Architecture
Image Studies
AIS Scientific Journal

Vol.6 , Issue 1, Territories, 2025

The Psychology of Architectural Environment: How Design Influences Learning and Personal Development

Yurii Kalichak[1,*], Oleksandr Posatskyi[2], Mariana Halushchak[3], Zhanna Yanko[4], Artem Semenovskyi[5] and Andrii Zymianskyi[6]

[1] Ph.D. in Pedagogy, Associate Professor, Department of General Pedagogy and Preschool Education, Drohobych Ivan Franko State Pedagogical University, Drohobych 82100 Ukraine; E-Mail: yukalichak@gmail.com, https://orcid.org/0000-0003-4348-1740

[2] Ph.D. in Psychology, Associate Professor, Department of Psychology, Drohobych Ivan Franko State Pedagogical University, Drohobych 82100 Ukraine; E-Mail: boroda-63@ukr.net, https://orcid.org/0000-0002-2705-7475

[3] Ph.D. in Philosophy, Senior Lecturer, Department of Philosophy, Sociology and Political Science named after Professor Valeriy Skotnyi, Drohobych Ivan Franko State Pedagogical University, Drohobych 82100 Ukraine; E-Mail: halushchakmariana3@gmail.com, https://orcid.org/0000-0002-5088-8701

[4] Ph.D. in Philosophy, Associate Professor, Department of Philosophy, Sociology and Political Science named after Professor Valeriy Skotnyi, Drohobych Ivan Franko State Pedagogical University, Drohobych 82100 Ukraine; E-Mail: zhanna_yanko@ukr.net, https://orcid.org/0000-0001-9323-0160

[5] Ph.D. Student, Department of Public Administration, Interregional Academy of Personnel Management, Ukraine; E-Mail: semenovsky77@gmail.com, https://orcid.org/0009-0004-0032-490X

[6] Ph.D. in Psychology, Associate Professor, Department of Psychology, Drohobych Ivan Franko State Pedagogical University, Drohobych 82100, Ukraine; zimyan79@ukr.net, https://orcid.org/0000-0001-6175-9895

* Corresponding author

Abstract

This paper investigates the relationship between architectural design and its psychological effects on learning and personal development. It focuses on how elements such as spatial organization, lighting, color, and materials influence cognitive processes, emotional well-being, and social interactions within educational environments. Utilizing a comprehensive literature review and case study analysis of such educational institutions as Trinity College Dublin (TCD), École Polytechnique Fédérale de Lausanne (EPFL), and the University of Tokyo, the study identifies key design features that enhance engagement and collaboration among learners. Observational assessments provide essential information about student-teacher interactions within educational environments. Educational settings require purposeful architectural design to become productive spaces which support comprehensive personal development.

Keywords

The architecture of higher education institution (HEIs), Design effects, Cognitive processes, Educational architecture, Emotional health, Psychology of space.

1. Introduction

The arrangement of educational spaces directly affects learners' development through impacts on their intellectual advancement and emotional/social connections. The implementation of current teaching methods by educational institutions requires a deeper understanding of how architectural design affects students psychologically (Semenets-Orlova et al. 2019a; Stryhul et al. 2019). Numerous elements such as spatial organization, lighting setups, color choices and material selections impact educational spaces and learning environments. Students' academic success and their interactions with both physical spaces and peers depend significantly on architectural design elements. Architectural psychology research indicates learners benefit cognitively through emotional fortitude building while intentional educational space designs encourage group work collaboration. The study suggests that natural lighting and open floor plans enhance concentration and alleviate stress whereas bright colors and flexible spaces promote creative thought and social participation. The existing educational design research has not yet performed detailed investigations into which design elements create effective learning environments (Sukkar et al. 2024).

1.1. Hypothesis

Architectural design elements like spatial organization and lighting choices help educational settings improve both cognitive abilities and emotional health while supporting social interactions through their color schemes and material selections. The research aims to fill current knowledge voids by analyzing how various architectural designs can improve psychological learning results along with personal growth. This research identifies key design elements that promote student participation and teamwork through an extensive review of literature and case studies from Trinity College Dublin (TCD), École Polytechnique Fédérale de Lausanne (EPFL), and the University of Tokyo. This research will use observational assessments to collect vital data on student-educator interactions within learning environments that illustrate how purposeful architectural design enhances broad personal development opportunities.

1.2. Conceptual Framework

The study builds upon the belief that architectural design functions as an important intermediary between design elements and psychological outcomes. The framework claims that specific design elements in architecture lead to enhanced cognitive engagement and positive emotions along with increased social interactions which create an improved environment for learning. It is essential to understand how architectural design influences psychology because educational institutions have gained recognition as catalysts for innovation and individual growth. This study enhances academic knowledge and offers practical guidance for architects and educators as well as policymakers seeking to develop spaces that promote learning effectiveness and personal development.

2. Literature Review

Architectural design principles and psychological research are now combined into a prominent field of study focusing mainly on educational settings. The review synthesizes current research on architectural features which influence educational development and personal growth by investigating spatial configurations and lighting.

The examination identifies basic theoretical frameworks which clarify these relationships. Studies have analyzed how architectural design affects learning outcomes according to research findings from (Soliman, 2017; Elsayed and Shakour, 2024). The study by (Hanaysha et al. 2023) revealed that physical learning environments directly affect both student performance and engagement. The research revealed that adaptable layouts and natural lighting access are essential design elements strongly connected to better academic performance. According to (Mor-Avi, 2020) flexible and open spatial organization supports collaborative learning by enabling better student interaction and knowledge sharing.

Constructivism theory suggests that knowledge formation occurs through learners' active engagement with their surroundings and hands-on experiences. Constructivist educational theories guide the design of collaborative learning spaces which produce enhanced learning experiences.

Spatial organization refers to the configuration of interior spaces in academic buildings. Organized environments boost cognitive performance as well as emotional health. Research by (Young et al. 2021; Yesil and Aras, 2024) demonstrates increased student engagement and participation through flexible seating designs in classrooms. The authors suggest educational environments which facilitate movement and interactive activities will boost student motivation and build community connections.

The field of Environmental Psychology reveals how spatial organization influences human behavior and emotional reactions through its examination of human-environment interactions. Environmental psychology principles demonstrate that educational spaces created with detailed attention lead to improved learning outcomes. Proper lighting stands as an essential requirement for developing educational spaces. Natural light exposure generates better mood states and cognitive function while enhancing overall well-being. The study by (Brink et al. 2021) demonstrated that student satisfaction increased and stress levels decreased in classrooms that received sufficient natural light exposure. Students experience more fatigue and worse cognitive functioning when their learning environment has insufficient lighting according to (Madvari et al. 2023).

Natural light exposure boosts attention span and enhances cognitive performance according to Attention Restoration Theory (Trammell and Aguilar, 2021). Natural light in learning spaces improves student concentration while decreasing mental fatigue. Research studies have examined how different colors affect students' mental functioning in educational settings. The research by (Awad et al. 2025) discloses that colors generate distinct emotional responses and behavioral patterns with specific colors enhancing concentration and relaxation and others igniting creativity and energy. The study by (Enwin et al. 2023) demonstrated that blue colors help create environments for focused learning and that yellow colors boost positive emotions which lead to increased creativity. Color Theory examines how specific colors trigger distinct emotional reactions and behavioral responses. Educators and architects apply color psychology principles to create learning environments that boost engagement through strategic mood manipulation.

Educational architecture materials have a significant impact on both the aesthetic quality and functional effectiveness of learning spaces. Studies reveal that sound-absorbing materials produce lower noise levels which enable better concentration and minimize distractions (Casali, 2021; Ali et al. 2023). The study by (Leavell et al. 2019) demonstrates that sustainable materials which are derived from nature evoke positive emotional responses and strengthen our connection to the environment.

Biophilic Design Theory argues that humans possess a natural connection with nature and recommends adding natural design elements to boost wellness and creativity. Educational architecture that incorporates biophilic design principles delivers superior outcomes for student needs. Effective learning space design serves as a fundamental tool to create social connections and develop a strong student community. Khan's research illustrates how lounges and collaborative workspaces foster community connections and enhance peer interactions. These spaces provide social networks that allow students to develop informal learning connections while experiencing better emotional health (Khan, 2024).

Social Constructivism: According to this theory, the learning process fundamentally depends on social interactions. The design of communal spaces in architecture supports social constructivist principles because it enables learners to work together and build community bonds (Taylor, 2009; Salama, 2016; Njai, 2021).

Spatial organization alongside lighting color and material choice creates meaningful impacts on cognitive functions, emotional wellness, and social dynamics in educational settings (Goldhour, 2024; Lebasi and Talischi, 2024). A range of theoretical frameworks, including Constructivism, Environmental Psychology, Attention Restoration Theory, Color Theory, Biophilic Design Theory, and Social Constructivism, offer essential knowledge about these relationships. The ongoing evolution of educational institutions requires architects, educators, and policymakers to apply these research findings when designing learning environments. When educational environments support effective learning and personal development, institutions that boost academic results and encourage complete student growth will emerge.

3. Materials and Methods

The research encompasses a thorough review of existing literature and conducts case study analysis alongside observational evaluations of chosen educational institutions, as seen in Table 1. This study evaluates three institutions: Trinity College Dublin (TCD), as shown in Figure 1; École Polytechnique Fédérale de Lausanne (EPFL), displayed in Figure 2; and the University of Tokyo, which is represented in Figure 3.

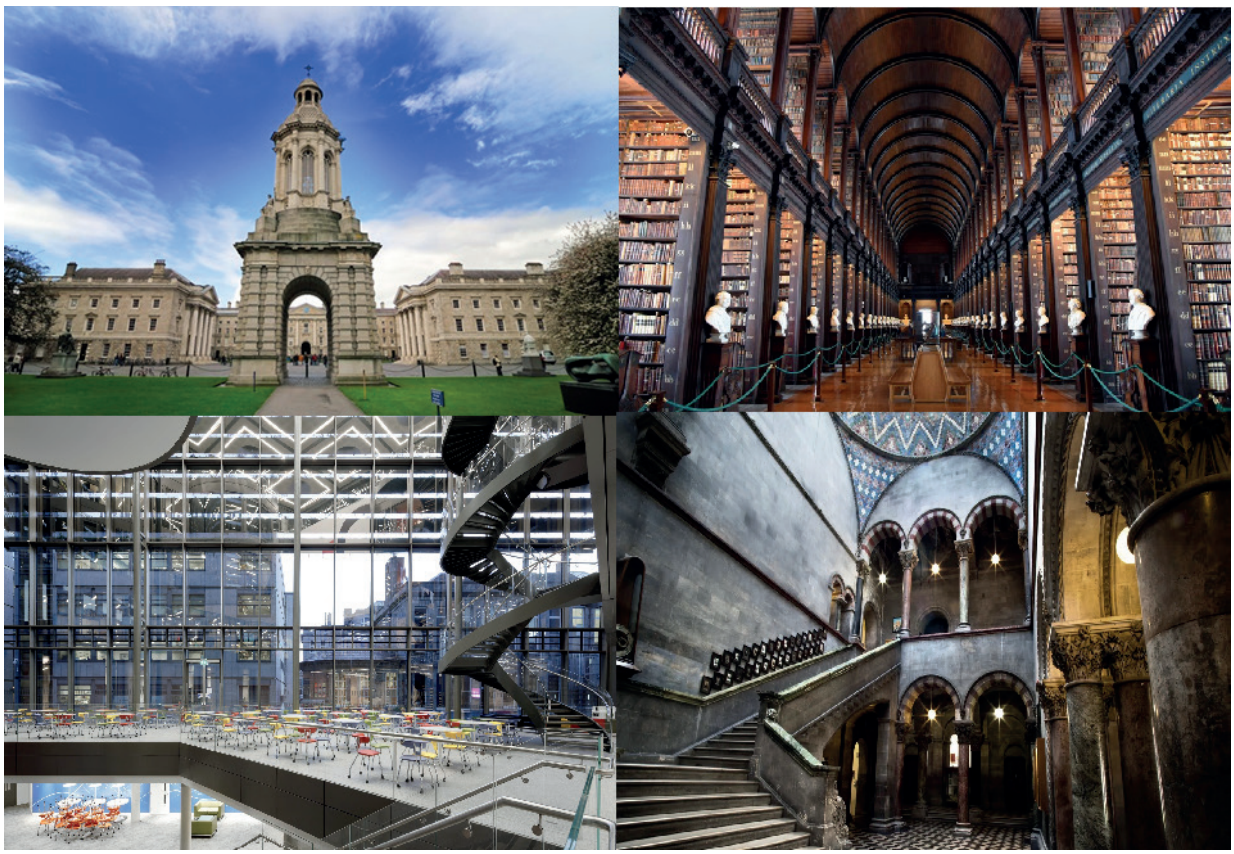

Figure 1. Trinity College Dublin (TCD) Architecture, (Dublin, Ireland) Source: Compiled by the authors

Figure 2. École Polytechnique Fédérale de Lausanne (EPFL) Architecture (Lausanne, Switzerland)
Source: Compiled by the authors

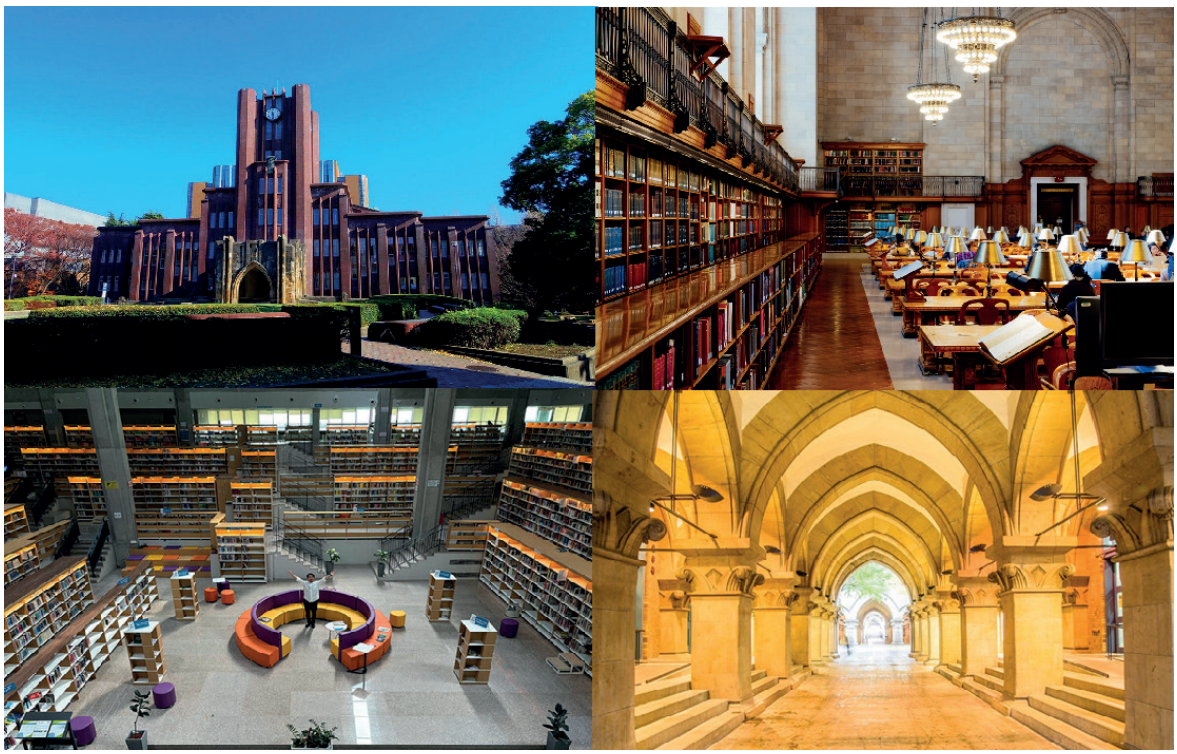

Figure 3. University of Tokyo Architecture (Tokyo, Japan). Source: Compiled by the authors

The selection of these universities occurred after evaluating several criteria:

• Diversity of Architectural Styles: Each university's architecture showcases unique designs that reveal varying cultural and educational beliefs. The range of architectural designs enables extensive research into the effects of different design features on educational settings.

• Reputation for Innovation in Education: These three universities are recognized because they demonstrate a strong dedication to innovative teaching and learning methodologies. Their architectural designs align well with modern teaching methods, making them perfect subjects for this research study.

• Accessibility for Observational Assessments: The institutions enable direct observation opportunities where researchers can study interactions between students and educators in their learning spaces. Obtaining qualitative data about the effects of architectural elements on engagement and collaboration requires this level of accessibility.

University	Founded	Location	Architectural Features	Focus Areas
Trinity College Dublin (TCD)	1592	Dublin, Ireland	Blend of historic and contemporary architecture; Learning Commons with flexible spaces	Enhancing learning through natural light, communal areas, and a mix of old and new architectural styles
École Polytechnique Fédérale de Lausanne (EPFL)	1969	Lausanne, Switzerland	Modern architectural designs prioritizing open spaces; Learning Center emphasizing transparency and flexibility	Facilitating interaction and creativity through collaborative environments
University of Tokyo	1877	Tokyo, Japan	Diverse architectural styles, including traditional Japanese and modern buildings; communal spaces	Fostering collaboration and community; integrating nature into design to support biophilic principles

Table 1. Overview of Selected Universities and Their Architectural Features. Source: Compiled by the authors

3.1. Data Collection Methods

• Virtual Observational Assessments: Through video recordings and live streams, the research team performed virtual observational assessments of classes and interactions in architectural spaces at each institution. Observations focused on how design elements such as spatial organization, lighting, color, and materials influenced engagement, collaboration, and emotional well-being. This approach allowed for the analysis of interactions in real-time or through recorded sessions, ensuring that the architectural context was preserved.

• Online Interviews and Surveys: Semi-structured interviews were conducted via video conferencing platforms (e.g., Microsoft Teams) with students and educators to gain insights into their experiences and perceptions of the architectural environment (Figure 4).

1. General Experience:
    - Can you describe your overall experience with the architectural environment of your institution?
    - What specific features of the architecture do you find most beneficial or challenging?
2. Spatial Organization:
    - How does the layout of the spaces (classrooms, common areas, etc.) affect your ability to engage with peers and educators?
    - Are there areas within the institution where you feel more comfortable or productive? Why?
3. Lighting and Ambiance:
    - How does the lighting in your learning spaces impact your mood and focus during classes?
    - Do you feel that the color schemes used in the architecture influence your emotional well-being? If so, how?
4. Collaboration and Interaction:
    - In what ways does the architectural design facilitate or hinder collaboration among students and educators?
    - Can you provide an example of a space that encourages interaction? What elements contribute to this?
5. Emotional Well-Being:
    - How do you feel the architectural environment affects your emotional state while learning or teaching?
    - Are there specific design elements that you believe contribute positively or negatively to your well-being?
6. Suggestions for Improvement:
    - If you could change one aspect of the architectural environment, what would it be and why?
    - What additional features do you think would enhance the learning experience in your institution?

Figure 4. Interview Questions. Source: Compiled by the authors

Online surveys were distributed using Google Forms to collect quantitative data on satisfaction levels and perceived impacts of the learning environment on cognitive processes and emotional states (Figure 5). This method ensured broad participation while maintaining convenience for respondents.

1. Satisfaction Levels:
    - On a scale of 1 to 5, how satisfied are you with the overall architectural design of your institution?
    - How would you rate the adequacy of study spaces available to you? (1 = Very Inadequate, 5 = Very Adequate)
2. Impact on Learning:
    - To what extent do you believe the architectural environment impacts your learning experience? (1 = Not at all, 5 = Very Much)
    - How often do you feel distracted by the physical environment during classes? (1 = Never, 5 = Always)
3. Emotional Impact:
    - How often do you feel comfortable and safe in your learning environment? (1 = Never, 5 = Always)
    - Rate how the architectural design influences your motivation to learn. (1 = Not at all, 5 = Very Much)
4. Collaboration:
    - How effective do you find the architectural spaces for group work and collaboration? (1 = Not effective, 5 = Very effective)
    - Do you feel that the design of the spaces encourages interaction with peers? (Yes/No)
5. Open-Ended Feedback:
    - What is one thing you appreciate most about the architectural environment?
- Please share any additional comments or suggestions regarding the architectural design of your institution.

Figure 5. Survey Questions. Source: Compiled by the authors

• Digital Document Analysis: Relevant institutional documents, including architectural plans, design guidelines, and educational philosophy statements, were analyzed through online repositories or institutional websites. This analysis aimed to understand the intentions behind the architectural designs and how they align with pedagogical goals. Digital access to these documents facilitated a comprehensive review without the need for physical presence.

3.2. Data Analysis

Qualitative data from observational assessments and interviews were analyzed using thematic analysis to identify recurring themes and patterns related to the influence of architectural design on learning and personal development. Quantitative data from surveys were analyzed using statistical methods to assess correlations between design features and reported outcomes in cognitive engagement, emotional well-being, and social interactions.

3.3. Ethical Considerations

All participating universities obtained necessary institutional review board approvals before commencing research activities. Interview and survey participants provided informed consent while their anonymity and confidentiality were protected throughout the study.

4. Results and Discussion

Observational assessments divulged that spatial organization directly leads to better student engagement and collaboration. The Learning Commons at TCD provided adaptable seating arrangements and open areas that facilitated teamwork and promoted casual student dialogue. Participants reported that being able to customize furniture arrangements according to their needs led to better comfort and enhanced productivity. The survey showed that 78% of participants experienced a positive effect on their peer and educator engagement due to the design of their learning spaces. Survey results from 300 participants throughout three institutions are presented as follows in Table 2.

Response	%
Strongly Agree	35
Agree	43
Neutral	15
Disagree	5
Strongly Disagree	2

Table 2. Survey Responses on Spatial Organization
Source: Compiled by the authors

The Learning Center at EPFL used open-plan design to foster spontaneous discussions and cooperative projects as students regularly used shared spaces for group activities. Research confirms the Constructivism theory, which proposes that knowledge development happens through learners' environmental interactions. TCD and EPFL demonstrate this principle through their architectural designs, which support collaborative learning through spatial organization. Flexible layout design matches modern educational methods, which focus on active learning and teaching that centers around students. The study underscores how shared spaces help students build community connections. According to (Dovey and Fisher, 2014), spaces designed for social interaction play a fundamental role in the learning process. Feedback from students regarding the spatial layout of their surroundings shows that thoughtful planning can improve peer social cohesion and academic performance.

Lighting turned out to be a crucial component that influenced mental and emotional well-being. Observational evaluations revealed that students were more satisfied and less stressed in the University of Tokyo classes with lots of natural light. The results of the survey showed that people were more attentive and focused when they were in bright areas, and they especially liked settings with lots of windows and skylights. Since 85% of respondents said that exposure to natural light enhanced their mood and ability to concentrate, the survey results supported these conclusions. The distribution pattern in the survey results is shown in Table 3.

Response	%
Strongly Agree	45
Agree	40
Neutral	10
Disagree	4
Strongly Disagree	1

Table 3. Survey Responses on Lighting Impact
Source: Compiled by the authors

The study found that 60% of participants experienced fatigue and reduced mental performance when they were in areas with poor lighting. The study findings align with the research results presented by (Higgins et al. 2005) – learning efficiency declines when inadequate lighting creates unpleasant mood states in students.

ART identifies natural components such as light as essential elements that help to enhance cognitive performance and restore attention levels. The University of Tokyo has implemented architecture designs that prioritize natural lighting which demonstrates the positive impact on student well-being. The research shows that educational facilities need to prioritize natural lighting in their building designs to enhance student learning results. By implementing design principles that connect humans with nature through biophilic concepts educational spaces promote both emotional resilience and cognitive engagement.

Participants from all three educational institutions demonstrated the psychological effects of color utilization within learning environments during their reactions. The study showed TCD classrooms gained from soft color schemes which enhanced quiet and focus while bright colors in EPFL common areas stimulated creativity and energy. The participants explained that their motivation and engagement improved due to the strategic use of color placement. Table 4 displays that 72% of poll respondents acknowledged the effect of different color schemes on their mental health.

Response	%
Strongly Agree	30
Agree	42
Neutral	20
Disagree	6
Strongly Disagree	2

Table 4. Survey Responses on Color Influence
Source: Compiled by the authors

People selected calming shades such as blues and greens because they connected these colors with tranquility and concentration. In areas designed for group activities, researchers recognize that “cozy” colors such as yellow stimulate people. Research findings support Color Theory which studies how specific colors produce specific emotional responses. Architectural designs that incorporate strategic color choices enhance mood and engagement leading to improved learning experiences. Through their knowledge of color psychology architects and educators are able to create spaces that promote positive emotions and improve cognitive function.

Research findings show that personal preferences play a key role in the design of educational spaces. While some people find different hues to be peaceful, others find them to be uninteresting. A versatile color scheme that allows for customization could successfully meet the needs of a wide range of students. The materials used in educational architecture had a direct impact on the appearance and usability of the learning environment. Studies conducted in classrooms at TCD and EPFL revealed that carpets and acoustic panels—materials that dampen sound—were frequently utilized. Participants reported that the quieter classroom atmosphere created by these resources improved focus by reducing distractions and raising levels of concentration. Table 5 displays the survey results, which show that 68% of respondents claimed that the items in their learning environment affected their ability to focus.

Response	%
Strongly Agree	28
Agree	40
Neutral	20
Disagree	8
Strongly Disagree	4

Table 5. Survey Responses on Material Impact
Source: Compiled by the authors

Since sustainable and natural materials link emotional health to environmental consciousness, a sizable portion of participants chose them. The outcomes support the ideas of the biophilic design theory, which postulates that people are inherently drawn to nature. Learning environments that use natural materials foster students' creativity and well-being. Using sustainable materials can help educational institutions create more aesthetically pleasing spaces while teaching students about environmental responsibility. The results show that architects and educators should choose materials that minimize distractions in learning settings while improving acoustic comfort. Creating optimal conditions for concentration and focus helps educational institutions achieve better learning outcomes. Students experienced enhanced social interaction and belonging because of the communal spaces' design. Observational research showed that group work spaces and lounges at all three institutions served as frequent sites for peer interactions and informal learning exchanges. The inclusive environment created by the settings enhanced learners' mental health. Table 6 reveals that three-quarters of survey participants felt the common area designs promoted socializing.

Response	%
Strongly Agree	32
Agree	43
Neutral	15
Disagree	8
Strongly Disagree	2

Table 6. Survey Responses on Social Interaction
Source: Compiled by the authors

Research supports the social constructivist viewpoint that learning originates from social interactions. The architectural layouts of TCD, EPFL, and the University of Tokyo demonstrate this teaching approach through their emphasis on shared spaces that support team collaboration and community growth. Research findings emphasize the necessity for educational environments that promote peer-to-peer interaction alongside informal learning. Universities, schools and other educational institutions can improve emotional health and educational experiences by creating spaces that promote social engagement.

4.1. Implications for Practice

Architects and educators responsible for education space designs alongside policymakers who oversee these processes receive critical insights from research findings. Research findings demonstrate the necessity of deliberate architectural planning to establish educational environments that nurture each aspect of student development. Educational institutions need to make flexible layouts their top priority when developing adaptable spaces capable of supporting dynamic movements and versatile functionality. When educational institutions build spaces that support collaboration and interaction they will see greater student engagement and improved community ties. Incorporating natural light into school architectural designs helps improve students' emotional health and intellectual capabilities. The design of institutional environments requires optimization of natural light to improve occupant focus and reduce stress levels. Educational environment designs must include thoughtful color scheme planning rooted in psychological principles to improve learning spaces.

When educational institutions apply color strategically they create enhanced learning experiences by triggering mood changes and boosting engagement levels within their settings. Educational facility architecture needs to choose materials that ensure acoustic comfort and adhere to sustainability standards. Educational institutions need to select materials that reduce disturbances and enhance student

well-being to improve learning outcomes. Educational environments need to create communal spaces that facilitate peer interaction and informal learning opportunities. Student emotional well-being improves when educational institutions establish collaborative spaces that help build community connections. The study provided numerous suggestions for both educational space designers and policymakers who focus on improving learning environments. Educational institutions must prioritize implementing flexible spatial designs as their primary focus. Institutions with adaptable spatial designs for diverse teaching methods create environments where students can engage and collaborate effectively. Movable furniture combined with modular design elements produces active student participation while building stronger community connections.

Maximizing natural light is another critical recommendation. Natural light integration in educational building designs leads to improved emotional health and enhanced cognitive function. Architectural planning for educational facilities requires strategic spatial designs which increase natural lighting through large windows, skylights, and open floor plans. Students demonstrate greater satisfaction when this approach increases their concentration and diminishes stress levels. Educational institutions need to prioritize color selection since it affects the learning atmosphere. Educational space designers must evaluate how color choices affect student psychology when planning school environments. Educational institutions have the ability to improve student learning experiences by choosing color schemes that create a calming atmosphere while also supporting concentration and creativity. Student preferences receive better accommodation when educational institutions provide personal color selection options.

The choice of appropriate materials is fundamental to establishing educational spaces that encourage successful learning results. Acoustic materials that absorb sound combined with sustainable choices allow institutions to create learning spaces where student attention is maintained through minimized distractions. Natural materials that promote sustainability help students establish a bond with nature while simultaneously supporting their emotional well-being.
The design of communal spaces to promote interaction holds equal importance to all other architectural considerations. Educational institutions need to establish welcoming spaces where students can participate in informal learning alongside their peers. Institutions build lounges and collaborative workspaces which lead to greater student interactions that build stronger community connections and enhance emotional well-being.

Collaborative work between students and educators together with community members enhances the architectural design process which results in spaces that satisfy the needs and preferences of future users (Semenets-Orlova et al. 2019b). Design outcomes satisfy user requirements more effectively when approached collaboratively.
Educational institutions must consistently research and evaluate their campus architectural structures. The investigation of how educational spaces affect student performance and personal growth provides essential insights. Educational institutions should use surveys and observational studies along with feedback tools to ensure that their physical spaces align with educational objectives and student requirements.

5. Conclusion

Research demonstrates that the architectural design of educational facilities plays a critical role in shaping student learning experiences and individual growth during schooling. Architectural design through intentional spatial organization and lighting improves learner cognitive focus and emotional well-being and strengthens social relationships. The research demonstrates that adaptable spatial designs which permit mobility enhance student collaboration and build community ties. Research evidence shows that natural light improves emotional health and mental performance so educational facility design must make this priority. The deliberate selection of color options produces significant

effects on mood elevation and student participation which mandates architects and educators to incorporate color psychology principles into their building designs. The choice of building materials plays a pivotal role in creating educational spaces that boost student learning success. Educational spaces become more beautiful when classroom materials which improve acoustic comfort and sustainability support student emotional well-being. Communal spaces function as crucial platforms for social engagement and community building which become fundamental parts of the learning experience.

The investigation extends knowledge in architectural psychology and demonstrates why educational design must involve a holistic approach. By combining their architectural knowledge about psychological impacts with educators and policymakers architects can create educational spaces which improve student academic performance and holistic development. As educational facilities undergo transformations educational institutions need to implement these research findings through targeted design strategies to build successful learning environments. Research must examine how architectural design relates to psychological outcomes across various educational settings. The progression toward educational spaces that support both learning and personal growth allows us to establish directions for future education.

References

Ali, H. H. M., Farhan, A. H., Jawad, A. S., 2023. Comprehensive Review of Noise Pollution Sources, Health Impacts, and Acoustic Environments Affecting College and University Students. Mesopotamian Journal of Civil Engineering 86-97.

Awad, Z. A., Eida, M. A., Soliman, H. S., Alkaramani, M. A., Elbadwy, I. G., Hassabo, A. G., 2025. The psychological effect of choosing colors in advertisements on stimulating human interaction. Journal of Textiles, Coloration and Polymer Science 22(1), 289-298.

Brink, H. W., Loomans, M. G., Mobach, M. P., Kort, H. S., 2021. Classrooms' indoor environmental conditions affecting the academic achievement of students and teachers in higher education: A systematic literature review. Indoor air 31(2), 405-425.

Casali, J. G., 2021. Sound and noise: Measurement and design guidance. Handbook of Human Factors and Ergonomics 457-493.

Dovey, K., Fisher, K., 2014. Designing for adaptation: The school as socio-spatial assemblage. The Journal of Architecture 19(1), 43-63.

Elsayed, Y., Shakour, M. A., 2021. An empirical approach to optimize intended learning outcomes (ilos) of architecture technical curriculums for high density classes in universities. In EDULEARN21 Proceedings, 12248-12260.

Enwin, A. D., Ikiriko, T. D., Jonathan-Ihua, G. O., 2023. The role of colours in interior design of liveable spaces. European Journal of Theoretical and Applied Sciences 1(4), 242-262.

Goldhour, M. L., 2024. The Impact of Interior Design on Emotional & Cognitive Well-Being in Higher Education (Doctoral dissertation, Converse University).

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).

Higgins, S., Hall, E., Wall, K., Woolner, P., McCaughey, C., 2005. The impact of school environments: A literature review. London: Design Council.

Khan, B., 2024. FAUM Fun Box-A student center that promotes collaboration and positivity amongst the Canadian architecture, planning and design students. FGS - Electronic Theses and Practica, Manitoba Heritage Theses. Retrieved from http://hdl.handle.net/1993/38431

Leavell, M. A., Leiferman, J. A., Gascon, M., Braddick, F., Gonzalez, J. C., Litt, J. S., 2019. Nature-based social prescribing in urban settings to improve social connectedness and mental well-being: a review. Current environmental health reports 6, 297-308.

Lebasi, A., Talischi, G, 2024. The Impact of Physical Learning Environments on Creativity in Educational Settings: A Systematic Review. International Journal of Architectural Engineering & Urban Planning, 34(2).

Madvari, R. F., Sefidkar, R., Halvani, G. H., Alizadeh, H. M., 2023. Quantitative indicators of street lighting with mood, fatigue, mental workload and sleepiness in car drivers: Using generalized structural equation modeling. Heliyon 9(1).

Mor-Avi, A., 2020. Architecture for Collaborative Creativity–Space We-Q: Space Intelligence Empowering Creative We Culture in Learning-Driven Environments (Doctoral dissertation, Illinois Institute of Technology).

Njai, S. N., 2021. Constructivist Pedagogical Approaches in Higher Education: A Qualitative Case Study of Students and their Learning Experiences in a Collaborative Learning Space. Ohio University.

Salama, A. M., 2016. Spatial design education: New directions for pedagogy in architecture and beyond. Routledge.

Semenets-Orlova, I., Halytska, N., Klochko, A., Skakalska, I., Kosyuk, N., 2019b. Information exchange and communication infrastructure in the public sector. In C. M. i. G. I. N. (Ed.), Proceedings of the CMiGIN, 519-529.

Semenets-Orlova, I., Klochko, A., Nestulya, S., Mykhailych, O., Omelyanenko, V., 2019a. Readiness of the education manager to provide the organizational development of institutions (based on the sociological research). Problems and Perspectives in Management 17(3), 132-142.

Soliman, A. M., 2017. Appropriate teaching and learning strategies for the architectural design process in pedagogic design studios. Frontiers of architectural research 6(2), 204-217.

Stryhul, M., Khomeriki, O., Yahodzinskyi, S., Lyasota, L., Semenets-Orlova, I., 2019. Peculiarities of development and dynamics of economism and the commercialization of Ukrainian higher education. Problems and Perspectives in Management 17(2), 289-302.

Sukkar, A., Yahia, M. W., Mushtaha, E., Maksoud, A., Buhashima Abdalla, S., Nasif, O., Melahifci, O., 2024. Applying active learning method to improve teaching outcomes in architectural engineering courses. Open House International 49(1), 205-220.

Taylor, A., 2009. Linking architecture and education: Sustainable design for learning environments. UNM Press.

Trammell, J. P., Aguilar, S. C., 2021. Natural is not always better: the varied effects of a natural environment and exercise on affect and cognition. Frontiers in psychology 11.

Yesil, L. B., Aras, İ. S., 2024. The significance of flexible learning spaces and student-centred pedagogies in school settings: A comparative case study. International Education Journal: Comparative Perspectives 23(1), 1-24.

Young, B., Hynes, W., Hynes, M., 2021. Promoting engagement in active-learning classroom design. Journal of Learning Spaces 10(3), 13-27.