4>1,2,3,5]
Education	62	2.6855	.67042		[2 >5]
Social Sciences	95	2.2263	.50963		
Computer/ IT/ Mathematics	135	2.1248	.49696		

Note: ***p < 0.001; **p < 0.01, *p < 0.05

Results of Academic-Year Variability in Student Engagement

The results of one-way ANOVA, as displayed in Table 5, were obtained after ensuring the assumption of homogeneity of variances. According to the results, there were statistically significant differences between academic years and student engagement, $F(3, 613) = 8.378$, $p = 0.001 < 0.01$). The results of Games-Howell post-hoc comparisons and descriptive statistics as displayed in Table 5 show that sophomore (2nd Year) students ($M = 2.50$, $SD = 0.55$), earned significantly higher levels of student engagement as well as differed significantly from other all three groups of academic year in university include seniors (4th Year) ($M = 2.32$, $SD = 0.55$), freshmen (1st Year) ($M = 2.21$, $SD = 0.45$), and juniors (3rd Year) ($M = 2.19$, $SD = 0.54$). Conversely, all other groups of academic year in the university were at the same level of student engagement and did not differ from one another. It clearly indicates that the levels of student

engagement at different academic years in university were significantly different. This suggests that students enrolled at the sophomore (2nd year) were engaged more than freshmen (1st year), juniors (3rd year), and seniors (4th year) in their respective universities.

Table 6: Academic-Year Variability in Student Engagement

Academic Year	*N*	*Mean*	*SD*	*F* (3, 613)	Post-hoc Comparisons
Freshmen	88	2.2188	.45897	8.378***	[4>1,2,3,5]
Sophomore	104	2.5067	.55643		
Junior	219	2.1984	.54813		
Senior	206	2.3221	.55875		

Note: ***p < 0.001; **p < 0.01, *p < 0.05

Results of Residential-Context Variability in Student Engagement

The independent group t-test was calculated after ensuring the assumption of homogeneity of variances on students' engagement. From Table 6, statistically significant differences can be observed between the group of students who live on-campus and off-campus, $t(615) = -9.848$, $p = 0.001 < 0.01$. The mean score for students who live off-campus was ($M = 2.49$; $SD = 0.52$), while for students who live on-campus was ($M = 2.08$; $SD = 0.50$). It clearly indicated that students living off campus were more engaged in various academic activities in their respective universities than students who live on-campus or in hostels.

Table 7: Residential-Context Variability in Student Engagement

Residential Contexts	*N*	*Mean*	*SD*	Mean Deference	*t* (615)
Off Campus	317	2.4923	.52109	-.04129	-9.848***
On Campus	300	2.0857	.50349		

Note: ***p < 0.001; **p < 0.01, *p < 0.05

Summary of the Findings

This investigation studied the levels of engagement among Pakistani HEI students and observed multilevel variability in student engagement across different universities, departments, academic years, and residential contexts. The descriptive statistics reveal startlingly reduced levels of students' engagement. In academic activities, behavioral engagement was relatively greater, followed by emotional engagement, cognitive engagement, and social engagement. The results reveal that in Pakistani HEIs, there is a persistent disengagement of students' educational experiences. Detailed exploration of institutional variations reveals that learners from the University of Sindh exhibited substantially greater levels of engagement than the students who belong to the Shah Abdul Latif University and GC University, Hyderabad. Department-wise assessments reveal that learners registered in Faculty/Department of Education described superior engagement than the students of Faculty of Natural Science, Faculty of Arts and Humanities, Departments of Commerce and Business Administration, Faculty of Social Sciences, and Departments of Computer Sciences, IT, and Mathematics, with the lowermost level of engagement witnessed among the students of computer, IT, and Mathematics Departments. Seniority-wise differences showed that sophomore students were found to experience greater engagement than freshmen (1st Year), juniors (3rd Year), and seniors (4th Year) students. Furthermore, residence status appeared to be an important element, with learners living off-campus describing greater engagement in comparison to their on-campus students. Regardless of these variations, the overall level of engagement appeared below standard among all groups of student populations. The results offer an important basis for considering the wider effects of HEI structures and contextual elements affecting students' engagement in Pakistani HE.

Discussion

The study findings show persistent low levels of students' engagement in all dimensions: behavioral, emotional, cognitive, and social in Pakistan's HE, implying structural weaknesses. They align with worldwide confirmation about the multidimensionality of engagement, which is essential for educational quality and students' accomplishment (Carini et al., 2006; Kuh, 2009). Conversely, the domination of the behavioral dimension of engagement over cognitive and social ones indicates submission-based student involvement instead of significant intellectual participation, revealing the absence of deep learning (Biggs et al., 2022; Zepke, 2018). The structural perception suggests that the general inferior levels of engagement align with investigations from developing higher education contexts where

structural restraints, for instance, scarce resources, inflexible curricula, and conventional teaching-learning approaches, limit experiential learning prospects (Tight, 2020). In the Pakistani context, it has been characterized by instructor-oriented education and inadequate educational assistance. The low level of cognitive and social dimensions of students' engagement indicates restricted prospects for critical thinking and collective learning (Carini et al., 2006).

Differences in HEIs highlight the role of local culture within the organizations, management, and distribution of resources in influencing students' engagement. This aligns with the studies of Kuh (2009) and Pascarella and Terenzini (2005), HEIs fostering an encouraging environment and powerful practices improve students' involvement. Current investigations, such as Zwaan (2025), also highlight that institutional efficiency has a strong linkage with learner-oriented policies and comprehensive learning environments. This difference indicates stratification in Pakistani higher education, where funding inequalities and authority create unequal learning involvement (Marginson, 2016).

Variations regarding students' majors demonstrate the impact of educational culture. Better engagement in faculty/ department/ school activities is aligned with existing research highlighting experiential, reflective, and collaborative instruction (Laird et al., 2008; Zwaan, 2025). Conversely, reduced students' engagement in technical domains, for instance, departments of computer, IT, and mathematics, illustrates worldwide worries about rigid curricula and restrained instructional innovation (Theobald et al., 2020). It confirms the claim of Biggs et al. (2022) that productive alignment plays an important role in adopting significant engagement, especially in domains conventionally governed through traditional instruction.

Differences regarding year-wise development of students show a nonlinear engagement course, with sophomore (2nd Year) learners revealing comparatively superior engagement. It is associated with the guidelines of Transition Theory, indicating that freshmen encounter issues regarding adjustment, whereas seniors may feel burnout and decreasing motivation (Krause & Coates, 2008). Student involvement theory of Astin (1985) offers explanatory power, suggesting the dependence of students' engagement on their capability of investing time and resources that can change through educational development. Sophomores may have a superior capability of investing such energy in comparison to freshmen and seniors. The deterioration of engagement in subsequent academic stages indicates the failure of HEIs to maintain the level of engagement via substantial educational experiences (Kahu, 2013).

Results about boarding status, especially off-campus learners, demonstrate that elevated engagement level encounters conventional instruction. It challenges traditional notions that hostel-residence promotes better students' engagement (Tinto, 1993). Recent studies indicate that engagement has very little to do with proximity; it is rather related more to quality of boarding experiences (Astin, 1985; Cheng, 2001; Zhao & Kuh, 2004; Pascarella & Terenzini, 2005; Kuh et al., 2006), and instructional environment (Acosta-Gonzaga, 2023; Al-Obaydi et al., 2023; Prananto et al., 2025). With reference to Pakistan, insufficient boarding facilities can weaken the prospective advantages of hostel residence. Furthermore, day scholars can gain from deeper familial support, more liberty, and limited institutional limits that can increase their enthusiasm and involvement.

Regardless of these differences, students' engagement levels remain below standard in all groups, emphasizing structural problems. This finding is supported by Umbach and Kuh (2006), Kuh et al. (2006), Laird et al. (2008), and Zepke (2018) that the degree of students' engagement is affected by wider socio-institutional environments instead of solitary variables. Little emotional engagement implies an ineffective relationship between learners and the institution that plays a vital role in inspiration, ownership, and retention (Maroco et al., 2016). In general, the findings demand complete, structural changes concentrating on the dimensions of pedagogy, institutional characteristics, and policy.

Pedagogical and Policy Implications

Results demand a change of pedagogical approach from traditional to learner-oriented. The supremacy of the behavioral dimension of students' engagement signals that existing learning approaches focus on task-performance instead of intellectually-driven engagement. Studies, such as Biggs et al. (2022) and Zwaan (2025), have highlighted that deep-instructional approaches, for instance, PBL, experiential instruction, and group activities, can improve students' engagement and educational experiences. Thus, all training relating to teaching development should highlight instructional change, providing teachers with capabilities in collaborative and comprehensive instructional practices. Moreover, the redesign of curricula appears to be equally crucial. Aligning academic achievement, teaching-learning approaches, and assessment methods can advance deep-rooted cognitive engagement of students (Biggs et al., 2022). Academic majors showing inferior engagement in STEM-related and vocational domains should incorporate practical pedagogy, interdisciplinary tasks, and everyday applications to improve importance and inspiration (Theobald et al., 2020). Challenges faced by learners regarding academic years necessitate institutional support practices. Freshers' engagement may be boosted by the help of orientation plans, mentoring, counseling, and institutional guidance (Tinto, 1993; Kift, 2025). Seniors' engagement level can be sustained via capstone projects, research-oriented prospects, and job-oriented skills (Kuh, 2009). Policy on students' boarding facilities should also

be reconsidered. Reduced level of engagement in hostlers indicates that infrastructure may be a factor in students' engagement; however, it is the institutional policies fostering inclusivity and support for boarding learners that encourage integration and ownership (Astin, 1991; Kift, 2025). In terms of policymaking and implementation, it is essential to combine students' engagement metrics into quality enhancement structures. HEC can seek guidance from models, for instance, the National Survey of Student Engagement (NSSE), to make students' engagement an important marker of instructional quality (Kuh, 2009). Budget allocation and financing of HEIs should be conditional on performance (Marginson, 2016). Lastly, structural reforms should concentrate on structural hurdles, for instance, huge class size, scant resources, and inflexible curricula. Policies aimed at enhancing students' engagement should embrace an all-inclusive approach, which integrates instruction, infrastructure, and organization (Tight, 2020).

CONCLUSIONS AND RECOMMENDATIONS

The current investigation examines the dismally reduced level of students' engagement in Pakistan's higher education in terms of all dimensions and institutional types, indicating structural weaknesses. The changes in the status of HEIs, academic fields, study-years, and students' boarding status underline the impact of contextual elements and support a wider form of students' disengagement. This study offers findings that emphasize the multifaceted nature of students' engagement and highlight the key function of institutional settings in affecting students' experiences. This investigation provides insights into underdeveloped settings and underlines the necessity of altering the higher education sector to spotlight deep, inclusive, and student-oriented pedagogy.

This study presents the following recommendations for the HEIs in Pakistan. At the national level, there should be frameworks that monitor students' engagement. The quality assurance mechanism should include engagement indicators. The HEIs should transform their pedagogy into student-oriented in all domains, and address differences at the department/ school level, including students' engagement as a mandatory part of faculty development programs. Curricula should be redesigned to combine experiential and applied pedagogies. HEIs should initiate mentoring and transition programs for freshmen and a capstone for seniors. The boarding facilities should be improved and inclusive. The recommendations of this study, as a whole, call for structural, instructional, and policy-oriented interventions to address the multidimensional challenges of students' engagement in Pakistani higher education.

REFERENCES

Acosta-Gonzaga, E. (2023). The effects of self-esteem and academic engagement on university students' performance. *Behavioral Sciences*, *13*(4), 348. https://doi.org/10.3390/bs13040348

Al-Obaydi, L. H., Shakki, F., Tawafak, R. M., Pikhart, M., & Ugla, R. L. (2023). What I know, what I want to know, what I learned: Activating EFL college students' cognitive, behavioral, and emotional engagement through structured feedback in an online environment. *Frontiers in Psychology*, *13*, Article 1083673. https://doi.org/10.3389/fpsyg.2022.1083673

Astin, W. A. (1985). *Achieving Educational Excellence: A Critical Assessment of Priorities and Practices in Higher Education*. New York: Jossey Bass Higher and Adult Education, 133–157.

Astin, W. A. (1991). *Assessment for Excellence: The Philosophy and Practice of Assessment and Evaluation in Higher Education*. American Council on Education and Macmillan Publishing Company, New York.

Biggs, J., Tang, C., & Kennedy, G. (2022). *Teaching for quality learning at university 5e* (5th ed.). Maidenhead: UK, McGraw-hill: Open University Press.

Carini, R. M., Kuh, G. D., & Klein, S. P. (2006). Student engagement and student learning: Testing the linkages. *Research in Higher Education*, *47*(1), 1-32. https://doi.org/10.1007/s11162-005-8150-9

Cheng, D. X. (2001). Assessing Student Collegiate Experience: Where do we begin? *Assessment & Evaluation in Higher Education*, *26*(6), 525–538. https://doi.org/10.1080/02602930120093869

Cohen, L. Manion, L., & Morrison, K. (2017). *Research Methods in Education* (8th ed.). London: Routledge. https://doi.org/10.4324/9781315456539

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th ed.). Andover United Kingdom: Cengage Learning EMEA, Inc.

Hammad, M., & Naseem, S. (2022). A Comparative Study on the Correlation between Academic Resilience and Students' Engagement in Public and Private Higher Education Institutions. *Annals of Human and Social Sciences*, *3*(3), 64–79. https://doi.org/10.35484/ahss.2022(3-III)08

Hu, S., & Kuh, G. D. (2002). Being (Dis)engaged in Educationally Purposeful Activities: The Influences of Student and Institutional Characteristics. *Research in Higher Education*, *43*(5), 555-575. https://doi.org/10.1023/A:1020114231387

Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in Higher Education*, *38*(5), 758–773. https://doi.org/10.1080/03075079.2011.598505

Kift, S. (2025). Two decades of transition pedagogy: Validating key principles for our education futures. *Student Success*, *16*(3), 29–42. https://doi.org/10.63608/ssj.3853

Krause, K., & Coates, H. (2008). Students' engagement in first-year university. *Assessment & Evaluation in Higher Education*, *33*(5), 493–505. https://doi.org/10.1080/02602930701698892

Kuh, G. D. (2009). The National Survey of Student Engagement. Retrieved March 03, 2025, from http://www.tru.ca/__shared/assets/Kuh_2009_NSSE_Conceptual_and_Empirical_Foundations23689.pdf

Kuh, G. D., Kinzie, J. L., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What matters to student success: A review of the literature* (Vol. 8). Washington, DC: National Postsecondary Education Cooperative. Retrieved August 27, 2025, from: https://static.sched.com/hosted_files/fallflexday2017/c8/Student%20Success%20%26%20Engagement%20Literature%20Review_Kuh_et%20al.pdf

Laird, T. F. N., Shoup, R., Kuh, G. D., & Schwarz, M. J. (2008). The effects of discipline on deep approaches to student learning and college outcomes. *Research in Higher Education*, *49*(6), 469-494. https://doi.org/10.1007/s11162-008-9088-5

Marginson, S. (2016). *The Dream Is Over: The Crisis of Clark Kerr's California Idea of Higher Education*. University of California Press. https://doi.org/10.1525/9780520966208

Maroco, J., Maroco, A. L., Campos, J. A. D. B., & Fredricks, J. A. (2016). University student's engagement: development of the University Student Engagement Inventory (USEI). *Psicolgia: Reflexao e Critica*, *29*(21), 1-12. https://doi.org/10.1186/s41155-016-0042-8

OECD. (2025). *Education at a Glance 2025: OECD Indicators*. OECD Publishing, Paris. https://doi.org/10.1787/1c0d9c79-en

Pascarella, E. T., & Terenzini, P. T. (2005). *How College Affects Students. Vol (2): A Third Decade of Research*. San Francisco: Jossey-Brass: A Wiley Imprint, 1-825.

Pepple, D. G. (2022). An ecological perspective of student engagement through digital technology: Practical application and implications. *British Educational Research Journal*, *48*(6), 1216–1231. https://doi.org/10.1002/berj.3823

Porter, S. R., & Umbach, P. D. (2006). College Major Choice: An Analysis of Person-Environment Fit. *Research in Higher Education*, *47*(4), 429-449. https://doi.org/10.1007/s11162-005-9002-3

Prananto, K., Cahyadi, S., Lubis, F. Y., & Hinduan, Z. R. (2025). Perceived teacher support and student engagement among higher education students–a systematic literature review. *BMC Psychology*, *13*(1), 112. https://doi.org/10.1186/s40359-025-02412-w

Theobald, E. J., Hill, M. J., Tran, E., Agrawal, S., Arroyo, E. N., Behling, S., & Freeman, S. (2020). Active learning narrows achievement gaps for underrepresented students in undergraduate science, technology, engineering, and math. *Proceedings of the National Academy of Sciences*, *117*(12), 6476-6483. https://doi.org/10.1073/pnas.1916903117

Tight, M. (2020). Student Retention and Engagement in Higher Education. *Journal of Further and Higher Education*, *44*, 689-704. https://doi.org/10.1080/0309877X.2019.1576860

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). University of Chicago Press. https://doi.org/10.7208/chicago/9780226922461.001.0001

Umbach, P. D., & Kuh, G. D. (2006). Student Experiences with Diversity at Liberal Arts Colleges: Another Claim for Distinctiveness. *The Journal of Higher Education*, *77*(1), 169–192. https://doi.org/10.1080/00221546.2006.11778923

Umbach, P. D., & Porter, S. R. (2002). How do academic departments impact student satisfaction? Understanding the contextual effects of departments. *Research in Higher Education*, *43*(2), 209-234. https://doi.org/10.1023/A:1014471708162

Umbach, P. D., & Wawrzynski, M. R. (2005). Faculty do Matter: The Role of College Faculty in Student Learning and Engagement. *Research in Higher Education*, *46*(2), 153–184. https://doi.org/10.1007/s11162-004-1598-1

UNESCO. (2025). *Global Education Monitoring Report Team*: Network of Education Policy Centers. https://doi.org/10.54676/OHBP9303

Yusfani, K., Haider, B., Qureshi, M., & Ishaq, K. (2024). Exploring the Impact of Personal and Administrative issues Faced by Female Students on Satisfaction Levels with Hostel Facilities and their Influence on Lifestyle: A Statistical Investigation. *Pakistan Journal of Humanities and Social Sciences*, *12*(2), 1616–1631. https://doi.org/10.52131/pjhss.2024.v12i2.2262

Zepke, N. (2018). Student engagement in neo-liberal times: what is missing? *Higher Education Research & Development*, *37*(2), 433–446. https://doi.org/10.1080/07294360.2017.1370440

Zhao, C. M., & Kuh, G. D. (2004). Adding Value: Learning Communities and Students Engagement. *Research in Higher Education*, *45*(2), 115-138. https://doi.org/10.1023/B:RIHE.0000015692.88534.de

Zhoc, K. C. H., Webster, B. J., King, R. B., Li, J. C. H., Chung, T. S. H. (2019). Higher Education Student Engagement Scale (HESES): Development and Psychometric Evidence. *Research in Higher Education*, *60*, 219-244. https://doi.org/10.1007/s11162-018-9510-6

Zwaan, B. V. D. (2025). Higher education in 2040: A global approach (1st ed.). London: Taylor & Francis. https://doi.org/10.4324/9781003697336