

Bridging the Gap Between Traditional and Modern Learning: A Critical Evaluation of Learning Space Transformation in Academic Libraries

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Abstract: Academic libraries are supposed to be sanctuaries for learning, yet for some students, they can feel like unfamiliar territory. This is because library design often fails to account for the diverse cultural backgrounds and learning styles of its users. This study embarks on a journey to bridge this gap, uncovering the intricate relationship between cultural norms and student preferences in library spaces. This study tackles this challenge by exploring the often-overlooked influence of cultural factors on user preferences within libraries. By analyzing how students actually use the library space, we aim to uncover the hidden mismatch between cultural expectations and existing library design. This understanding will guide the creation of future learning environments that truly resonate with students, enriching their academic journey within the library walls. This research actively explores the complex interplay between library users' needs and preferences, noise management practices, and the physical environment. It specifically investigates the multifaceted relationships between: (1) learning space characteristics, user activities, social interaction, and perceived comfort; (2) user preferences for noise levels; and (3) the actual noise levels experienced within the library. Recognizing the critical importance of balancing focused study with positive social interaction within library environments, the present study examines the efficacy of a 40-55 decibel noise range. This range is hypothesized to be conducive to both optimal learning ability and enhanced social engagement among library users. This research employs a sequential explanatory mixed-methods design, structured in two distinct phases. The initial phase (Phase I) focuses on gathering and analyzing quantitative data, establishing the core relationships and patterns under investigation. The subsequent qualitative phase (Phase II) delves deeper, exploring the nuances and mechanisms behind these findings, providing a richer understanding of the phenomenon. Finally, the research culminates in an integrated analysis, synthesizing the insights from both quantitative and qualitative data to offer a comprehensive explanation of the research objectives. Phase I employed a true experimental design with a quantitative questionnaire survey to investigate the research hypotheses. Data were collected from 384 library users at higher education institutions through simple random sampling. Participants were divided into two groups: a control group and an experimental group. Following data collection, SPSS software was utilized to conduct a series of statistical analyses, including paired-samples t-tests, one-way ANOVAs,

and two-way repeated measures ANOVAs, along with descriptive statistics, to test the research hypotheses. In the qualitative phase (Phase II) of this study, eight academic librarians from Malaysia were recruited through convenience sampling for semi-structured Zoom interviews. Thematic coding of the interview data was subsequently conducted using Atlas.ti software. This research yielded five key findings, each illuminating a distinct aspect of the study. Firstly, it underscored the intricate relationship between Education 4.0 and contemporary collaborative learning environments. Building upon this, the study advocates for the construction of dedicated learning spaces within common areas, specifically designed to foster collaborative activities while maintaining noise levels below 50 decibels. This addresses the identified student desire for collaborative learning settings. This study further identified a significant positive association between the deployment of comfort and noise detection systems and improved learning outcomes. Notably, the findings also revealed a correlation between user preference for quantitative noise measurement and a reduction in human intervention for environmental regulation in learning settings. Finally, this study highlights the crucial role of welcoming and accessible academic library spaces in shaping user behavior, as evidenced by the positive link between library image and student engagement. By revealing evolving user patterns within physical learning environments, this research offers valuable insights for designing and managing library spaces that effectively cater to user needs and foster optimal learning experiences.

Keywords: academic library Malaysia, decibel, physical learning environment

INTRODUCTION

The vital role of libraries in fostering both intellectual and cultural progress within society is well-established (Harun, 2006). Recognizing this significance, libraries have increasingly embraced a service-oriented approach, drawing upon principles adapted from the business world (Evans et al., 2009). This user-centric shift prioritizes the needs and preferences of library patrons, as emphasized by Demas & Olsen (2023). Historically, libraries served as repositories for extensive collections of physical printed materials, meticulously organized and readily accessible to users (Grigsby & S, 2015; Spencer & Watstein, 2017; Hockey, 2016). The rapid evolution of the information landscape, characterized by the widespread availability of electronic resources, necessitates transformative change for libraries to maintain relevance (Rasmussen & Skouvig, 2008; Orsde, 2010).

The landscape of education is undergoing a dynamic transformation, driven by a paradigm shift in learning preferences. As Ojennus and Watts (2017) observe, users are increasingly prioritizing electronic resources over traditional physical materials. This phenomenon is further amplified by the convergence of trends like Industry Revolution 4.0 (IR4),

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Education 4.0, and Library 4.0, along with the burgeoning growth of e-media resources in Malaysian academic libraries. These factors collectively paint a compelling picture of a rapidly evolving educational landscape. The rise of Industry 4.0 and Education 4.0, has triggered a paradigm shift in student learning and collaborative practices. This aligns with the central tenet of Education 4.0, which emphasizes the development of soft skills (Christoffersen et al., 2021). In light of this shift, the impact of these forces on student collaboration styles necessitates a reevaluation of the spatial configurations of Malaysian academic libraries to ensure their continued effectiveness in supporting the evolving needs of learners. Academic libraries have undergone a remarkable transformation, evolving from static repositories of books into dynamic hubs of information and services. This shift reflects the changing landscape of information and the growing need for diverse learning resources and support within academic communities (Brophy, 2000; Yoshida, 2016). While libraries retain their historical function of providing access to reading materials (Yoshida, 2016; Brophy, 2000), they increasingly emphasize a wider range of services tailored to the specific needs of their users (Brophy, 2000). Beyond their traditional role, libraries now serve as vibrant intellectual centers that foster a sense of belonging and community among users (O'Beirne, 2010). Their impact extends beyond the physical space, acting as essential hubs for lifelong learning and personal development (O'Beirne, 2010). This perception of libraries as prestigious institutions further enhances their appeal and encourages active engagement with the diverse resources and services available (Harisanty, 2019).

Libraries are experiencing a paradigm shift, transitioning from their traditional role as information repositories to dual-function service providers and facilitators of research and collaboration (Zhan & Widén, 2018). This aligns with the view that academic libraries are evolving into spaces designed to promote active engagement and collaborative learning communities (Lee & Schottenfeld, 2014; Waxman et al., 2007). There is a significant link between the physical and functional environment of libraries and student academic performance and well-being. Studies have shown that students choose their study environment based on their individual tolerance for ambient noise (Gordon-Hickey, 2012). Further research is needed to explore the environmental impact of learning spaces, particularly regarding their physical and functional aspects (Kim & Yang, 2022). This is in line with Logan and Everall's (2019) idea that libraries should focus on meeting the needs of their users first and foremost, in order to create a just and inclusive space for everyone.

The increasing presence of collaborative learning spaces in Malaysian academic libraries requires the development of clear and consistent guidelines and policies to ensure their effective transformation. Enforcing these policies fairly and uniformly is paramount to creating a welcoming and respectful learning environment. Building a collaborative and community-oriented atmosphere emerges as a crucial factor, nurturing essential skills like creativity, innovation, and critical thinking, all deemed vital for success in the 21st century. Although the importance of libraries' physical design and amenities in promoting student success and well-being is well-established (Kim & Yang, 2022), further research is needed to investigate the specific impacts of environmental factors, particularly regarding the built environment and

resource provision. Jones (2023) highlights the critical need for improved space evaluation training for library personnel and readily available renovation resources for aging libraries. Without addressing these limitations, the repurposing of library spaces for diverse uses will remain hampered, potentially hindering libraries' ability to adapt and thrive in the evolving landscape of information access. Limited analytical tools make it difficult for libraries in Malaysia to determine the necessary renovations and improvements for their aging structures, exacerbating the challenges faced by library decision-makers (Ahmad, 2023). As the educational landscape evolves, libraries are further challenged by the need to adapt their physical spaces to accommodate the changing cultural climate and the evolving needs and learning patterns of their users (Wong, 2023). This necessitates a critical reevaluation of how physical libraries can effectively serve their communities in the face of these changing circumstances (Lee, 2023).

The changing needs of student learning and a lack of understanding of appropriate noise levels in modern learning spaces create ongoing challenges. Inspired by Vance's report (2018) on the persistent problem of noise complaints in library learning spaces, this research seeks to address this issue and explore potential solutions. This is vital because libraries are under increasing pressure to provide more collaborative and social learning environments in response to evolving pedagogical approaches that emphasize active collaboration (McCaffrey & Breen, 2016). Noh et al. (2018) emphasize the need for designated areas within libraries to support teamwork and collaborative learning, reflecting the changing needs of contemporary library users. This aligns with Gyure's (2018) observation that modern libraries are increasingly prioritizing the delivery of high-quality services tailored to diverse user populations.

Libraries are increasingly becoming more inclusive and welcoming to a wider range of users by creating spaces designed for diverse needs and purposes. This inclusivity fosters a strong sense of community within the library, enriching the overall experience for all. However, the evolving needs of users and the lack of understanding about appropriate noise levels present challenges in maintaining a conducive learning environment. By implementing a policy of silence, libraries cultivate a strong sense of community and create a more positive environment for everyone. This is supported by research from Snyder Scott (2000), which defines a "very quiet" library as having noise levels below 40 decibels. However, this study investigates whether a slightly higher noise range, between 40dB and 48.9dB, may be more suitable for Malaysian academic libraries. The goal is to understand user preferences and propose solutions that optimize the learning environment for all.

The absence of clear guidelines and policies for transforming physical collaborative learning spaces in Malaysian academic libraries is driven by the evolving role of libraries, which are increasingly prioritizing informal interactions (Jochumsen et al., 2012). This necessitates a reevaluation of existing resources and infrastructure to ensure they are suitable for fostering collaboration and knowledge sharing among users. Without clear guidelines and policies, libraries risk falling behind in their ability to meet the evolving needs of their users.

As libraries become more important as places for people to connect and work together, it is essential that the rules they

have in place are fair and applied consistently to everyone (Simens, 2008; Bryant et al., 2009). To effectively enhance the learning spaces they offer and meet the evolving needs of their user base, Malaysian academic libraries require further empirical data collection and analysis. This study aims to be a pioneer in fostering cultural innovation within the sphere of physical learning spaces. It delineates the essential transformations necessary to align these spaces with user needs in the context of ongoing revolutions in education, industry, and libraries. This alignment is crucial to ensure the continued relevance and effectiveness of physical learning environments. This study posits that a well-designed library environment can significantly foster a conducive learning atmosphere, cultivate respectful user behavior, and deter disruptive activities that hinder the library's core mission and services

A. Research Objectives

- 1 To uncover the relationship between noise decibel levels and their effect on user learning outcomes, cognitive functioning, and behavioral patterns within academic library learning spaces in Malaysia.
- 2 To examine the misalignment gaps between the current state of academic library learning spaces and the evolving learning preferences of users.
- 3 To develop evidence-informed recommendations for transforming learning spaces within Malaysian academic libraries, ensuring alignment with user needs and available library resources.

METHODOLOGY

This research employs an explanatory mixed-methods design, which entails the collection and analysis of both quantitative and qualitative data. The study adopts a two-phase approach, with quantitative data collection occurring in the initial phase and qualitative data collection subsequently.

Phase I: Data were collected using a mixed-methods approach, employing both a true experimental design with post-test measurements and a comparative research design. The sample consisted of 384 library users, with 47.7% (n=183) being males and 52.3% (n=201) being females from a higher learning institution. It is to assess the influence of noise levels on reading comprehension, a paired-samples t-test was conducted. This study investigated the difference in mean pre- and post-test scores of academic library patrons subjected to different noise levels. To investigate the effects of noise level on library location preference, participants were divided into three groups. Group 1 was exposed to noise levels ranging from below 40 dB to 45 dB, Group 2 experienced noise levels between 40 dB and 50 dB, and Group 3 encountered noise levels from 40 dB to 55 dB. Following the noise exposure, all participants completed a questionnaire to assess their preferences for library locations. Questionnaire was administered to assess the preferences of a representative sample of library patrons regarding the overall library setting. The survey specifically examined their views on the potential implementation of noise-level alerting systems and their opinions on whether academic libraries require changes to better cater to user needs and preferences.

Phase II: The quantitative data gathered during Phase 1 will inform the development of semi-structured qualitative interviews in Phase 2. These interviews will delve into librarians' perspectives on the quantitative findings, aiming to

provide further nuanced insights into the research topic. Eight librarians, all experts in diverse library fields and with at least four years of experience within academic libraries, participated in semi-structured interviews conducted via Zoom. All participants in the study were experienced academic librarians, having worked within user services departments for a minimum of four years. All participants originated from user services departments.

RELIABILITY ANALYSIS AND NORMALITY ASSESSMENT

The normality of the collected data was statistically and graphically assessed for each item. Skewness and kurtosis were the primary statistical measures employed. Scores from the experiment and Likert scale data were deemed normally distributed, as their values fell within the acceptable range of -1.96 to +1.96. Additionally, the histogram's frequency distribution further supported normality, exhibiting a pronounced peak in the center and decreasing frequencies towards the tails.

To assess the instrument's reliability, the Pearson Correlation test was administered to each subgroup of participants (N=128). The test-retest correlation scores for reading comprehension across different noise levels (<45dB, <50dB, and <55dB) were 0.616, 0.712, and 0.728, respectively. These statistically significant scores (P<0.05) indicate that the instrument can reliably measure reading comprehension in individuals with similar characteristics to the research sample.

DATA ANALYSIS

a) Group 1 : What is the effect of noise levels below 45 dB in academic libraries on users' reading comprehension scores?

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Total Mark Control Group	70.55	128	15.179	1.342
	Total Mark Treatment Group	70.86	128	16.459	1.455

Table 1: Paired Samples Statistics for Control and Experimental Group 1

There was no statistically significant difference was observed in users' reading comprehension scores between the pre-noise exposure condition (40dB; M = 70.55, SD = 15.179) and the post-noise exposure condition (45dB; M = 70.86, SD = 16.459); $t(127) = 0.254, p = 0.800$. Since the p-value of 0.800 exceeds the predetermined significance level of 0.05, the researcher failed to reject the null hypothesis. This non-significant result indicates that the users' reading comprehension scores in the academic library were not affected by background interaction noise at levels below 45 dB.

b) Group 2 : What is the effect of noise levels below 50 dB in academic libraries on users' reading comprehension scores?

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Total Mark Control Group	69.61	128	14.763	1.305
	Total Mark Treatment Group	67.73	128	15.278	1.350

Table 2: Paired Samples Statistics for Control and Experimental Group 2

No statistically significant difference was observed in users' reading comprehension scores between the <40dB (M = 69.61, SD = 14.763) and <50dB (M = 67.73, SD = 15.278) conditions. This finding was supported by a t-test analysis (t(127) = 1.858, p = .065). Since the p-value (0.065) was greater than the significance level (0.05), the researcher failed to reject the null hypothesis. Therefore, the results suggest that there is no statistically significant effect of background interaction noise at 50dB on users' reading comprehension scores in the academic library.

c) What is the effect of noise levels below 55 dB in academic libraries on users' reading comprehension scores?

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Total Mark Control Group 55dB	68.75	128	15.111	1.336
	Total Mark Treatment Group 55dB	62.42	128	14.728	1.302

Table 3: Paired Samples Statistics for Control and Experimental Group 3

A statistically significant difference was observed in users' reading comprehension scores across noise levels. Specifically, the mean score under the <55dB condition (M = 68.75, SD = 15.111) was significantly higher than the mean score under the >55dB condition (M = 62.42, SD = 14.728). This difference was confirmed by a t-test, which revealed a statistically significant effect of noise level on reading comprehension (t(127) = 6.507, p = .000). Based on this finding, the null hypothesis was rejected, and the research hypothesis was accepted, indicating that noise significantly impacted users' reading comprehension. These findings indicate a significant association between background noise levels <55 dB and a decline in reading comprehension scores among users within academic library settings.

d) Does the users' learning ability score in reading differ significantly across the three levels of discourse noise (<45dB, <50dB, and <55dB)? This question aims to determine the most suitable noise level for optimal learning ability.

ANOVA					
Total_Mark					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6798.438	2	3399.219	4.338	.014
Within Groups	298567.969	381	783.643		
Total	305366.406	383			

Table 4: ANOVA Total Score for Control and Experimental

An analysis of variance (ANOVA) revealed a statistically significant difference (F(2, 381) = 4.338, p = 0.014) in the reading scores of users across three discourse noise levels: <45 dB, <50 dB, and <55 dB. This indicates that the average reading scores differed significantly between the noise conditions. A statistically significant difference in mean scores was observed between G1 and G3, as revealed by post-hoc Tukey HSD analysis (p < 0.05) following a significant omnibus ANOVA result (p = 0.014). Specifically, a statistically significant difference was observed between the G1 (<45dB) noise level and the G3 (<55dB) noise level, with G1 exhibiting a higher average reading score. Furthermore, a homogeneous subset was identified, encompassing G1, G2 (<50dB), and G3 (<55dB), where the mean reading scores were not statistically different from each other.

e) What library layouts and functionalities are most highly preferred by users of academic libraries in Malaysia?

Preference_Set_Up					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Traditional	143	37.2	37.2	37.2
	Modern	241	62.8	62.8	100.0
	Total	384	100.0	100.0	

Table 5: Preference Study Environments Set Up In Academic Library

The findings demonstrate a clear preference for a modern design in the academic library, with 62.8% of respondents expressing this desire compared to 37.2% who favored a traditional design. This data suggests a compelling need to transform the library's learning environment into a more contemporary space that reflects the evolving needs of its users.

f) Among library users in Malaysia, what noise-alerting methods are considered most effective and preferred for promoting a quiet and conducive learning environment in academic libraries?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Noise Detector	261	68.0	68.0	68.0
	Human Alert	123	32.0	32.0	100.0
	Total	384	100.0	100.0	

Table 6: Preference Noise Alerting Methods In Academic Library

The findings reveal that a majority of respondents (68%) favor the implementation of noise detectors to manage and alert users of noise issues within the academic library environment. Conversely, only 32% of participants prefer noise control to be entirely the responsibility of library staff. This data provides compelling evidence in support of installing noise detector systems within library learning spaces, as they align with the expressed preferences of the user community.

g) Do academic libraries need to transform?

Need_Transform					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	259	67.4	67.4	67.4
	Not Agree	125	32.6	32.6	100.0
	Agree				
	Total	384	100.0	100.0	

Table 7: The Need Of Transform In Academic Library

Analysis of the survey data revealed that a substantial majority of respondents (67.4%) advocated for the transformation of the academic library, while a minority (32.6%) favored the retention of current practices. This finding suggests a compelling need for a comprehensive restructuring of the library's operations.

h) To what extent does the implementation of an automatic noise monitoring system influence student preference for collaborative activities in common areas of academic libraries?

Description	A1	A2	A3
Strongly Disagree	6.0%	0.5%	2.6%
Disagree	18.5%	20.3%	16.9%
Undecided	19.8%	12.2%	10.2%
Agree	32.0%	45.8%	49.5%
Strongly Agree	23.7%	21.1%	20.8%

Table 8: The Percentage of Automatic Noise Monitoring Systems That Make a Difference in Patrons' Willingness to Collaborate in Academic Libraries

A majority of respondents (55.7%) indicated a preference for studying with others in the library's common area if an automatic noise monitoring system were implemented. This system would alert users when noise levels exceeded a predetermined threshold, indicated by a visual cue such as a color change to red. In contrast, a minority of respondents (24.5%) expressed strong disagreement or disagreement with the proposition, indicating a preference against using an automatic noise monitoring system as an alerting tool for noise concerns in the library's common area. Furthermore, a substantial majority of participants (66.9%) expressed agreement with the proposition that collaborative work in library common areas is the optimal approach for the country's current learning trends, contingent upon the implementation of an automatic noise monitoring system that would alert users when exceeding pre-determined noise thresholds. This finding is evidenced by strong agreement from 21.1% of respondents and agreement from 45.8%. Upon exceeding a predetermined noise threshold, the system would activate a visual alert by transitioning to a red color. However, a limited number of participants (0.5% strongly disagreed and 20.3% disagreed) expressed reservations about

the suitability of this approach within the contemporary learning environment of Malaysia. The survey revealed that a significant majority (70.3%) of respondents indicated an increased likelihood of frequent study sessions in the library's common area if implemented with an automatic noise alert system to address excessive noise levels. Conversely, a small subset of respondents (19.5%) expressed unwillingness to utilize the library's common area for study purposes, specifically citing concerns about noise levels associated with permitted group study and the implementation of a noise alert system.

i) To what extent do academic patrons favor the implementation of noise monitoring systems as an alerting tool in library common areas, with the aim of fostering a conducive and productive learning environment?

Description	C1	C2	C3
Strongly Disagree	6.0%	1.6%	4.9%
Disagree	16.9%	16.7%	14.8%
Undecided	12.0%	16.7%	13.5%
Agree	40.4%	46.4%	41.9%
Strongly Agree	24.7%	18.8%	24.7%

Table 9: Examining the perspectives of academic patrons on noise monitoring systems as tools for maintaining a productive learning environment in library common areas.

Survey findings from academic libraries in Malaysia reveal that a substantial majority of respondents (24.7% strongly agreeing and 40.4% agreeing) endorse the implementation of an automatic noise alert monitoring system in common areas designated for collaborative work activities. This system would function as an alerting tool, utilizing a red color change to signal noise exceeding predetermined noise standards. A contrasting perspective emerged, with 6.0% of respondents expressing strong disagreement and 16.9% voicing disagreement regarding the implementation of an automatic noise alert monitoring system in libraries that permit collaborative work activities. Furthermore, 12.0% of participants remained undecided on the matter.

A substantial majority of survey respondents (65.2%) endorsed the implementation of a noise monitoring system in the library, with 18.8% expressing strong agreement and 46.4% indicating agreement. This suggests that a significant proportion of users perceive such a system as a valuable tool for mitigating noise concerns and potentially fostering a more conducive learning environment. The automatic nature of the system facilitates the timely notification of noise violations, thereby raising awareness and encouraging users to self-regulate their behavior within the library common area.

A negligible proportion of respondents expressed strong disagreement (1.6%) or disagreement (16.7%) with the proposition that the noise monitoring system would reduce their concern about disturbing others in the library. Notably, a further 16.7% remained undecided, refraining from expressing an opinion.

A significant majority of survey participants (66.6%) endorsed the proposition that a noise monitoring system could facilitate the reduction of noise disruptions and elevate the quality of library services. However, a small minority of respondents (19.7%, with 4.9% strongly disagreeing and

14.8% disagreeing) expressed the belief that implementing an automated noise alert monitoring system would not improve library services or reduce noise problems.

B. Phase I : Summary

Research has demonstrated that noise levels below 50 decibels (dB) are optimal for collaborative learning spaces within academic libraries. Elevated noise levels exceeding 50 dB have been shown to disrupt fellow users, impede the learning process, and ultimately hinder information retention and effective learning outcomes. Establishing and maintaining noise levels below 50 dB is therefore crucial for fostering a productive learning environment within library settings. This finding is amplified within the framework of Education 4.0, which emphasizes active learning and collaborative environments, particularly important in the context of Education 4.0, which prioritizes active learning and collaboration.

Research has additionally established that maintaining a consistent ambient noise level within libraries fosters a culture of mutual respect and consideration among users, ultimately resulting in enhanced user satisfaction with the library environment and their overall learning experience. This finding holds particular significance within the evolving context of Education 4.0. The current academic library necessitates a transformation of its services to cater to the evolving needs of its user base. Data analysis reveals a significant preference among users for a modernized library environment, emphasizing collaborative learning and social interactions. The survey further revealed that users advocate for a transformative shift in the library's learning environment, transitioning from a formal and rigid atmosphere to a more relaxed and inviting space. This suggests that the library's common areas have the potential to be repurposed to accommodate a wider range of collaborative learning activities and leisure pursuits, thereby catering to the diverse needs of contemporary learners

A burgeoning body of evidence suggests that collaborative work in common areas of libraries is a highly effective approach to learning in Malaysia. This assertion is corroborated by data demonstrating that libraries permitting group study in common areas experience increased utilization rates. Furthermore, consistent users of these spaces tend to offer positive reviews, advocate for their continued use, and provide favorable feedback. These findings strongly suggest that enabling group study in common areas can foster a more productive and collaborative learning environment for students.

In the pursuit of creating a conducive learning environment, noise-monitoring devices are a valuable tool for identifying and managing noise-related problems within libraries. By actively notifying users of noise concerns, these devices can facilitate noise reduction and foster a more positive library environment. Furthermore, the implementation of a noise alert system at individual tables can contribute to enhancing library services by mitigating users' anxieties about disturbing others while engaging in focused study or work. This research yielded valuable insights by providing contact and background information, which facilitated informed decision-making concerning intervention strategies. Furthermore, it revealed how collaborative use of social amenities influences users' attitudes and perceptions of the educational environment. Libraries can leverage this data to implement a

comprehensive noise management plan for the learning environment, ultimately fostering a more conducive atmosphere for student study and knowledge acquisition.

C. Phase II : Summary

A significant majority of librarians expressed a preference for libraries designed with contemporary themes. This sentiment extended to a modern aesthetic that fosters a conducive learning environment. Librarians perceive a strong link between the physical learning space's overall ambiance and the presence of up-to-date equipment, modern furniture design, and contemporary operational policies.

Modern physical libraries are frequently characterized by librarians as "trendy" and "casual," fostering a dynamic environment conducive to learning. This atmosphere facilitates open communication, collaborative learning, energetic and interactive activities, and accommodates diverse learning styles. Furthermore, contemporary libraries are equipped with state-of-the-art technology and organize social events to promote user engagement within a safe and welcoming space.

The contemporary library design emphasizes a specific ambiance characterized by cutting-edge furniture, collaborative learning spaces, digital learning support systems, minimized shelving arrangements, and advanced media technology, all aimed at optimizing space utilization. This environment cultivates a vibrant and relaxed atmosphere, conducive to both learning efficacy and satisfaction. It concurrently promotes open and interactive communication. The design aesthetic seamlessly integrates futuristic elements with welcoming features, reflecting the dynamism of the current digital age and the evolving educational landscape.

Librarians emphasize the importance for libraries to adapt to evolving educational trends and demands. To enhance the learning experience, they propose incorporating tolerances for noise levels and reimagining the library's image. The ideal image for a library should revolve around the core principles of intellectual freedom, open dialogue, and collaborative learning, all aimed at facilitating optimal learning experiences and achieving superior learning outcomes.

Librarians have identified a correlation between the library environment, user behavior, and noise concerns. Socially, noisy behavior in libraries is often associated with broader behavioral issues. However, contemporary discourse surrounding library noise increasingly emphasizes user rights and equity, challenging the traditional emphasis on absolute silence. The expectation of mutual respect for a quiet space underpins effective library use. However, the subjective nature of noise perception and tolerance, where individual thresholds for "too loud" vary, presents a potential source of bias, negative perceptions, unfair treatment, and judgment.

Librarians recognize that fostering a tolerant and tranquil learning environment requires a shared understanding of roles and responsibilities between users and library management. They emphasize the importance of establishing clear policies, particularly regarding noise levels, to provide a framework for user conduct within the library. Furthermore, they posit that a well-defined policy is intricately linked to issues of responsibility and fairness.

Librarians have emphasized the importance of a physical learning environment with a noise policy for facilitating

legitimate and adaptable teaching methods. This aligns with the Ministry of Higher Education's (MOHE) objective of promoting knowledge creation through user collaboration. Survey respondents identified noise as a frequent consequence of the current academic focus on collaborative learning within library spaces. This finding underscores the need to prioritize the creation of learning environments that simultaneously foster both connectivity and focused individual study.

Analysis of user feedback reveals that maintaining noise control within libraries presents significant challenges, particularly within the context of contemporary learning environments. Notably, respondents emphasize that the difficulties encountered are not attributable to problematic user attitudes. A substantial portion of library noise originates from academic discussions, which constitute a crucial element of the learning process. Students frequently engage in collaborative conversations with peers to clarify concepts and complete assignments. Regrettably, this behavior has been misconstrued, leading to the erroneous perception that library users derive pleasure from generating noise.

Librarians reached a consensus that implementing a noise-level policy constitutes a promising initial step in the library's modernization process. This policy aims to shift the library's character from a conversation-oriented environment to a more contemporary one, thereby influencing user behavior and establishing new norms. While some users may question the necessity of a formal noise level policy in libraries, arguing that librarians inherently understand the importance of silence for academic endeavors, a clearly articulated and comprehensive policy provides substantial benefits for both library management and patrons. It serves as a transparent communication tool and a definitive reference point for acceptable noise levels, reducing ambiguity and potentially preventing confusion and inappropriate behavior that disrupts the intended study environment.

D. Transform In Academic Library In Malaysia

The transformation within the academic landscape of Malaysia has highlighted several areas of service and operational uncertainty that necessitate urgent attention. These areas include the impact of cultural differences, the influence of Education 4.0, rapid advancements in media and technology, the substantial growth of online resources, the swift retrieval of electronic resources, the impact of online learning, and changes in user behavior within the library due to the rapid adoption of electronic resources during the COVID-19 pandemic. These factors have demonstrably influenced the usage patterns of library patrons. A disparity exists between library administration's perception of the library as a traditional repository of materials and users' view of it as a space for collaborative learning. This cultural dissonance has resulted in library management failing to meet user needs, leading to a decline in library attendance.

The user base of Malaysian libraries has undergone a remarkable change in recent years. This transformation is attributed to several key factors, including the rapid expansion of digital resources, the adoption of innovative educational approaches, and the growing popularity of online learning and assessment methods. Additionally, improved living standards, the creation of inviting library environments, the development of supportive home learning environments, and the emphasis on practical skills have all contributed to this evolving landscape.

The exponential growth of electronically accessible resources (e-resources) has fundamentally transformed the modalities of user access to library materials. These online resources, encompassing databases, journals, and books, offer global accessibility, demonstrably contributing to a decline in physical library visitation. Furthermore, the emergence of Education 4.0, a novel educational philosophy emphasizing collaborative learning and knowledge creation, has significantly impacted library use patterns. Encouraging students to work together to tackle problems and generate new knowledge necessitates access to library resources, leading libraries to transform into collaborative learning and research hubs. This shift, however, raises uncertainties among users regarding appropriate noise levels for collaborative activities within traditionally quiet library environments.

The growing emphasis on collaboration within education has driven a shift towards incorporating more collaborative learning activities into curricula. This pedagogical shift reflects the evolving landscape of education, resulting in an increased prevalence of collaborative projects assigned to students. This trend, however, presents challenges for libraries, particularly in regard to noise levels, equipment usage, and furniture layout, as they strive to accommodate the increasing demand for collaborative learning spaces. University libraries must achieve a delicate balance between providing quiet spaces for individual study and facilitating collaborative learning environments. This necessitates ensuring the accessibility of library equipment to all students while arranging furniture in a manner conducive to both focused work and productive group interaction.

Noise within libraries poses a significant challenge for individuals seeking focused study or collaborative work. This disruption can hinder concentration and impede participation in discussions. Unwanted noise can be a major distraction for library patrons, especially students attempting to study or complete assignments in a tranquil environment.

Researchers engaged in focused intellectual effort are susceptible to significant disruption by ambient noise. Libraries can mitigate such disruptions by implementing a multifaceted approach encompassing the following: designated quiet zones, clearly defined noise regulations with decibel limits, noise detection systems for real-time awareness of elevated noise levels, comprehensive user education on appropriate noise etiquette, and readily available earplugs and headphones for patrons.

The rise in living standards in Malaysia has demonstrably altered library usage patterns. Increased disposable income among Malaysians allows for greater investment in home-based learning resources, potentially contributing to a decline in library visits for research and assignment completion. Furthermore, the burgeoning emphasis on practical experiences has impacted library use, as individuals increasingly prioritize hands-on learning opportunities over traditional library-based research methods.

As living standards in Malaysia have improved, the purpose and function of libraries have evolved. The once-dominant image of a silent library no longer aligns with contemporary user needs, contributing to a decrease in library attendance. Traditionally, academic libraries have focused on providing a quiet environment for individual study and reflection. This focus is often emphasized by library rules

aimed at minimizing noise and disruptions. The traditional image of the library no longer aligns with contemporary user expectations, creating significant challenges in bridging the cultural divide between library management and patrons. This mismatch stems from library management's potential adherence to outdated conceptions of library spaces, while users often embrace a more collaborative and interactive environment. This disparity in expectations regarding appropriate behavior and decorum can lead to conflict and hinder effective library utilization.

Library management should be more receptive to the concept of fostering a collaborative learning environment within the library. One strategy to achieve this would be to designate common areas as dedicated spaces for collaborative learning activities. Libraries with open-plan layouts and plentiful seating arrangements are inherently more conducive to social interaction and collaboration compared to libraries with closed-off rooms and limited seating options.

Additionally, library management should collaborate with users to develop transparent noise policies that delineate acceptable sound levels in various library zones. This collaborative approach ensures user buy-in and fosters a shared understanding of noise expectations. Notably, noise levels in communal areas should be capped at 50 decibels to uphold a peaceful and quiet environment for all patrons. To support this goal, library staff should receive training on how to address noise concerns and disruptions in a respectful and professional manner.

Themes identified in the research highlight the necessity for adjustments to the library's daily operations. The proposed modifications envision a new operational model that would transform common spaces into collaborative areas, permitting noise levels of below 50 decibels within these zones. Noise detection devices will be deployed to monitor noise levels in collaborative areas. This shift will facilitate increased flexibility in library usage while simultaneously guaranteeing that noise levels remain within acceptable parameters. Continuous reassessments of library services are also crucial to ensure alignment with the learning styles and requirements of contemporary users.

While implementing these changes may significantly impact the library's traditional functions, it represents a positive step towards progress. The introduction of new practices has, however, created a cultural clash; the traditional expectation of quietude is being challenged by the increasing demand for collaborative and social activities within the library space.

The increasing diversity of library users has resulted in a clash between the traditional expectation of silence and the emergence of collaborative and social learning practices. This paradox necessitates cultural sensitivity from librarians to ensure a welcoming and inclusive environment for all. In this context, the outdated image of libraries as solely silent spaces needs to be replaced with new metaphors that emphasize the importance of balanced noise control and prioritize user needs.

By fostering a perception of libraries as spaces for focused learning and work, coupled with staff training in conflict resolution, libraries can cultivate a more harmonious environment. This will not only elevate the quality of library services but also transform the library into a dynamic and inclusive space for all. Implementing new metaphors to

challenge traditional library perceptions and equipping staff with conflict management skills are key to achieving this goal.

The 21st century has witnessed a significant evolution in the daily operations of libraries. Previously, libraries were conceived as sanctuaries of silence, where even discreet whispering was discouraged to avoid disrupting others. However, user demands shifted towards permitting minimal conversation to facilitate collaborative learning. This trend has further progressed, with contemporary library patrons advocating for the inclusion of social activities within the library space. This ongoing transformation reflects both the evolving needs of library users and the changing role of libraries in our society.

The practice of maintaining silence in libraries constitutes a fundamental element of the library's image and has proven advantageous for both library patrons and the overall learning environment. This long-standing social norm should be continuously upheld by librarians, who can implement effective noise management strategies as part of their core service offerings. While acknowledging the subjective nature of noise perception, libraries can objectively quantify it by establishing decibel level limits. This allows for a data-driven approach to noise management, ensuring the preservation of the valuable practice of silence while addressing individual concerns.

This research demonstrates the necessity for libraries to continuously evolve and adapt their offerings to cater to the evolving needs of their users in the 21st century. This necessitates embracing new technologies, expanding service portfolios, and tailoring services to address the shifting demands of patrons. While the study identifies various challenges facing libraries, including the increasing complexity of the information landscape, it also highlights mitigating factors that can contribute to a positive learning experience for library users. These factors include.:

- Noise levels accommodating diverse learning styles and preferences.
- Reduced control over the learning environment encourages users to become more autonomous learners.
- Well-trained staff, equipped with a deep understanding of user needs and relevant policy frameworks, can effectively guide libraries in becoming more welcoming and inclusive spaces..
- An environment that promotes engagement, creativity, and collaboration, serving as a catalyst for intellectual exploration and innovation.
- A supportive and welcoming environment with clearly defined expectations for behavior cultivates a sense of belonging among users.
- The environment, characterized by a modern design and welcoming ambiance, promotes a relaxed and enjoyable atmosphere that enhances the learning experience.
- The implementation of collaborative activities that foster a friendly and supportive environment encourages users to engage in knowledge exchange and build upon each other's expertise.

CONCLUSION

The findings of this research indicate that libraries have emerged as key stakeholders in promoting lifelong learning in the 21st century. By nurturing a welcoming and supportive environment, libraries equip users with the necessary tools and resources to navigate the ever-evolving information landscape and successfully achieve their desired learning outcomes. The research revealed that artificial intelligence (AI) is not only crucial for transforming other areas of library services, but also plays a vital role in their future success. Implementing AI-powered alerting systems can significantly improve the efficiency and effectiveness of libraries by reducing the reliance on human intervention in monitoring potential issues. Implementing noise detection technology in libraries holds promise for enhancing the learning environment. This technology can provide users with real-time feedback on noise levels, prompting them to adopt quieter behavior, such as lowering their voices or relocating to designated quiet zones.

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