

Social Interaction in the Library: A Student Psychological Perspective

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Abstract Social interactions in the library are important for students' academic experience and psychological well-being. Libraries support academic collaboration and provide a safe social space, reducing isolation and increasing social connectedness. However, these interactions can also be social pressures. Understanding students' psychological perspectives on social interactions in the library helps institutions design spaces and programs that support their academic and psychological needs. That supports their academic and psychological needs. The purpose of this study is to explore the role of social interaction in the library in students' academic experience and psychological well-being. This research aims to understand how libraries support academic collaboration, reduce isolation, and increase social connectedness, and identify ways to design spaces and programs that meet students' academic and psychological needs. The purpose of this study is to explore the role of social interaction in the library in students' academic experience and psychological well-being. This research aims to understand how libraries support academic collaboration, reduce isolation, and increase social connectedness, and identify ways to design spaces and programs that meet students' academic and psychological needs. This research uses the literature review method by reviewing articles from Google Scholar from 2019-2023. Articles included were in English and Indonesian, focused on libraries, and available in full text. Data were analysed narratively to identify psychological factors that influence social interactions in libraries, evaluate their impact on students' psychological well-being, and identify best practices in library design and management. The results showed three main trends: the importance of social environments in libraries to support interaction and learning, the integration of information and communication technology (ICT) such as augmented reality (AR) to enhance social interaction, and the impact of social media and gadget use on social interaction. Libraries that support social interaction can improve students' academic engagement and well-being. Future research includes longitudinal mixed-methods studies, diversification of data collection methods, and exploration of technology integration and external factors that influence student engagement.

Keywords: Social Interaction, Library, Psychological Well-being.

1. INTRODUCTION

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Social interaction in libraries greatly impacts students' academic experience and psychological well-being. While facilitating academic collaboration and resource sharing, libraries also provide a sense of safety and belonging. However, social pressures and a lack of deep interaction can affect emotional well-being [1], underscoring the need for educational institutions to understand students' psychological perspectives to better support their needs. Social interaction in the library plays an important role in students' academic experience and psychological well-being [2]. Libraries are not only places to access information and study, but also social spaces where students can interact, share knowledge, and build social networks. According to [3], university libraries are often perceived as 'third spaces', places that provide a neutral and supportive environment for productive social interaction. Studies by [4] found that social interactions in the library, both formal and informal, can increase the sense of community and reduce feelings of isolation among students. Interaction with peers and library staff helps to create a collaborative learning community. [5], where students feel supported and motivated [6]. In addition, the library provides various programs and services [7], [8], such as study groups and workshops, which facilitate social interaction and the development of interpersonal skills. However, it is important to manage the library space in such a way that it remains conducive to learning while allowing for positive social interactions [9]. As such, libraries contribute to students' emotional and academic well-being, making them an integral component of the higher education experience.

This article seeks to fill this gap by describing social interaction in libraries. Firstly, how does the design of the library environment affect students' psychological well-being and social interaction from a psychological perspective? This question focusses on collecting and analysing what design factors in the library environment (such as social spaces, study zones, and facilities) are most influential on students' feelings of social connectedness and emotional support; Second, what is the long-term impact of using technologies such as augmented reality (AR) on the dynamics of students' social interactions and psychological well-being in libraries? This question is to assess how the use of AR in the library affects students' perceptions of social connectedness and social support in the long term. Third, what external factors influence how technology and library design impact students' social interactions and psychological well-being? These three questions are answered in the following sections.

This article starts with three arguments. Firstly, the physical design of the library, such as social spaces and facilities, affects students' psychological well-being and social interactions. Spaces that support collaboration can increase the sense of connectedness and emotional support among students. Second, the use of AR in libraries may affect students' social interactions and psychological well-being in the long run. AR has the potential to increase social connectedness but can also pose new challenges. Third, external factors such as social support and personal technology access influence the impact of library design and AR technology on students' social interactions and psychological well-being. Understanding these factors provides a more complete picture of the influence of the library environment. This article highlights that library design, the use of technologies such as AR, and external factors all play an important role in influencing students' psychological well-being and social interactions. The integration of these three aspects can help create a library environment that supports both academic engagement and social support.

2. METHOD

This research design is a literature review or literature review. The method of searching for articles in research journal databases and searching through the internet. The database search used was Google Scholar for the last five years from 2019 to 2023 in the collection of publications, as this ensures that the literature reviewed is the most current and relevant. The use of Google Scholar as the search database allowed access to the most recent publications, ensuring that this research reflects the latest trends and innovations in the field of library technology and design. The novelty of this research lies in several important aspects. Firstly, it highlights the application of recent technologies, specifically augmented reality (AR), in library design, which is a relatively new and still developing technology in this context. Second, it adopts a holistic approach to library design, emphasising the integration of social, economic, and cultural aspects to create centres of innovation and community engagement. Thirdly, the focus on evaluating students' psychological and social well-being provides new insights into how library design and technology affect students' academic and social experiences. Finally, the research recommends longitudinal studies to explore the long-term impact of library design and technology on the student experience, highlighting the need for continuous monitoring to understand the effects over time. With this current and comprehensive approach, this research offers a novel and relevant contribution to the understanding of how library modernisation affects the holistic student experience.

For the article search, the keywords used as well as included in the data collection were 'Social Interaction in Libraries: A Student Psychological Perspective'. Based on the results of Google Scholar searches in the last five years, 596,000 articles were obtained, so it is necessary for researchers to determine criteria to homogenise the articles displayed so that the articles obtained are not too many.

Table 1: Article Inclusion Criteria

Criteria	Inclusion
Reach	Publication Articles in the Last Five Years
Year of Publication	2019-2023
Language	English and Indonesian
Subject	Library
Article Type	Research Article (Not Literature Review)
Text Availability	Full Text

To answer the research questions regarding library design, AR technology, and external factors, the literature review method is used in the following way: First, we will analyse studies on how the design of the library environment, such as social spaces and facilities, affects students' psychological well-being and social interactions. Second, we will assess the literature on the long-term impact of AR use in libraries on students' social dynamics and psychological well-being. Third, we will examine external factors such as social support and personal technology access to understand how these factors influence the impact of design and technology in libraries. Through this literature review, researchers can gain a thorough understanding of the influence of library design, technology, and external factors on students' experiences. For this analysis, three journal content analyses were conducted, then the content of the reviewed articles was coded using the previously collected psychospiritual data categories. After that, similarities and differences were sought, and then discussions were held to arrive at conclusions.

3. RESULTS

This article focuses on analyzing data extracted from various studies that address social interactions in libraries from a student's psychological perspective. The data collected covers a range of factors that influence social interactions, their impact on students' psychological well-being, and best practices in library design and management. Through a systematic review of publications in the last five years, this article presents a synthesis of key findings, identifies trends and gaps in research, and provides recommendations for future research. This approach aims to provide a comprehensive insight into how social interactions in libraries can support students' academic experience and emotional well-being.

Table 2: Article Extraction Result Data

No	Article Identity	Research Title	Metode	Research Results	Research Limitations	Research Recommendations
1	Zheng et al [10] - China	The influence of university library environment on student interactions and college students' learning engagement	Quantitative	The library significantly influences student learning engagement, particularly through interactive participation.	The limitations of this study include a limited focus on Chinese universities, survey bias and data inaccuracies, and a lack of exploration of university library variations and external factors that influence student learning engagement. Longitudinal research is needed to understand the long-term impact of the library environment on students' academic performance and career outcomes.	Research recommendations include cultural comparative studies, mixed methods approach, exploration of university library attributes, investigation of external factors in student engagement, and longitudinal studies of the impact of the library environment on students' academic and career performance.

2	Yahaya & Abdullahi,[11] - Abuja-Nigeria	Integrating information and communication technology (ICT) in social interaction spaces of proposed public library Gwagwalada, Abuja- Nigeria	Mixed Methods	The results show that users prefer Group Creative Collaboration spaces over Small Group Collaboration spaces, group study spaces for interaction, internet facilities over video conferencing for individual spaces, mailing lists over video conferencing for group spaces, as well as digital library structures in the context of object spaces.	This study's limitations include restricted generalisability, small sample size, potential data collection bias, specific library context limitations, and a narrow focus on particular social interactions, necessitating further research for a comprehensive understanding in varied library settings.	Future research is recommended to expand the sample size, diversify data collection methods, conduct comparative analyses, implement longitudinal studies, integrate user perspectives, and explore technology integration to enrich the understanding of social interaction in libraries.
3	Budi & Hariyanti [12] - Indonesia	Penerapan Augmented Reality Di Perpustakaan: Inovasi Interaksi Pemustaka Dan Perpustakaan Untuk Peningkatan Derajat Kesehatan	Qualitative	Augmented reality (AR) in libraries enhances user interaction with collections, especially in the field of health, offering alternative information sources that utilise advanced technology to improve literacy and drive better health outcomes.	Research did not address the practical challenges of implementing Augmented Reality (AR) in libraries, focusing solely on its benefits rather than investigating potential barriers like cost, staff training, and user acceptance.	The study recommends exploring the technical requirements and constraints of AR implementation in libraries, financial impact evaluation, staff training, increased user adoption, as well as long-term evaluation of health literacy, to facilitate successful integration of AR technology and improve library services and health literacy.
4	Gisela & Anggraini [13] - Indonesia	Wadah Interaksi Sosial Dan Sarana Kreatif Di Kemayoran, Jakarta Pusat	Qualitative	The Social Interaction and Creative Facilities project in Kemayoran addresses the area's absence of similar initiatives by merging social engagement with diverse creative and educational endeavors, with a goal to revive Betawi cultural heritage amidst modernization.	The study is limited by its narrow focus on the Kemayoran area in Jakarta, potential biases in data collection, resource constraints including time and funds, and reliance on methodologies that could impact the scope of analysis.	Research recommendations encompass cross-regional studies comparing social and creative interaction spaces, diverse data collection approaches, additional resource allocation for comprehensive urban analyses, and exploration of alternative approaches to enhance social interaction and

						creativity in public spaces.
5	[14] - Indonesia	The influence of social media on social interactions among students	Qualitative	The study reveals that social media affects social interactions among students of Faculty of Social and Political Sciences Universitas Airlangga, facilitating access to information but also fostering addiction, consequently diminishing direct engagement with their surroundings.	Study limitations include single-faculty student focus, potential sample bias, limited interviews, lack of exploration of specific social media platforms and demographics, and impracticality in understanding long-term social media impact on interactions.	Research explores long-term impacts of social media on students' interactions, strategies for balancing social media usage, and its role in shaping communication among students from diverse academic backgrounds, potentially across universities.
6	Wahyuni [15] - Indonesia	Interaksi Sosial Pustakawan Dengan Pemustaka Pada Upt. Perpustakaan Universitas Serambi Mekkah Aceh	Qualitative	The study finds that social interaction between librarians and users at the UPT Library of Universitas Serambi Mekkah Aceh is characterized by effective communication and friendly service, fostering cooperation, motivation, accommodation, assimilation, and sympathy to ensure user comfort and familiarity.	Limitations of this study include limited generalisability of the findings, small sample size, potential bias in data collection, limited applicability of the findings to other library environments, as well as limited focus on specific types of social interactions and less in-depth exploration of library users' views.	Research recommendations encompass broadening samples, diversifying data collection methods, exploring user perspectives, conducting comparative and longitudinal studies, and integrating technology for a comprehensive understanding of social interactions in libraries.
7	[16] - Indonesia	Perancangan Interior Café untuk Meningkatkan Interaksi Sosial di Surabaya	Design Thinking design method	Play Day Social Café is designed with the concept of 'Oodles of Fun' to create an enjoyable and flexible atmosphere, equipped with board games and books catering to teenagers and young adults aged 15-25,	The study's limitations included a lack of exploration on implementation barriers, design alternatives, strategies to mitigate gadget impact, cultural/demographic factors, age suitability, and sustainability/scalability discussions for the social café concept in	Research recommendations include exploring technology-free zones, interactive digital platforms, community events, focus group surveys, sustainability evaluation, and collaboration with educational or social organizations to enhance social

				fostering social interaction.	Surabaya, Indonesia, raising doubts about its enduring effectiveness in enhancing social interaction.	interaction in social cafés.
8	Miller et al [17] - Amerika	Social interaction in augmented reality	Quantitative	This study demonstrates the substantial impact of virtual content presence or absence on task performance, nonverbal behavior, and social connectedness.	This study faced several limitations, including a sample consisting mainly of undergraduate students with limited demographic variation, lack of systematic control of realism, absence of manipulation of exposure time in augmented reality as an independent variable, violation of the independence assumption required for statistical analyses, and technical issues that led to six participants being excluded from the analyses.	Using a more diverse sample of participants, controlling realism more systematically in augmented reality settings, manipulating exposure time as an independent variable, exploring different statistical analysis methods, and fixing technical issues during data collection to ensure the smooth running of future studies.
9	Rodina et al [18] - Russia	University students' social interaction type specifics in the learning process	Quantitative	This research highlights the necessity of understanding university students' social interactions, identifying four main types, and underscores the importance of enhancing skills, abilities, and personality traits to optimize their effectiveness.	This study was limited to first-year engineering students at one institution, used a limited questionnaire to measure social interactions, and did not explore the variety of types of student social interactions.	Future research should involve more diverse student samples, utilize additional methodologies for understanding social interaction dynamics, explore variations in types of social interactions, assess the impact of cultural or regional differences, and collaborate with educators to design educational tasks fostering effective social and professional interactions.
10	Bakhtiyar [19] - Indonesia	The Meaning of Social Interaction Through Social Networking as a Media Promotion of Modern Library Information Services in The	Qualitative	Modern ICT-based libraries must adapt to the demands of the industrial era 4.0 by integrating information systems and providing online-accessible facilities, collections, and services to	The study's limitations encompass a narrow exploration of social media's role in library promotion, a potentially outdated approach, reliance on biased library literature, neglect of interdisciplinary perspectives, and the oversight of financial, ethical, and cost-related considerations in	Recommending acknowledgment of historical approach limitations, caution against bias from relying solely on library literature, and advocating for exploring financial implications, ethical considerations, and interdisciplinary viewpoints when employing social

		Sociological Perspective		attract digital natives.	utilizing social media for library promotion.	media for library promotion.
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3.1 Find Related Paper (Find Research Gab)

From these ten previous studies, three main trends can be identified as follows; *Firstly*, the Importance of Social Environment in Libraries to Support Interaction and Learning: Many studies highlighted that a positive social environment in university libraries plays an important role in enhancing student interaction and learning engagement. A well-designed library environment can encourage more effective and collaborative learning activities. The first, fourth, and ninth studies specifically emphasize the need for social interaction spaces that support learning and the development of social skills among students. Second, Information and Communication Technology (ICT) Integration in Enhancing Social Interaction: The second and eighth studies pointed out shortcomings in ICT integration in libraries, as well as the potential of technologies such as augmented reality (AR) to enhance social interaction and innovate library services. These studies emphasize the importance of considering user preferences regarding ICT use in library social spaces to maximize the benefits of technology in enhancing social interaction. Third, The Impact of social media and Gadgets on Social Interaction[20] : The fifth and seventh studies examined the impact of social media and gadget use on social interaction. The fifth study explored the influence of social media on university students' social interactions, while the seventh study discussed how increased gadget use can reduce face-to-face social interactions in places such as cafes. These studies highlight the need to find a balance between technology use and in-person social interactions to prevent a decline in social skills among university students and the wider society.

3.2 Method used in this paper

The table above shows that three researchers used quantitative methods, while five researchers used qualitative methods, where the third, fifth, sixth, and tenth researchers used a descriptive analysis approach, while the fourth researcher used the design method, then one researcher used the design method using Design Thinking and one other researcher used the Mixed Methods method combining qualitative and quantitative.

3.3 Novelty and uniqueness of research

Judging from the above table there is a major novelty in Table 1, Integration of Technology in Libraries to Enhance Social Interaction : One novel aspect revealed in several studies is how information and communication technologies (ICTs), including augmented reality (AR), can be integrated with library environments to enhance social interaction. This includes the use of ICT in public libraries to enhance user experience and the application of AR to improve health literacy and user interaction. The uniqueness of the research is in Table 1. Holistic Approach to Library Design and Function: A striking feature of these studies is the approach of integrating social, economic, and cultural aspects in library design. It aims to create multifaceted environments that support a variety of activities, nurture individual talents, and enhance community well-being. With a focus on space design that encourages social interaction and the use of modern technology, libraries are proposed as holistic and dynamic centers of innovation and community engagement.

3.4 Research limitations

Here are three main limitations that can be identified from the ten studies; *First*, Limited Generalisation of Findings, Many studies faced challenges in generalizing their findings due to limitations in context, sample, and geographical focus. For example, some studies were limited to one faculty, one university, or a specific geographical area such as Kemayoran in Jakarta, which limits the applicability of their findings to a broader context. *Secondly*, Potential Bias in Data Collection, several studies showed potential bias in data collection methods, including surveys and interviews. This bias can be caused by small sample sizes, unrepresentative sample selection, or data collection methods that do not accommodate sufficient demographic variation. This can affect the accuracy and validity of the findings. And *thirdly*, Lack of Long-term Exploration and External Factors, some studies show a lack of exploration of external factors that influence learning engagement or social interaction, as well as a lack of longitudinal research to understand long-term effects. For example, studies on library environments and social media use often do not consider long-term effects or relevant external factors, which could provide a more comprehensive picture of the issue under study.

3.5 Research Recommendations

Three Key Recommendations from Table 1, *Firstly*; Conduct longitudinal studies with mixed methods to examine the library environment's impact on academic performance and career outcomes. Use surveys, interviews, and observation to gain a comprehensive understanding over time. *Second*; Broaden data collection methods and sample sizes for more representative findings. Utilize surveys, interviews, focus groups, and comparative analyses across institutions or regions to enhance generalizability and reduce bias. *Third*; Integrate technology like augmented reality and digital platforms in libraries to foster interaction and health literacy. Investigate external factors like family environment and technology access to grasp a fuller understanding of student engagement and academic success.

4. DISCUSSION

Research shows that academic library design significantly influences student experience and behavior. A well-designed space can foster social connection, emotional support, and engagement [21]. To meet a variety of learning needs throughout the semester, the library should provide flexible configurations, balancing collaborative areas with quiet areas [22][23]. While shared study spaces are often valued for their lively atmosphere and social connections, students also often seek quieter spaces to study seriously [23]. The physical environment of the library triggers cognitive and emotional responses in users, which impacts their frequency of visits and concentration [22]. Innovative library spaces, which support informal learning, can encourage interaction and engagement [24]. Key attributes of an engaging library design include a culture of engagement, core connectedness, environmental messaging, and transformational challenge [21]. Overall, good library design can enhance the student experience by supporting diverse learning needs and fostering a sense of community.

Research on the use of AR in libraries affects students' perceptions of social connectedness and social support shows promising results for improving student experiences and learning outcomes. AR library orientation can significantly improve students' perceptions of librarians' willingness to help [25]. Location-based AR social media networks have the potential to increase socio-spatial connectedness among college students [26]. While AR and interactive simulation technologies show similar effects on knowledge acquisition and attitudes towards socio-scientific issues, college students' perceptions of these technologies may differ [27]. In college libraries, AR applications can create a more stimulating, collaborative, and interactive learning environment, potentially improving specific and transversal competencies [28]. This study shows that AR technology in educational environments, including libraries, can have a positive impact on students' perceptions of social relationships.

Recent research highlights the complex interactions between library design, technology and student well-being. Open-configured spaces in libraries can increase social interaction and spatial integrity [29]. However, the design should also incorporate enclosed spaces to accommodate diverse user preferences. Environmental factors such as color, acoustics and natural elements significantly affect user concentration and the overall experience in the library space [30]. The importance of the library space remains despite increased digital access, driven by changing pedagogy and student demographics [31]. Future library design is likely to be shaped by concerns for student well-being, sustainability and inclusivity. In addition, the pattern of technology use among students has a major impact on their well-being, requiring careful consideration in higher education settings [32]. This finding underscores the need to consider.

Previous studies have provided important insights into the use of technologies such as augmented reality (AR) in libraries, but there are still some aspects that require further attention. Research has shown that a positive social environment in libraries plays an important role in increasing student interaction and learning engagement, with space design that supports social interaction strengthening social skills and collaboration. Nonetheless, the application of optimal space design and the long-term impact of technologies such as AR in creating a social environment that supports interaction still requires further research. The integration of information and communication technologies (ICT), including AR, has revealed shortcomings in the application of technology in libraries and its potential to improve user experience.

However, there is limited understanding of user preferences and how to effectively integrate AR to maximize social benefits. Further research is needed to explore the optimal implementation and impact of AR on social interaction and student engagement. In addition, although there is evidence that gadget use can reduce face-to-face interaction, research on how AR can balance the use of digital technology with in-person social interaction is lacking. Therefore, longitudinal studies with mixed methods that include external factors such as family environment and technology access are essential to understand the long-term impact of AR on college students' social interaction dynamics and psychological well-being more thoroughly.

5. CONCLUSION

Research shows that academic library design has a significant impact on student experience and behavior. A well-designed space can facilitate social connection, emotional support, and academic engagement, with the need to balance collaborative and quiet areas according to student preferences. The library's physical environment influences users' cognitive and emotional responses, with implications for their frequency of visits and concentration. Innovative spaces that support informal learning can encourage further interaction and engagement. Research into the use of augmented reality (AR) in libraries has also shown positive potential in improving students' perceptions of social support and connectedness. AR technology, when implemented in libraries, can create a more engaging and

collaborative learning environment, potentially improving students' academic and social skills. Nonetheless, there is still a lack of understanding regarding the optimal implementation of AR and its long-term impact on social interaction and psychological well-being. Further research is needed to explore the effectiveness of using AR in creating a supportive social environment, as well as to balance the use of technology with face-to-face interactions. Mixed-method longitudinal studies that consider external factors such as family environment and technology access would be valuable to understand the impact of AR more deeply on students' social dynamics and well-being.

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