



## Mapping Student Engagement in Diverse Learning Environment in Universities: A Correlational Study

Rabiah Mohyuddin <sup>1</sup>, Farah Latif Naz<sup>2</sup>, Muhammad Ishaq<sup>3</sup>, Farhat Nasim <sup>4</sup>

<sup>1</sup> Lecturer, Department of Education, The Women University Multan, Punjab, Pakistan.

Email: rabiahmohyuddin@gmail.com

<sup>2</sup> Assistant Professor, Department of Education, Bhauddin Zakariya University, Multan, Pakistan.

Email: farahlatif@bzu.edu.pk

<sup>3</sup> Lecturer, Department of Education, Govt Graduate College near Civil Lines Khanewal, Pakistan.

Email: ishaqsaqi2010@gmail.com

<sup>4</sup> Ph.D. Scholar, Department of Education, Bahauddin Zakariya University, Multan, Pakistan.

Email: farhatnasim54@gmail.com

### ARTICLE INFO

### ABSTRACT

#### Article History:

Received: April 27, 2024

Revised: May 31, 2024

Accepted: June 01, 2024

Available Online: June 02, 2024

#### Keywords:

Engagement  
Students  
Learning Environment  
Universities

#### Funding:

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

The main aim of the correlational research investigation was to examine the complex relationship that exists between student engagement and the learning environment in university settings. The investigation involved a sample of 423 female (227) and 196 male (196) students selected through simple random sampling. These students represent a population of 10,365 BS students from three public sector universities in Punjab, Pakistan. The data was analyzed employing descriptive statistics, including frequencies and percentages, as well as Pearson correlation. A highly positive link was observed between the level of student engagement and the learning environment. This research investigation implies that to optimize student learning outcomes in the current educational landscape, it is crucial to consistently update and enhance university spaces by emphasizing the dynamic relationship between student participation and the environment.

© 2024 The Authors, Published by iRASD. This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License

Corresponding Author's Email: farhatnasim54@gmail.com

## 1. Introduction

The environment can positively or negatively influence a learner's learning experience, and there is a strong interaction between the environment and the learner (Yang, Badri, Al Rashedi, Almazroui, Qalyoubi, & Nai, 2017). Schmidt, Rosenberg, and Beymer (2018) define engagement as a complex notion that describes the current state of fully engaged employees and students. Thus, the structural dimension of the concept correlates to overall involvement, encompassing cognitive, affective, and behavioral dimensions (Torsney & Symonds, 2019). Further, Brooks (2011) emphasizes that the design of physical spaces is essential for enhancing student learning outcomes, surpassing the limitations of conventional evaluation methods. Oliveras Ortiz (2017) posits that classroom design facilitates student-centered learning and incorporates contemporary lifestyles and student preferences. Additionally, Reschly and Christenson (2022) define student engagement as the active participation of students in academic and co-curricular activities, as well as their dedication to educational objectives and learning. Historically, researchers have assessed student engagement by examining their cognitive abilities, emotions, and behavior (Reeve, 2012). Student engagement is associated with positive academic outcomes, such as academic success and continued enrollment in school. The level of support and encouragement from instructors and peers positively correlates with academic achievement in schools (Ferrell, 2012). Student engagement is critical because it improves student knowledge acquisition and achievement (Tas, 2016). Student engagement is defined as the active involvement of students in a diverse array of school activities, as well as their recognition and respect for the school. According to Ali and Hassan (2018), children who are actively involved in school are considered to have a high level of academic achievement. According to the Social Cognitive Theory, people's environment influences their

behavior. For instance, the level of assistance students receive from their teacher and classmates, as well as evaluations conducted by teachers, has an impact on their self-confidence and engagement in academic tasks (Sökmen, 2021). The correlation between the educational environment and the students, in terms of their social and physical aspects, significantly influences their growth and acquisition of knowledge (Khan, Mumtaz, Awan, Khan, Asghar, & Zaman, 2023). Learning environments encompass learning programs, a suitable, comfortable, and secure ambiance, a physical setting, social interaction, and a diverse range of instructional methodologies. The educational environment significantly impacts learners and the physical environment in which students learn can have a direct impact on their learning experiences (Hassan, Awan, & Awan, 2018). Successful reflective teaching interconnects with the physical environment, fosters creative learning, and facilitates interactive learning environments. Malik and Rizvi (2018) assert that the presence of advanced and adaptable learning environments enhances and improves learning and development in all areas. The social environment showcases strong and dynamic interactions and relationships between students and teachers. Teachers are considered the most competent individuals to assess, mold, and impact student behavior. Additionally, they have the ability to offer adaptable classroom settings that facilitate more efficient studying for students (Kidger, Araya, Donovan, & Gunnell, 2012).

Understanding and improving student engagement is crucial in today's higher education to promote optimal learning outcomes and academic performance. However, it is becoming increasingly clear that student involvement varies across different learning settings within universities. The relationship between teaching approaches, classroom dynamics, institutional support, and student involvement is poorly understood, especially in environments with cultural, disciplinary, and demographic diversity. As a result, the purpose of this study is to look at the relationships between numerous parameters and student engagement in a variety of university learning contexts. Student engagement is a multidimensional construct that includes behavioral, cognitive, affective, and social components, all of which have a substantial impact on academic progress and student satisfaction. To initiate a relevant discourse on promoting student engagement in the digital era, it is essential to review previous research in the sector. Bond, Buntins, Bedenlier, Zawacki-Richter, and Kerres (2020) defined student engagement as the active engagement and commitment of students within their learning community, observable through various behavioral, cognitive, or emotional indications across a spectrum. Various structural and internal factors, such as the intricate interaction between relationships, learning activities, and the learning environment, determine the formation of this entity. Increased student engagement and empowerment within their learning community correlates with a higher likelihood of redirecting that energy towards their learning. This, in turn, leads to a variety of short- and long-term benefits that can also enhance engagement. Amid the global pandemic, student engagement has become even more challenging. The increased use of educational technology, including virtual classrooms, has made it extremely difficult for higher education institutions to maintain student engagement at expected standards (Chandramohan, Jayamaha, & Yatigamma). Students must actively engage in research in order to acquire a more profound comprehension of subjects and demonstrate a superior level of performance. Despite decades of scholarly work on student engagement, some argue that the concept lacks theoretical guidance (Chandramohan, Jayamaha, and Yatigamma) possibly due to its intricate nature. Student engagement is consistently portrayed as a multidimensional and complex concept encompassing behavioral and cognitive components (Handelsman, Briggs, Sullivan, & Towler, 2005).

### **1.1. Background of the Study**

Higher education widely views student engagement as a crucial factor. Every year, the United States of America and the United Kingdom undertake the National Student Engagement Survey (NSSE) and the United Kingdom Engagement Survey (UKES) to assess student engagement at a national scale. Various national surveys serve as critical metrics for evaluating the functioning of higher education institutions in different countries. Given the importance of the student engagement idea, the majority of institutions in the United Kingdom have a high-ranking official who is accountable for overseeing student involvement within the university hierarchy. Multiple empirical studies Junco, Elavsky, and Heiberger (2013); Webber, Krylow, and Zhang (2013) support the great significance universities place on student engagement, demonstrating its favorable effects on student satisfaction, retention, loyalty, and academic

achievement. There exists a notable correlation between learning outcomes and student engagement, as stated by (Kuh, 2009). Despite extensive study, the topic of student participation in higher education remains intricate (Appleton, Christenson, & Furlong, 2008). The theory of involvement, proposed by Astin in 1984, aims to provide researchers with a theoretical framework. It suggests that greater engagement with one's surroundings results in favorable outcomes. It is crucial to gain a comprehensive understanding of the "environment" within higher education, which fosters active participation. Students must engage in research to have a deeper understanding of subjects and showcase a higher level of performance. Studies regularly confirm the beneficial relationship between student engagement and several advantages in higher education, including happiness, loyalty, and academic success (Webber, Krylow, & Zhang, 2013). Astin (2014) emphasizes the connection between engagement and positive performance results. Although there is general agreement on this matter, there is still constant conflict over the various aspects of student participation in the teaching and learning environment Zepke (2015). Although scholars support the advantages of successful student engagement, there is still ongoing debate over the specific factors within the teaching and learning environment that influence engagement (Kahu & Nelson, 2018). Higher educational institutions need empirical support to understand and create a conducive teaching and learning environment that influences student engagement. However, there is no consensus on specific characteristics influencing engagement (Trowler, 2010). It is needed to conduct separate investigations to examine the three main aspects of student engagement: cognitive, behavioral, and affective. Improving engagement without a comprehensive understanding could lead to unproductive and negative outcomes.

### **1.2. Statement of the Problem**

The objective of this study is to understand the factors that influence student engagement in university settings and propose methods for educators and administrators to enhance it. The primary objective is to enhance pupils' excitement for learning, irrespective of the instructional setting. By recognizing the positive qualities that impact student enrollment, educational institutions can improve their admissions process and promote a diverse society. Examining socially constructive attributes can enhance support and involvement in educational institutions, particularly in multicultural schools. As a result, this fosters friendly learning environments while also improving overall learning outcomes. Moreover, this researcher aims to improve current knowledge by providing empirical proof of the connections between different attributes and students' engagement in various educational settings within universities. These studies are valuable for developing solutions to problems that students encounter in their education, especially within the contemporary, diversified higher education system that prioritizes students' successful engagement.

### **1.3. Objectives of the Study**

1. To examine a connection between the learning environment at universities and student engagement.
2. To investigate how the physical environment, campus atmosphere, and social culture in universities influence student engagement.

### **1.4. Research Questions**

1. Is there any connection between student engagement and the learning environment at universities?
2. Is there any relationship between student engagement and the physical environment at universities?
3. Is there any relationship between student engagement and campus atmosphere at universities?
4. Is there any relationship between student engagement and social culture at universities?

### **1.5. Significance of the Study**

1. This study aims to examine the impact of many factors, such as teaching styles, classroom interactions, institutional policies, and student demographics, on the engagement levels of university students by analyzing their engagement in different learning contexts.

2. Gaining a comprehensive understanding of these connections is crucial for educators and administrators in order to build effective interventions and policies that will successfully enhance student engagement in various educational settings.
3. By identifying the specific traits that have a beneficial impact on student engagement, schools can make adjustments to better support and engage a diverse student population. This, in turn, promotes inclusive learning environments and improves educational outcomes.
4. Moreover, this study seeks to contribute to existing knowledge by providing actual data on the connections between several attributes and student engagement in various university settings.
5. The findings can guide the development of educational strategies and policies to enhance student engagement and academic success in the diversified higher education sector.

## **2. Literature Review**

Several research studies have shown the importance of student engagement in the learning environment. Cooper and Fry (2020) assert that student engagement is crucial for learner performance and has a major influence on individual learners' achievements. Li and Xue (2023) argue that student engagement is critical for both learning performance and student success. The effective application of learning material requires and determines the extent of positive behaviors exhibited by the students and, therefore, modulates the students' perception of the classroom. There is a variety of approaches, particularly when structures are closely related, can address the complexity of students' engagement. Kahu and Nelson (2018) looked into the culturally-grounded framework of student engagement to address the need to make an educational interface that includes both personal and institutional factors to accommodate each person's psychosocial uniqueness. The suggested educational research offers a concrete method for comprehending the complex dynamics between students and institutions, as well as the influence of these dynamics on student engagement in learning.

Moreover, Gray and DiLoreto (2016) did a study to establish the relationship regarding students' level of engagement, contentment, and perceived acquisition of knowledge in a blended learning environment. Hanaysha, Shriedeh, and In'airat (2023) examine how higher education institutions might enhance students' engagement, performance, and achievement by adapting the educational delivery method to match their capacity and aspirations. Furthermore, Opendakker and Minnaert (2011) highlighted the significance of learners' opinions towards the learning environment through a comprehensive examination of questionnaires. Scholarly works in this domain have proposed numerous ideas to elucidate how higher education institutions with higher levels of education can improve learner engagement and achievement. Furthermore, Tas (2016) synthesized the Center for Buildings and Health's analysis, concluding that the learning environment encompasses both facilitative and non-facilitative elements that influence students' academic performance and engagement. Tas further emphasized the existence of a dynamic relationship in the interdependence of the environment, students' behavior, and motivation. These components are constantly changing and evolving (Schunk & DiBenedetto, 2020). Researchers and policymakers view it as a crucial indicator of successful teaching and learning. Cognitive engagement pertains to the level of commitment and involvement exhibited by students in the process of learning, wherein they actively integrate newly acquired information with their existing knowledge (Greene, 2015). Affective/emotional engagement refers to learners' emotional engagement in their learning experience, which includes their level of interest and focus in the course as well as their social interactions with fellow students (Hutain & Michinov, 2022). Behavioral engagement refers to active engagement, exertion of effort, focused attention, sustained commitment, positive conduct, and the lack of disruptive behavior (Fredricks et al., 2016). A sociocultural perspective that looks at emotional, cognitive, and behavioral aspects Kahu (2013), personality traits, feedback mechanisms involving teachers, other students, and the school setting (Payne, 2019), and social relationships in a specific learning environment (Kahn, 2014) are some of the things that can affect how engaged students are.

## **3. Research Methodology**

The current research study's primary goal was to assess the relationship between the learning environment and engagement levels of students from three public sector universities

in district Multan, Punjab province, Pakistan: Emersn University Multan, The University of Education Multan, and The Women University Multan. The correlational research design was primarily used to understand the relationship between the study variables, including a sample of a total(of 423) four hundred and twenty-three students representing two hundred and twenty-seven females (227) and one hundred and ninety-six males (196) students selected through simple random sampling from a population of ten thousand three hundred and sixty five (N =10365) students enrolled regularly in BS programs from six. A two-sectioned questionnaire was used to collect data. The first component of the questionnaire consisted of 34 statements about five factors: learning environment, physical environment, campus atmosphere, academic support, and social culture. Similarly, the second portion of questions was designed to assess students' engagement levels, with 12 statements relating to cognitive engagement, behavioral engagement, and social engagement. The measures were created as five-point Likert-type scales, with five options: strongly agree=5, agree=4, uncertain=3, disagree=2, and strongly disagree=1. The study's follow-ups secured a 100% return rate on completed surveys from students. The research tool was created following a thorough review of relevant literature and guidance from educational experts in the field of education. Experts in social sciences were requested to review each item of content to ensure the questionnaire's content validity. They provided feedback after examining and analyzing the item statement's language and format. The researcher revised and polished the item statements based on expert feedback before finalizing the instrument. It was developed in a way that students could easily understand. A pilot study was carried out to ensure the questionnaire's reliability. The pilot student's sample differed from the general sample. Following data collection for the pilot project, the data were loaded into SPSS, and Cronbach alpha was used to assess the tool's dependability. The validity of the research instrument was increased by including ideas from the researcher's supervisor. Cronbach's alpha coefficient was found to be 0.77, indicating that the instrument is very reliable. The ethical principles were followed consistently throughout the research process.

#### **4. Data Analysis and Discussion**

The data underwent analysis in SPSS (Statistical Package for Social Sciences) using several statistical methods, including descriptive statistics such as frequency analysis as well as inferential statistics such as Pearson correlation.

**Table 1: Demographic Profile of the Respondents**

| <b>Gender</b> | <b>Number of Students</b> |
|---------------|---------------------------|
| Male          | 196                       |
| Female        | 227                       |
| Total         | 423                       |

Table 1 provides a summary, indicating that there were a total of 423 participants, consisting of 196 male students and 227 female students. Furthermore, the study found that student engagement is high in various educational settings because there were the same number of male and female students.

##### **4.1. Pearson Correlation Results**

Additionally, the study is intended to examine the correlation between student engagement and the learning environment. In an effort to quantify the correlations between the two variables, the Pearson correlation coefficient was utilized.

**Table 2: Correlation Matrix of Learning Environment and Student Engagement**

|                     | <b>Learning Environment</b> | <b>Students Engagement</b> |
|---------------------|-----------------------------|----------------------------|
| Pearson Correlation | 1                           | .317**                     |
| Sig. (2-tailed)     |                             | .000                       |
| N                   | 423                         | 423                        |

Table 2's outcomes reveal a positive linear connection between the learning environment and students' engagement. 317 and a p-value of.000. Therefore, the results suggest the rejection of the null hypothesis.

**Table 3: Correlation Matrix of Physical Environment and Student Engagement**

|                     | Physical Environment | Student Engagement |
|---------------------|----------------------|--------------------|
| Pearson Correlation | 1                    | .405**             |
| Sig. (2-tailed)     |                      | .000               |
| N                   | 423                  | 423                |

The results portrayed in Table 3 indicate that there is a high correlation between the physical environment and students' engagement levels. 405 on the p-value is.000.

**Table 4: Correlation Matrix of Campus Atmosphere and Student Engagement**

|                     | Campus Atmosphere | Student Engagement |
|---------------------|-------------------|--------------------|
| Pearson Correlation | 1                 | .387**             |
| Sig. (2-tailed)     |                   | .000               |
| N                   | 423               | 423                |

The results in Table 4 suggest there is a strong and positive connection between the campus atmosphere and students' engagement .387 and a p-value of.000.

**Table 5: Correlation Matrix of Academic Support and Student Engagement**

|                     | Academic Support | Student Engagement |
|---------------------|------------------|--------------------|
| Pearson Correlation | 1                | .399**             |
| Sig. (2-tailed)     |                  | .000               |
| N                   | 423              | 423                |

The results displayed in Table 5 reveal that there is a highly positive relationship between academic support and students' engagement levels. 399 on the p-value equals.000.

**Table 6: Correlation Matrix of Social Culture and Student Engagement**

|                     | Social Culture | Student Engagement |
|---------------------|----------------|--------------------|
| Pearson Correlation | 1              | .317**             |
| Sig. (2-tailed)     |                | .000               |
| N                   | 423            | 423                |

The results shown in Table 5 reveal a relationship between social culture and students' engagement levels. 317 on the p-value equals.0000. Moreover, it indicates a highly positive and strong relationship between the two variables.

## 5. Discussion and Conclusion

The current study emphasizes that the learning environment has a positive and strong relationship with student engagement in universities. This study's conclusions align with (Gray & DiLoreto, 2016) findings, which demonstrate that student engagement significantly influences the relationship between learner interaction and instructor presence, thereby influencing perceived student learning and satisfaction. The results of the current study align with those of Limniou, Sedghi, Kumari, and Drousiotis (2022), who explored students' preferences for learning engagement in various learning contexts and found a correlation with several student engagement characteristics. The results of the current study are similar to those of Li and Xue (2023), who noted that factors that facilitate student engagement are the positive affect of the student, positive learning activities, positive teacher attitudes and behaviors, teacher-student interactions, and the social, family, and school learning context. The current study aligns with the findings of Hanaysha, Shriedeh, and In'airat (2023) study, which demonstrated the influence of class atmosphere and university premises on academic success and learners' interest.

Last but not least, it established a significant correlation between the results and the quality of the learning environment in universities. Exploring numerous aspects of educational context—physical, technological, and social—shows that all these constituents are relevant for demarcating student-learner experience and achievement. Thus, based on the findings, proper planning of the physical environment, with a focus on collaborative learning areas, and correct utilization of information technologies and communication media should yield more effective students' engagement. In addition to fostering a positive social atmosphere, clients and students experience fulfillment as a result of their participation in co-curricular activities and

peer engagement. As a result, colleges must enhance the educational experience and capitalize on these sectors to boost investment. This implies that institutions are authorized to establish environments that students should be exposed to on the basis that such environments have been transformed into intellectual and personally rewarding spaces as a result of research findings that specify the necessary modifications to learning settings. Consequently, the micro- and macro-fit values associated with the development of tangible physical environments and the current global advancements in information technology contribute to the establishment of a social context that enhances the satisfaction and accomplishments of students in higher education environments.

It is imperative for institutions to invest in and enhance support services, including academic advising, mentorship programs, and counseling, due to the substantial influence of student support services on engagement levels. All of these services are essential for the purpose of fostering a supportive campus environment, promoting academic success, and addressing student requirements. Promoting student engagement and overall well-being necessitates creating a positive campus environment. Initiatives that cultivate a sense of belonging, promote inclusivity and diversity, and enhance campus culture should be the primary focus of institutions. This may involve the coordination of extracurricular activities, events, and programs that foster student engagement and community development.

### 5.1. Recommendations

1. Enhance physical learning spaces to promote collaboration and active learning, ensuring they are comfortable, well-lit, and equipped with modern technology.
2. Invest in virtual engagement tools and platforms that support diverse learning styles, facilitating interactive learning experiences beyond traditional classroom settings.
3. The results of this research suggest that higher education institutions in Pakistan should prioritize improving teaching practices in order to increase student engagement. This may involve the implementation of active learning strategies, the promotion of student-centered approaches, and the provision of professional development opportunities for faculty members to enhance their teaching effectiveness.
4. It is advisable for institutions to conduct ongoing monitoring and evaluation of student engagement initiatives in order to assess their efficacy and pinpoint areas for improvement. This may entail the collection of feedback from students, the analysis of engagement metrics, and the periodic evaluation of engagement strategies.

### References

- Ali, M. M., & Hassan, N. (2018). Defining concepts of student engagement and factors contributing to their engagement in schools. *Creative Education*, 9(14), 2161-2170. doi:<https://doi.org/10.4236/ce.2018.914157>
- Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools*, 45(5), 369-386. doi:<https://doi.org/10.1002/pits.20303>
- Astin, A. W. (2014). Student involvement: A developmental theory for higher education. In *College student development and academic life* (pp. 251-262): Routledge.
- Bond, M., Buntins, K., Bedenlier, S., Zawacki-Richter, O., & Kerres, M. (2020). Mapping research in student engagement and educational technology in higher education: A systematic evidence map. *International journal of educational technology in higher education*, 17, 1-30. doi:<https://doi.org/10.1186/s41239-019-0176-8>
- Brooks, D. C. (2011). Space matters: The impact of formal learning environments on student learning. *British journal of educational technology*, 42(5), 719-726. doi:<https://doi.org/10.1111/j.1467-8535.2010.01098.x>
- Chandramohan, S., Jayamaha, A., & Yatigamma, K. Student Engagement in Teaching and Learning Environment: Evidence from Sri Lanka.
- Cooper, L., & Fry, K. F. (2020). The Relationship between Classroom Environment and Student Course Attrition and Perceptions of Engagement. *Journal of Learning Spaces*, 9(2), 93-102.
- Ferrell, A. (2012). *Classroom social environments, motivational beliefs, and student engagement*. University of Southern California,
- Fredricks, J. A., Wang, M.-T., Linn, J. S., Hofkens, T. L., Sung, H., Parr, A., & Allerton, J. (2016). Using qualitative methods to develop a survey measure of math and science

- engagement. *Learning and Instruction*, 43, 5-15. doi:<https://doi.org/10.1016/j.learninstruc.2016.01.009>
- Gray, J. A., & DiLoreto, M. (2016). The effects of student engagement, student satisfaction, and perceived learning in online learning environments. *International Journal of Educational Leadership Preparation*, 11(1), n1.
- Greene, B. A. (2015). Measuring cognitive engagement with self-report scales: Reflections from over 20 years of research. *Educational Psychologist*, 50(1), 14-30. doi:<https://doi.org/10.1080/00461520.2014.989230>
- Hanaysha, J. R., Shriedeh, F. B., & In'airat, M. (2023). Impact of classroom environment, teacher competency, information and communication technology resources, and university facilities on student engagement and academic performance. *International Journal of Information Management Data Insights*, 3(2), 100188. doi:<https://doi.org/10.1016/j.ijime.2023.100188>
- Handelsman, M. M., Briggs, W. L., Sullivan, N., & Towler, A. (2005). A measure of college student course engagement. *The Journal of Educational Research*, 98(3), 184-192. doi:<https://doi.org/10.3200/JOER.98.3.184-192>
- Hassan, U., Awan, G., & Awan, A. G. (2018). Effect of school environment on teacher's motivation and self-esteem at secondary level in District-Multan-Pakistan. *Global Journal of Management, Social Sciences and Humanities*, 4(1), 211-223.
- Hutain, J., & Michinov, N. (2022). Improving student engagement during in-person classes by using functionalities of a digital learning environment. *Computers & Education*, 183, 104496. doi:<https://doi.org/10.1016/j.compedu.2022.104496>
- Junco, R., Elavsky, C. M., & Heiberger, G. (2013). Putting twitter to the test: Assessing outcomes for student collaboration, engagement and success. *British journal of educational technology*, 44(2), 273-287. doi:<https://doi.org/10.1111/j.1467-8535.2012.01284.x>
- Kahn, P. E. (2014). Theorising student engagement in higher education. *British Educational Research Journal*, 40(6), 1005-1018. doi:<https://doi.org/10.1002/berj.3121>
- Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in higher education*, 38(5), 758-773. doi:<https://doi.org/10.1080/03075079.2011.598505>
- Kahu, E. R., & Nelson, K. (2018). Student engagement in the educational interface: Understanding the mechanisms of student success. *Higher education research & development*, 37(1), 58-71. doi:<https://doi.org/10.1080/07294360.2017.1344197>
- Khan, S., Mumtaz, M., Awan, M., Khan, M. A., Asghar, M., & Zaman, M. S. (2023). Social Environment At University: Investigating The Impact On Students' Motivation And Engagement. *Journal of Positive School Psychology*, 7(6), 1282-1288.
- Kidger, J., Araya, R., Donovan, J., & Gunnell, D. (2012). The effect of the school environment on the emotional health of adolescents: a systematic review. *Pediatrics*, 129(5), 925-949. doi:<https://doi.org/10.1542/peds.2011-2248>
- Kuh, G. D. (2009). What student affairs professionals need to know about student engagement. *Journal of College Student Development*, 50(6), 683-706. doi:<https://doi.org/10.1353/csd.0.0099>
- Li, J., & Xue, E. (2023). Dynamic interaction between student learning behaviour and learning environment: Meta-analysis of student engagement and its influencing factors. *Behavioral Sciences*, 13(1), 59. doi:<https://doi.org/10.3390/bs13010059>
- Limniou, M., Sedghi, N., Kumari, D., & Drousiotis, E. (2022). Student engagement, learning environments and the COVID-19 pandemic: A comparison between psychology and engineering undergraduate students in the UK. *Education Sciences*, 12(10), 671. doi:<https://doi.org/10.3390/educsci12100671>
- Malik, R. H., & Rizvi, A. A. (2018). Effect of Classroom Learning Environment on Students' Academic Achievement in Mathematics at Secondary Level. *Bulletin of Education and research*, 40(2), 207-218.
- Oliveras Ortiz, Y. (2017). The impact of learning environments on student engagement.
- Opdenakker, M.-C., & Minnaert, A. (2011). Relationship between learning environment characteristics and academic engagement. *Psychological Reports*, 109(1), 259-284. doi:<https://doi.org/10.2466/09.10.11.PR0.109.4.259-284>
- Payne, L. (2019). Student engagement: Three models for its investigation. *Journal of Further and Higher Education*, 43(5), 641-657. doi:<https://doi.org/10.1080/0309877X.2017.1391186>



- Reeve, J. (2012). A self-determination theory perspective on student engagement. In *Handbook of research on student engagement* (pp. 149-172): Springer.
- Reschly, A. L., & Christenson, S. L. (2022). *Handbook of research on student engagement*: Springer.
- Schmidt, J. A., Rosenberg, J. M., & Beymer, P. N. (2018). A person-in-context approach to student engagement in science: Examining learning activities and choice. *Journal of Research in Science Teaching*, 55(1), 19-43. doi:<https://doi.org/10.1002/tea.21409>
- Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary educational psychology*, 60, 101832. doi:<https://doi.org/10.1016/j.cedpsych.2019.101832>
- Sökmen, Y. (2021). The role of self-efficacy in the relationship between the learning environment and student engagement. *Educational Studies*, 47(1), 19-37. doi:<https://doi.org/10.1080/03055698.2019.1665986>
- Tas, Y. (2016). The contribution of perceived classroom learning environment and motivation to student engagement in science. *European Journal of Psychology of Education*, 31, 557-577. doi:<https://doi.org/10.1007/s10212-016-0303-z>
- Trowler, V. (2010). Student engagement literature review. *The higher education academy*, 11(1), 1-15.
- Webber, K. L., Krylow, R. B., & Zhang, Q. (2013). Does involvement really matter? Indicators of college student success and satisfaction. *Journal of College Student Development*, 54(6), 591-611. doi:<https://doi.org/10.1353/csd.2013.0090>
- Yang, G., Badri, M., Al Rashedi, A., Almazroui, K., Qalyoubi, R., & Nai, P. (2017). The effects of classroom and school environments on student engagement: the case of high school students in Abu Dhabi public schools. *Compare: A Journal of Comparative and International Education*, 47(2), 223-239. doi:<https://doi.org/10.1080/03057925.2016.1230833>
- Zepke, N. (2015). Student engagement research: Thinking beyond the mainstream. *Higher education research & development*, 34(6), 1311-1323. doi:<https://doi.org/10.1080/07294360.2015.1024635>