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Engagement of Students in Learning in Higher Education: The Role of Academic Library Spaces

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ABSTRACT: The paper aims to examine the role of academic library spaces to enhance engagement of students in learning in higher education. It has been observed that students engage themselves in different library spaces for learning purpose. This study has been conducted in public sector university and quantitative in nature. The students of sociology and economics constitute the population and a sample of 212 students has been selected through classified random sampling technique. A cross-section survey has been conducted using structured questionnaire based of different sections having an attitudinal scale of (dis)agreement. A pilot testing has also been done to check the reliability (Alpha value 0.700 and above). The data analysis has been done using normality test and Kendall's tau_b to draw results and conclusion. The study findings point out that silent zone spaces, creative learning, and collaborative learning have positive correlation and significant effects on engagement of students in learning. Similarly, communication skills learning, active learning, and effective learning have also correlated with engagement of students in learning in higher education. However, engagement of student has also been linked having correlation with creative learning, collaborative learning, communication skill learning, active learning, cognitive learning, effective learning, and job oriented learning. The overall, conclusion of the study indicates that engagement of students in learning has been linked with the academic library spaces in higher education.

KEYWORDS: Library Spaces, Students Learning, Collaborative Learning, Active Learning, Higher Education

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Introduction

It has been revealed that several studies have been conducted to analyze academic library spaces linkage with students learning in develop and developing countries (Abeyrathne & and Ekanayake, 2019; Harrison, 2018; Salisbury, Mollie, & Vanderlelie, 2020). In advance countries several facilities have been provides to students in academic library (Brown & Sen, 2010; Emerson, 2025; Shotick, 2024). However, these facilities have less reported in the academic libraries of the developing countries, and Pakistan has no extension (Shoaib, Tariq, Shahzadi, & Ali, 2022). Academic libraries in Pakistan have less insufficient space for students that has been unfocused (Howard, 2019). Engagement of student in learning indicates the level of interest, attention, positivity and desire to explore new ideas (Shoaib, Fatima, & Jamil, 2021). In higher education, it is a vital factor in influencing educational objectives, goals and success. The academic libraries help the student to utilize their time and energy in the informational activities for effective learning (Cook-Sather & Luz, 2015;

Masika & Jones, 2016; Yun & Park, 2020). Creative learning is the innovative technique to develop new skills by using advance methods and approaches. Creative learning approaches are problem based and project based (Shoaib, Ali, & Akbar, 2021). It is the formation of new methods by using facts and information to improve the learning skills (Crosling, Mahendhiran, & Vaithilingam, 2015; de la Harpe & Mason, 2014; Juusola, 2023). Collaborative learning implies a positive impact on student skills and engages students into group discussion, research project and teamwork to exchange their ideas with others (De Hei, Jan-Willem, Ellen, & Admiraal, 2015; Glaister, & Hussain, 2024; Okolie, Sunday, Oluseyi, Oladele, & Chucks, 2022).

Communication skill is a key element to work in collaboration (Ahmad, Shoaib, & Shaukat, 2021). It helps in sharing ideas, and thoughts to work in team. It also adds in listening and understanding to perform effectively in front of the audience (Khan, 2006; Ou, Michelle, & Lee, 2024; Staton & Tomlinson, 2001). Active learning refers to the engaging students in class activities such as discussions and debates to learn actively (Ahmad, Ahmad, Shoaib, & Shaukat, 2021). An active learning approach includes the student engagement in solving complex questions by thinking, assessing and investigating the problem (Shoaib, Shehzadi, & Abbas, 2024b). It highlights the thinking and analyzing abilities of the students (Roberts, 2018; White et al., 2016; Zivojinovic, Danijela, Aleksandra, Zorica, & Despotovic-Zrakic, 2024). The ability of the student to think actively about complex problems and then apply those ideas in solving the problem is termed as cognitive engagement. It explains the level at which learners are talented and proficient to do the difficult tasks and project (Maguire, Arlene, Philip, & Maguire, 2017; Park & Yun, 2018; Zhou & Ye, 2024). Effective learning supports student learning by gaining knowledge in a proficient and durable way. It comprises of different plans and methods to improve learning experience. Effective learning helps students in memorizing the concepts to improve understanding (Deeley, 2018; Mathew & Ibrahim, 2023; Todd & Todd, 1979). Job oriented learning focus on the activity of trainers and employees with expertise and information required to contribute in society (Shoaib, Shehzadi, & Abbas, 2024a). Job oriented learning includes official trainings and latest short courses for advancing in career. It creates a link between learners and professionals to acquire different skills in effective way (Cumar, Zeleke, Golga, & Dinsa, 2025; Kyndt, Vincent, David, & Van-Petegem, 2014; Moore & Morton, 2017). Hence, the study aims to examine the role of academic library spaces to enhance engagement of students in learning in higher education.

Review of Literature

The existing body of literature pointed out that academic use of libraries and visit frequency were greatly increased when one is familiar with the space layout (De-Korne, & Rios Rios, 2019; Shoaib, 2024b). As mentioned in the study findings indicated that workshops increase participation by instructing students on how to find and assess scholarly materials efficiently (Brooks, Kate, & Sela, 2015; Shoaib, Shehzadi, & Abbas, 2023). Similarly, the study asserted that library stress-reduction programs enhance mental health and effects to promote return visits for scholarly purposes (Sharma, Jain, & Kumar, 2017; Shoaib, 2024a). Likewise, the crux of the study clinched that students' engagements greatly impacted by the fair rules and regulation in library at tertiary level (Arshad, Anwar, & Shoaib, 2024; Panda, Atul, & Satapathy, 2024). Moreover, the analysis of the study revealed that students' perceptions of institutional accountability and contemporary values were influenced by sustainability initiatives such as recycling bins (Matheson, Elizabeth, & Reynolds, 2020; Shoaib, 2023a). In the same token, the study findings articulated that makes use of inclusive language promotes equity and makes all students feel more at ease in the classroom (Ali, Zaman, & Shoaib, 2024; Prentice, 2011). Moreover, the research revealed that creative thinking and interdisciplinary scholarly investigation can be

stimulated by art exhibits in libraries (Ching, A., & Parisi, 2004; Shoaib, 2021). The study conducted in the past reported that research interest is heightened and relevance is increased by academic displays connected to current student assignments (Escolano-Pérez, 2014; Shoaib, Zaman, & Abbas, 2024).

The existing body of literature pointed out that areas were close to academic departments have increased traffic and engagement rates (Okolie et al., 2022; Shoaib, Usmani, & Abdullah, 2023). As mentioned in the study findings indicated that collaboration between librarians and professors improves resource alignment and efficiently supports academic objectives (De-Hei et al., 2015; Naseer, Shoaib, & Naseer, 2022). Similarly, the study asserted that career panels organized by libraries encourage scholarly inquiry across disciplines and improve real-world relevance at higher education level (Ayala & Ramirez, 2019). Likewise, the crux of the study clinched that lack of facilitation in academic libraries negatively effects the students' engagements at university level in developing countries (Barnacle & Dall'Alba, 2017; Shoaib & Abdullah, 2021). Moreover, the analysis of the study revealed that academic library settings, gender-neutral facilities encourage inclusive involvement enhancing access (Shoaib, Mehmood, & Butt, 2022; Sullivan, 2010). In the same token, the study findings articulated that learning stations in libraries that incorporate assistive technology are beneficial to students with impairments (Staton & Tomlinson, 2001). Moreover, the research revealed that inconsistent furniture placements limit useable space and make concentrated or cooperative academic work more difficult (Hendry, M., Michael, & Sze, 2006; Shoaib, Abdullah, Naqvi, & Ditta, 2024). The study conducted in the past reported that lack of quality data negatively effects the skills of researcher at tertiary level (Duzevic, 2015).

The existing body of literature pointed out that long-term academic investment and intellectual curiosity were increased by exposure to scholarly sources outside of the classroom (Damsa & Muukkonen, 2020). As mentioned in the study findings indicated that indoor special use spaces helps students concentrate with more mental clarity and less stress (Moscovitz & Sabzalieva, 2023; Shoaib, Naseer, & Naseer, 2023). Similarly, the study asserted that academic library spaces and emotional aesthetics significantly affect students' drive to learn (Ren, 2024; Shoaib, 2023b). Likewise, the crux of the study clinched that students who struggle with sensory processing might benefit greatly from private booths and encourage concentrated attention at tertiary level (Shoaib, 2024e; Siddiqui, Nazmun, Sahadet, Ahmed, & Ali, 2024). Moreover, the analysis of the study revealed that students who were asked to comment on the materials and places in the library report feeling more ownership (Hou, 2024; Shoaib, 2024c). In the same token, the study findings articulated that libraries that provide bilingual resources empower students from other countries and foster an understanding of academic globalization (Hajdarpasic, Angela, & Popenici, 2015; Shoaib & Zaman, 2025). Moreover, the research revealed that research teaching that is included into the course improves undergraduates' academic achievement and library usage (Baxter et al., 2021; Shoaib, 2024d). The study conducted in the past reported that students were far more inclined to use the academic materials that were accessible when faculty members support library services (Lumley, 2014).

The Data and Methods

This study has been conducted in a public sector university and quantitative study in nature. The students of the Department of Sociology and Economics constitute the population enrolled in BS (4 Years) program (Spring Semester-2025). A sample of 212 male and students has been sampled using classified random sampling technique. A cross-sectional survey has been conducted and structured questionnaire has been used for data collection consisting of different parts. A pre-testing has also been done from 25 randomly

selected students to check the reliability as the value of Alpha .700 and above. Further, socio-demographic characteristics, normality test (Kolmogorov-Smirnov and Shapiro-Wilk), a Kendall's tau_b has been done to draw results.

Results and Discussion

This section of the study has been based of different parts including socio-demographic characteristics, normality test, and Kendall's tau_b test. The details are as followings;

Table 1

Socio-demographic Characteristics

Category	*f*	%	Category	*f*	%
Gender			**Residential Area**		
Male	33	15.6	Rural	133	62.7
Female	179	84.4	Urban	79	37.3
Total	212	100	Total	212	100
Father's Education			**Mother's Education**		
Uneducated	7	3.3	Uneducated	22	10.4
Primary	9	4.2	Primary	20	9.4
Middle	6	2.8	Middle	8	3.8
Matric	90	42.5	Matric	78	36.8
Intermediate	52	24.5	Intermediate	48	22.6
Bachelor of Arts	17	8.0	Bachelor of Arts	21	9.9
Master of Arts	31	14.6	Master of Arts	15	7.1
Total	212	100	Total	212	100
Age (Years)			**Family Size**		
Up to 19	30	14.2	Up to 2	2	0.9
20-21	92	43.4	3-5	65	30.7
22-23	68	32.1	6-8	116	54.7
24 & Above	22	10.4	9 & Above	29	13.7
Total	212	100	Total	212	100
Semester			Family Type		
Second	23	10.8	Nuclear	159	75.0
Fourth	66	31.1	Joint	52	24.5
Sixth	64	30.2	Extended	1	0.5
Eights	59	27.8	Total	212	100
Family Income (PKR)					
Up to 30000	14	6.6			
30001-50000	52	24.5			
50001-70000	30	14.2			
70001-90000	20	9.4			
90001& Above	96	45.3			
Total	212	100			

The primary data analysis pointed out that 84.4 percent of the students belong to female gender categories and only smaller proportion of the students were male. Similarly, the data analysis also indicated 62.7 percent of the students had been residing in rural resident backgrounds and only 37.3 percent of the students had urban residences. However, the data indicated that a larger proportion of father's education 42.5 percent completed matric level education, and only 2.8 percent completed middle level education. Likewise, the data asserted that large proportion of mother's education 36.8 percent completed matric level education, and only 3.8 completed middle level education. Similarly, the data pointed out that 45.3 percent of families had income level 90001& above and only 6.6 percent of families had income level up to 300000. In the same way, 43.4 percent of the students age 20-21 years and only 10.4 percent of the students age between 24 and above years. However, the primary data indicated that 54.7 percent of students had family size between 6-8 and only 0.9 percent of students had family size up to 2. Likewise, the data asserted that 31.1 percent students from four semesters and only 10.8 from second semester. In the same way the primary data indicated that 75.0 percent of students belonged to nuclear family type and only 0.5 percent belonged to extended family size.

Table 2

Test of Normality

Variables	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Collection Spaces (COSP)	.095	212	.000	.977	212	.002
Special Use Spaces (SPUS)	.132	212	.000	.979	212	.003
User Setting Spaces (USSS)	.097	212	.000	.987	212	.051
Discussion Spaces (DISP)	.081	212	.002	.985	212	.021
Silent Zone Spaces (SIZS)	.149	212	.000	.958	212	.000
Audio\Video Spaces (AUVS)	.098	212	.000	.981	212	.006
Staff Work Spaces (STWA)	.084	212	.001	.987	212	.043
Creative Learning (CRLE)	.098	212	.000	.982	212	.008
Collaborative Learning (COLE)	.143	212	.000	.975	212	.001
Communication Skill Learning (COSL)	.111	212	.000	.980	212	.004
Active Learning (ACLE)	.153	212	.000	.958	212	.000
Cognitive Engagement (COEN)	.132	212	.000	.969	212	.000
Effective Learning (EFLE)	.135	212	.000	.961	212	.000
Job Oriented Learning (JOOL)	.120	212	.000	.971	212	.000
Engagement of Students in Learning (EOSL)	.108	212	.000	.977	212	.001
Academic Library Spaces (ACLS)	.079	212	.002	.988	212	.072

The calculated values of Kolmogorov-Smirnov and Shapiro-Wilk that confirmed that the majority of the variables had not been normally distributed and found non-parametric. Hence, non-parametric tests i.e. Kendall's tau_b had been applied.

Table 3

Kendall's tau_b Statistical Test (Academic Library Spaces)

Variables	COSP	SPUS	USSS	DISP	SIZS	AUVS	STWS	EOSL
COSP	1.000	.415**	.384**	.386**	.271**	.169**	.342**	.382**
SPUS		1.000	.372**	.467**	.151**	.407**	.298**	.305**
USSS			1.000	.521**	.320**	.272**	.453**	.423**
DISP				1.000	.270**	.407**	.463**	.399**
SIZS					1.000	.106*	.361**	.405**
AUVS						1.000	.333**	.221**
STWS							1.000	.470**
EOSL								1.000

The primary data analysis asserted the results of statistical tests that moderate positive correlation (tau_b=.384) between collection spaces and user setting spaces. The study findings pointed out that moderate positive correlation (tau_b=.386) between collection spaces and discussion spaces. The primary data asserted the results of statistical tests that weak positive correlation (tau_b=.271) between collection spaces and silent zone spaces. The data collected from field asserted the results of statistical tests that weak positive correlation (tau_b=.169) between collection spaces and audio/vido spaces. The results of statistical tests clinched that moderate positive correlation (tau_b=.342) between collection spaces and staff work spaces. The analysis indicated that moderate positive correlation (tau_b=.382) between collection spaces and engagement of students in learning. The primary data asserted that moderate positive correlation (tau_b=.372) between special use spaces and user setting spaces. The results of statistical tests that moderate positive correlation (tau_b=.467) between special use spaces and discussion spaces. The primary data asserted the results of statistical tests that weak positive correlation (tau_b=.151) between special use spaces and silent zones spaces. The results of statistical tests pointed out that moderate positive correlation (tau_b=.407) between special use spaces and audio/video spaces.

The primary data asserted the results of statistical tests that weak positive correlation (tau_b=.298) between special use spaces and staff work spaces. The primary data asserted the results of statistical tests that weak positive correlation (tau_b=.305) between special use spaces and engagement of students in learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.521) between user setting spaces and discussion spaces. The primary data asserted the results of statistical tests that weak positive correlation (tau_b=.320) between user setting spaces and silent zone spaces. The study findings based of the results of statistical tests that weak positive correlation (tau_b=.272) between user setting spaces and audio/video spaces. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.453) between user setting spaces and staff work spaces. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.423) between user setting spaces and engagement of students in learning. The primary data asserted the results of statistical tests that weak positive correlation (tau_b=.270) between discussion spaces and silent zone spaces. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.407) between discussion spaces and audio/video spaces.

The results of statistical tests clinched that moderate positive correlation (tau_b=.463) between discussion spaces and staff work spaces. The primary data outlined that moderate positive correlation (tau_b=.399) between discussion spaces and engagement of students in learning. The primary data asserted the results of statistical tests that weak positive correlation (tau_b=.106) between silent zone spaces and audio/video spaces. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.361) between silent zone spaces and staff work spaces. The primary data asserted that moderate positive correlation (tau_b=.405) between silent zone spaces and engagement of students in learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.333) between audio/video spaces and staff work spaces. The primary data asserted that weak positive correlation (tau_b=.221) between audio/video spaces and engagement of students in learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.470) between staff work spaces and engagement of students in learning.

Table 4

Kendall's tau_b Statistical Test (Engagement of Students in Learning)

Variables	CRLE	COLE	COSL	ACLE	COEN	EFLE	JOOL	EOSL
CRLE	1.000	.441**	.356**	.331**	.389**	.403**	.328**	.598**
COLE		1.000	.431**	.484**	.413**	.420**	.394**	.638**
COSL			1.000	.495**	.436**	.445**	.368**	.618**
ACLE				1.000	.512**	.531**	.472**	.590**
COEN					1.000	.460**	.369**	.627**
EFLE						1.000	.489**	.567**
JOOL							1.000	.572**
EOSL								1.000

The primary data analysis asserted that moderate positive correlation (tau_b=.441) between creative learning and collaborative learning. The data asserted the results of statistical tests that moderate positive correlation (tau_b=.356) between creative learning and communication skill learning. The statistical tests pointed out that weak positive correlation (tau_b=.331) between creative learning and active learning. The primary data asserted that moderate positive correlation (tau_b=.389) between creative learning and cognitive engagement. The study revealed that moderate positive correlation (tau_b=.403) between creative learning and effective learning. The primary data of the field revealed the weak favorable positive correlations of variables (tau_b=.328) between creative learning and job oriented learning. The study findings asserted that moderate positive correlation (tau_b=.598) between creative learning and engagement of students in learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.431) between collaborative learning and communication skill learning. The study findings argued that moderate positive correlation (tau_b=.484) between collaborative learning and active learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.413) between collaborative learning and cognitive engagement. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.420) between collaborative learning and effective learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.394) between

collaborative learning and job oriented learning. The findings asserted that moderate positive correlation (tau_b=.638) between collaborative learning and engagement of students in learning.

The data indicated that moderate positive correlation (tau_b=.495) between communication skill learning and active learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.436) between communication skill learning and cognitive engagement. The results revealed that moderate positive correlation (tau_b=.445) between communication skill learning and effective learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.368) between communication skill learning and job oriented learning. The primary data asserted that moderate positive correlation (tau_b=.618) between communication skill learning and engagement of students in learning.

The primary data asserted that moderate positive correlation (tau_b=.512) between active learning and cognitive engagement. The data asserted the results of statistical tests that moderate positive correlation (tau_b=.531) between active learning and effective learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.472) between active learning and job oriented learning. The findings clinched that moderate positive correlation (tau_b=.590) between active learning and engagement of students in learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.460) between cognitive engagement and effective learning. The results of statistical tests asserted that moderate positive correlation (tau_b=.369) between cognitive engagement and job oriented learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.627) between cognitive engagement and engagement of students in learning. The primary data asserted the results of statistical tests that moderate positive correlation (tau_b=.489) between effective learning and job oriented learning. The data indicated that moderate positive correlation (tau_b=.567) between effective learning and engagement of students in learning. The data asserted that moderate positive correlation (tau_b=.572) between job oriented learning and engagement of students in learning.

Table 5

Correlation between EOSL and ACLS

Variables		EOSL	ACLS
EOSL	Correlation Coefficient	1.000	.508**
	Sig. (2-tailed)	.	.000
	N		212

**. Correlation is significant at the 0.01 level (2-tailed).

The study findings outline that students had their relevant book in the library. Further, the study summarized that students had their relevant audio material in the library. As the study findings point out that students had their relevant video material in the library. In the same token, the field data show that students had their relevant textbooks in the library. In the same way, the analysis of the data highlighted that students had their relevant history books in the library. The analysis of the study asserted that students had their relevant magazine in the library. Similarly, study findings point out that rare material had available in student's library. Likewise, the statistical analysis revealed that student's subject related books are placed in the library. These

study findings had been found similar to the study findings of several studies conducted in the *Global South and Global North (Badia, 2020; Scherlen & McAllister, 2019; Shotick, 2024).* The existing body of literature pointed out that recent research highlights the importance of academic library spaces greatly in engaging students learning at higher education (Puaca, 2021). Similarly, the study asserted that controlling noise in silent zone spaces had a direct impact on students' focus, productivity, and happiness during long study periods (Appleton, 2020). Moreover, the analysis of the study revealed that libraries that successfully facilitated both individual study and discussion spaces saw an increase in academic engagement (Rakhmatullaev & Hedrich, 2023). Moreover, the research revealed that longer study sessions were consistently linked to comfortable user setting spaces and more creative learning interactions (Cerbo, 2012).

The analysis of the study asserted that students had washrooms facilities in the library. Further, the study summarized that students had silent zones in the library. As the study findings point out that students had special spaces for disable students. In the same token, the field data show that students had group study rooms in the library. In the same way, the analysis of the data highlighted that students had multimedia rooms for study. The analysis of the study asserted that students had nursing rooms in the library. Similarly, study findings point out that students had language labs in the library. Likewise, the statistical analysis revealed that students had tutoring spaces in the library. These study findings had been found similar to the study findings of several studies conducted in the *Global South and Global North (Howe, 2011; Kubina, & Datchuk, 2010; Moriña, 2017).* The existing body of literature pointed out that user setting spaces in library had a significant impact on how people connect emotionally and become motivated to pursue academic goals for future (Chau & Cheung, 2018). Similarly, the study asserted that special use spaces in library enable users to customize spaces, improving each student's academic success and happiness (Mubofu & Mambo, 2022). Moreover, the analysis of the study revealed that academic confidence and collaborative learning were directly impacted by access and that librarians mediate (Brine & Knight, 2021). Moreover, the research revealed that students with disabilities were guaranteed to feel included, encouraged, and academically proficient thanks to inclusive and accessible design (Kleckner & Butz, 2021).

The study findings outline that library resources help students in generating news ideas. Further, the study summarized that library environment encourages students' creativity. As the study findings point out that open- ended projects in library helps in creativity. In the same token, the field data show that exploring different resources improves students' creativity. In the same way, the analysis of the data highlighted that students prefer creative methods in their academic tasks. The analysis of the study asserted that students had used new approaches during studies. Similarly, study findings point out that students analyze phenomena critically. Likewise, the statistical analysis revealed that students had unique solutions of study issues. These study findings had been found similar to the study findings of several studies conducted in the *Global South and Global North (Crosling et al., 2015; Havsteen-Franklin, Jasmine, & Anas, 2023; Karunarathne & Calma, 2024).* The existing body of literature pointed out that long-term academic investment and intellectual curiosity are increased by exposure to scholarly sources outside of the classroom (Damsa & Muukkonen, 2020). Similarly, the study concludes asserted that academic library settings and emotional aesthetics significantly affect students' drive to learn (Ren, 2024). Moreover, the analysis of the study revealed that students who are asked to comment on the materials and places in the library report feeling more ownership (Hou, 2024). Moreover,

the research revealed that research teaching during covid-19 that is included into the course improves undergraduates' academic achievement and library usage (Baxter et al., 2021).

The study findings clinched that collaborative learning strengthen students' communication skills. Further, the study summarized that students easily understand topic better in library in front of others. As the study findings point out that students participate actively in group discussions. In the same token, the field data show that students learn more through collaboration. In the same way, the analysis of the data highlighted that group work improves student's problem-solving-skills. The analysis of the study asserted that students feel support from peers in collaborative learning. Similarly, study findings point out that collaborative learning is essential for students' studies. Likewise, the statistical analysis revealed that group projects enhance students learning experiences. These study findings had been found similar to the study findings of several studies conducted in the *Global South* and *Global North* (De-Hei et al., 2015; Glaister et al., 2024; Okolie et al., 2022). The existing body of literature pointed out that library staff members may concentrate on providing valuable academic help while increasing efficiency using automated methods (Gale & Mills, 2013). Similarly, the study concludes asserted that for the best learning results greatly impacted on academic libraries environment (Zhu, Martin, & Schellens, 2010). Moreover, the analysis of the study revealed that frequent evaluation of library uses aids in the improvement of student engagement tactics (Ito & Takeuchi, 2022). Moreover, the research revealed that within libraries, student artwork expresses a common academic identity and promotes ownership at tertiary level (Havsteen-Franklin et al., 2023).

The analysis of the study that students practice communication skills during their study. Further, the study summarized that students feel confident during discussions in front of others. As the study findings point out that students present their ideas in front of students. In the same token, the field data show that students work on improving their communication skills. In the same way, the analysis of the data highlighted that library resources help students in improving communication. The analysis of the study asserted that students communicate their ideas clearly in group activities. Similarly, study findings point out that students received feedback on their communication skills. Likewise, the statistical analysis revealed that effective communication is the key to learn effectively. These study findings had been found similar to the study findings of several studies conducted in the *Global South* and *Global North* (Birdsall, 2010; Ou et al., 2024; Steele, 2015). The existing body of literature pointed out that there are different methods which affects students at university level on the basic of their gender (Burke, 2017). Similarly, the study concludes asserted that disability affects students' engagement in learning at higher education in Italian university (Biggeri, Diego, & Bellacicco, 2020). Moreover, the analysis of the study revealed that the difference academics standards and quality affects cognitive learning in global higher education (Sharp, 2017). Moreover, the research revealed that academic library expanding its collection spaces to create more inclusive learning environment among students (Patel & Appleton, 2024).

Conclusion

The study concluded that the positive correlation has been found between silent zone spaces, creative learning, and collaborative learning along with engagement of students in learning in higher education. Similarly, communication skills learning, active learning, and effective learning has also positive correlation with engagement of students in learning in higher education. The study finding indicate that academic library

spaces has contributed towards the engagement of students in learning process in higher education. These spaces include collection spaces, special use spaces, user setting spaces, discussion spaces, silent zone spaces, audio\video spaces, and staff work spaces. However, engagement of student has also been linked with creative learning, collaborative learning, communication skill learning, active learning, cognitive learning, effective learning, and job oriented learning. The overall, conclusion of the study indicated that engagement of students in learning has been linked with the academic library spaces in higher education.

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