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University students' satisfaction with library services and resources using the Kano model



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ABSTRACT

Student satisfaction is essential for developing an engaging and active library environment that promotes usage and shapes a favorable view of the institution. This study uses the Kano Model to investigate university students' satisfaction with library services and resources, focusing on basic, performance, and excitement dimensions. The goal is to enhance understanding of user satisfaction in academic libraries. The study surveyed 300 university students randomly selected from four State Universities and Colleges (SUCs) in the Philippines using a researcher-created survey tool. The results showed that students were generally satisfied with the basic aspects of library services and resources. However, they expressed neutral satisfaction with performance aspects and dissatisfaction with library resources. Similarly, satisfaction with the excitement aspects of library services was neutral, but there was dissatisfaction with the excitement aspects of library resources. These findings provide valuable insights into the complex dimensions of university students' satisfaction with library services and resources, helping institutions improve the quality of their educational library services.

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1. Introduction

The university library is a multifaceted cornerstone of academic life (Desrochers et al., 2018). It is a hub for intellectual exploration and scholarly engagement (Shapiro, 2016). Beyond its traditional role as a repository for print resources, the modern university library has evolved to meet the diverse needs of students and faculty (Seal, 2015). It is a dynamic space that integrates cuttingedge technology (Noh, 2015), collaborative workspaces (Choy and Goh, 2016), and a vast array of digital and physical resources (Bygstad et al., 2022). It has become a nexus for learning (Ogunbodede and Wiche, 2022), research (Sinha et al., 2023), and innovation (Hussain, 2023). Moreover, the library actively contributes to developing critical skills necessary for navigating the complex landscape of academia (Cox, 2023). Thus, it remains a dynamic and integral component of the

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2313-626X/© 2024 The Authors. Published by IASE. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/) educational journey among students (Renz and Hilbig, 2023).

The commitment to maintaining and enhancing library services and resources extends beyond mere infrastructure investments (Yakubu et al., 2022). It represents a strategic dedication to elevating the educational experience and fostering a vibrant academic community within the university (George and Wooden, 2023). Student satisfaction is the guiding compass for improvements and the ultimate reward for a robust library system (Kanwar and Sanjeeva, 2022). Positive feedback signals that the resources effectively meet students' academic and research needs (Zulaiha and Triana, 2023). Conversely, dissatisfaction is a valuable cue for areas requiring improvement (Ig-Worlu and Ukaegbu, 2022). It prompts libraries to adapt, innovate, and ensure their offerings align seamlessly with the dynamic expectations of the student population (Chiganze and Sağsan, 2022). Hence, student satisfaction emerges as a pivotal indicator and feedback mechanism in assessing the efficacy of library resources and services within the educational institution (Riady et al., 2023). This evaluation provides invaluable insights into how well the library tailors to the diverse and evolving necessities of the student body (Pramesworo et al., 2023).

Numerous studies have delved into library satisfaction among university students, examining

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the multifaceted dimensions that contribute to their with library contentment services. These investigations encompass factors such as resource accessibility (Otike et al., 2022), the efficacy of support services (Twum et al., 2022), the responsiveness of library staff (Twum et al., 2022), and the integration of technological innovations (Rahmat et al., 2022). Studies often employ quantitative methodologies (Iqbal et al., 2022; Geiger et al., 2023; Khan et al., 2023), incorporating surveys (Kanwar and Sanjeeva, 2022; Twum et al., 2022) and interviews (Smadi, 2022) to capture insights into experiences. Other emplov student studies established models to systematically assess and understand the factors influencing students' contentment with library services. The SERVQUAL (Service Quality) model (Twum et al., 2022; Alam and Mezbah-ul-Islam, 2023; Butt et al., 2023) and (Rahman et al., 2023) provide LibQUAL+ frameworks for evaluating dimensions like reliability, responsiveness, assurance, and empathy.

Despite the wealth of studies examining library satisfaction, there is a disparity in the works about applying the Kano Model from the perspective of library services and resources. This model, known for categorizing customer preferences into basic, performance, and excitement factors, offers a unique perspective that could significantly contribute to understanding the intricacies of user satisfaction in libraries. The dearth of research using this model in this domain represents an untapped opportunity to explore. Incorporating the Kano Model into library satisfaction studies could offer а more comprehensive framework for assessing and prioritizing features, ultimately guiding libraries in tailoring their services to meet university students' evolving and diverse expectations. Consequently, this study delved into library services and resource satisfaction across the basic, performance, and excitement dimensions, contributing to a broader understanding of user satisfaction in the academic library context.

2. Literature survey

Noriaki Kano's Model is a cornerstone of customer satisfaction and product development (El-Sayed and Abdelaliem, 2023). This innovative framework transcends conventional approaches by categorizing features into three distinct types: basic needs, performance needs, and excitement features (Jiang et al., 2023). Its unique contribution lies in recognizing that not all features have the same impact on customer satisfaction (Zhou and Yao, 2023). Thus, it provides an understanding of customer preferences beyond traditional models (Pandey et al., 2022).

The Kano Model's foundation consists of basic features that are considered essential prerequisites for any product or service. These are features that customers expect as a baseline, and their absence leads to significant dissatisfaction (Shahin and Nourmohammadi, 2023). Basic features, or musthaves, are the fundamental building blocks of customer satisfaction. Meeting these requirements is imperative to avert dissatisfaction, but exceeding them does not necessarily result in increased fulfillment (El-Sayed and Abdelaliem, 2023).

Moving beyond the basics, the Kano Model introduces performance features directly correlating with customer satisfaction. The better these features are met, the more satisfied customers become (Zhou and Yao, 2023). Unlike basic features, the absence of performance features does not cause dissatisfaction (Esmaeili Givi et al., 2023); however, their presence significantly enhances overall satisfaction (Alzoubi et al., 2022). These features represent linear satisfiers, as their impact on satisfaction follows a proportional relationship (Alzoubi et al., 2022).

Excitement features, or delighters, introduce an innovative dimension to the model (Jin et al., 2022). These are unexpected or novel features that have the potential to generate delight and set a product or service apart in the market. Unlike basic and performance features, customers do not anticipate excitement features (Chen et al., 2022a). Their presence can lead to heightened satisfaction and create a competitive edge. Excitement needs to go beyond meeting expectations; they exceed them, contributing to customer loyalty and differentiation in the market (Koomsap et al., 2023).

Numerous studies have investigated the model's ability to categorize features into basic, performance, and excitement needs. For instance, research was conducted on applying the Kano Model in the context of consumer preferences for various attributes in automobiles (Mehra et al., 2023). It highlighted its utility in prioritizing features based on customer satisfaction. Scholars have demonstrated its versatility beyond product development (Chen et al., 2022a). Additionally, a meta-analysis found that the model consistently provides valuable insights into customer preferences across diverse industries, such as the health sector (De Vasconcelos et al., 2023), evolving market (Chen et al., 2022b), and innovation (Chen et al., 2022b; Jin et al., 2022). Despite its widespread use, some researchers have critiqued the model's reliance on survey data (Kermanshachi et al., 2022) and its potential limitations in capturing dynamic and evolving customer preferences (Lee et al., 2022).

The Kano Model is an indispensable tool for businesses and organizations seeking to elevate customer satisfaction to new heights (Lippitt et al., 2023). With its intricate categorization of needs, this model offers a profound understanding of the factors influencing customer contentment or dissatisfaction (Zhou and Yao, 2023). It goes beyond a simplistic assessment and delves into the intricate layers of customer expectations (Pandey et al., 2022). In a landscape where consumer expectations undergo a continual transformation, this framework becomes a guiding compass for businesses (Loučanová et al., 2022). It empowers them to discern the basic, performance, and excitement features that can genuinely delight customers (Heidari Aqagoli et al., 2024). As businesses navigate the ever-changing terrain of consumer preferences, the Kano Model stands as an invaluable ally, aiding in the strategic prioritization of improvements and innovations that resonate authentically with the evolving needs of their customer base (Kermanshachi et al., 2022).

3. Methodology

3.1. Research design

This study employed the Kano Model in determining university students' satisfaction with library services and resources. This model involves meticulously examining features and services systematically categorized as basic, performance, and excitement (Koomsap et al., 2023). Fundamental to this approach is a comprehensive understanding of basic features, ensuring the fulfillment of foundational student requirements. This prevents dissatisfaction and establishes a robust foundation for academic pursuits (Tsang et al., 2022). Addressing performance features takes center stage in the continuous improvement of library services. It encompasses optimizing existing features and introducing enhancements that seamlessly align with the evolving expectations of students (Spring et al., 2022). Examples include the implementation of intuitive digital interfaces and the creation of collaborative learning spaces, which contribute significantly to students' overall satisfaction (Pandita and Kiran, 2023).

Moreover, incorporating excitement features, whether through innovative programs, strategic external partnerships, or the integration of cuttingedge technologies, catalyzes uniquely distinguishing a university library (Gupta, 2023). This, in turn, fosters a sense of pride and loyalty among students, thus creating a distinctive identity for the institution (Trisela, 2022). The Kano Model's inherent adaptability becomes particularly crucial in considering the ever-evolving landscape of higher education (Fujs et al., 2022). It provides a dynamic framework for university libraries to reassess and realign their services, ensuring they remain responsive and attuned to students' changing needs and expectations in the dynamic and evolving environment (Datta and Chaudhuri, 2022).

3.2. Study respondents

This descriptive study utilized 300 university students randomly selected from four State Universities and Colleges (SUCs) in the Philippines. To ensure their complete understanding and willingness to participate, each participant underwent a detailed orientation, acquainting them with the study's procedures and the potential benefits and risks associated with their involvement. All students provided explicit informed consent before their active participation, signifying their thorough comprehension of the research's overarching objectives.

3.3. Research instrument

The survey instrument was a researcher-made questionnaire comprised of 45 items. To guarantee the quality of the items, the questionnaire underwent validation by subject matter experts. Furthermore, its reliability was assessed through testing with 30 non-respondents from a neighboring SUC, resulting in Cronbach's alpha values of 0.81 and 0.79 for basic features related to library services and resources, respectively. Likewise, for performance features, these values were 0.79 and 0.84 individually; for excitement features, they were 0.75 and 0.80 separately. The survey instrument employed a 5-point Likert scale aligned with the Kano Model, encompassing response options of frustrated (1.00-1.50), dissatisfied (1.51-2.50), neutral (2.51-3.50), satisfied (3.51- 4.50), and delighted (4.51-5.00). The scale was strategically chosen to gauge the participants' perceived satisfaction with the library services and resources under investigation. The Kano Model's response categories allowed for a comprehensive assessment of user satisfaction, considering the fundamental expectations (basic factors) and performance and excitement factors.

4. Results

4.1. Basic features satisfaction

Table 1 shows that university students were satisfied with the basic features of library services. The mean value of 3.70 suggests a moderate to high level of satisfaction, as it falls above the midpoint on the scale. The standard deviation of 0.18 reflects a relatively low level of variability among the respondents' responses, indicating a certain level of consensus in their assessments. The relatively low standard deviation suggests that the respondents' opinions were generally consistent, providing confidence in the reliability of the mean as a representative measure of satisfaction.

Regarding library resources, the respondents were generally satisfied (M= 3.65, SD = 0.08) with basic features. The mean value suggests a moderate to high level of contentment, surpassing the midpoint on the scale. The relatively low standard deviation indicates a notable degree of agreement among respondents, signaling a cohesive consensus in their assessments. The narrow standard deviation strengthens the reliability of the mean as a representative measure of satisfaction, implying a consistent and convergent sentiment among respondents.

Respondents' satisfaction regarding library services and resources' basic features highlights a critical role in shaping a conducive and effective learning environment. They were contented with the temperature, а clean, well-maintained, and conducive study environment, designated quiet zones for focused study, sufficient and comfortable seating, a stable and high-speed Wi-Fi connection for online research, and easily accessible computers and workstations. This satisfaction stresses the importance of a supportive physical infrastructure that enables focused and uninterrupted study (Sivankutty and Sudhakaran, 2023). Similarly, respondents were satisfied with the library resources' basic features. It indicates а comprehensive and well-rounded collection that caters to their diverse academic needs (Ikhsan, 2023). They appreciated easy access to fundamental resources like books and journals, reliable databases,

digital resources for research, and essential reference materials such as encyclopedias and dictionaries. The inclusion of audio-visual materials like CDs and DVDs, access to unique materials in collections. archives and special relevant government publications, a user-friendly online catalog, and interlibrary loans further demonstrate the satisfaction with the breadth and accessibility of the library's resource offerings. This twofold satisfaction features the imperative role of both physical and digital resources in supporting students' academic endeavors (Fu et al., 2023). As a result, it contributes to a positive and enriching educational experience within the university library.

Table 1: University students' basic features satisfaction

	М	SD	Interpretation
Services			
Comfortable temperature conducive to studying	3.60	1.23	Satisfied
Clean, well-maintained, and conducive study environment	3.56	1.22	Satisfied
Designated quiet zones for focused and uninterrupted study	4.06	0.98	Satisfied
Sufficient and comfortable seating for studying and reading	3.70	1.12	Satisfied
Stable and high-speed Wi-Fi connection for online research and study	3.81	0.96	Satisfied
Good working conditions and easily accessible computers and workstations	3.58	1.18	Satisfied
Easy access to basic stationery supplies like pens, paper, and printing facilities	3.58	1.51	Satisfied
Total	3.70	0.18	Satisfied
Resources			
Easy access to fundamental resources such as books and journals	3.61	1.18	Satisfied
Access to reliable databases and digital resources for research	3.51	1.16	Satisfied
Essential reference materials like encyclopedias and dictionaries	3.74	1.18	Satisfied
Collection of audio-visual materials, such as CDs and DVDs	3.63	1.31	Satisfied
Access to unique materials in archives and special collections	3.73	1.05	Satisfied
Relevant government publications in the library's collection	3.65	1.08	Satisfied
A user-friendly online catalog for accessible resource location	3.71	1.11	Satisfied
Interlibrary loans to access resources beyond the library's collection	3.59	1.60	Satisfied
Total	3.65	0.08	Satisfied

4.2. Performance features satisfaction

Table 2 reveals that respondents' satisfaction with the performance feature of library services was neutral (M = 2.81, SD = 0.67. The mean falling below the midpoint on the scale indicates a tendency towards a lower level of satisfaction. The standard deviation reflects moderate variability in the respondents' assessments, suggesting some diversity in opinions.

Regarding library resources, the respondents were generally dissatisfied (M = 2.36, SD = 0.36). With the mean falling below the midpoint on the scale, there is a clear indication that the respondents, as a whole, are expressing a lower level of satisfaction with the available library resources. The relatively low standard deviation suggests a consistent and uniform dissatisfaction among the respondents, reinforcing the notion that there is a convergence of negative opinions regarding the adequacy or quality of library resources.

The neutral satisfaction with the performance features of library services reveals a complex perception of their effectiveness. It reflects the multifaceted nature of contemporary academic needs (Wojciechowska, 2023). This means that they neither strongly approve nor disapprove of the performance-based aspects of library services. The complex evaluation may stem from the diversity of services offered, such as extended hours (Tsang and Chiu, 2022), interlibrary loans (Lloyd et al., 2022), and technology workshops (Hernández-Pérez et al., 2022), contributing to a varied user experience. While neutral satisfaction does not signal overt dissatisfaction, it is a valuable indicator for the library to delve deeper into specific elements within the performance features that may require refinement or enhancement. Contrastingly, the general dissatisfaction with the performance features of library resources raises significant concerns. It points to a critical gap that needs to be addressed. The identified gap encompasses the imperative for a more extensive range of digital surpassing basic requirements resources (Ogunbodede and Wiche, 2022), a diverse collection of multimedia materials (Oladokun et al., 2023), access to specialized databases (Oladokun et al., 2023), collaborative online platforms (Dube and Jacobs, 2023), and systems providing personalized recommendations (Kaushal and Yadav, 2022). This dissatisfaction features the pressing need for libraries to re-evaluate and enhance their resource offerings to align with the evolving nature of academic pursuits and technological advancements. ensures that students Hence. it receive comprehensive support and access to a dynamic and tailored learning environment.

	М	SD	Interpretation			
Services						
Specialized research assistance for in-depth queries or complex topics	1.94	0.86	Dissatisfied			
Advanced workshops on information literacy for higher-level research skills	2.31	1.17	Dissatisfied			
Personalized consultations with librarians for individualized research support	2.40	1.22	Dissatisfied			
Extend library service hours to accommodate varying study schedules	3.80	1.16	Satisfied			
Interlibrary loan services to include a wider range of materials	3.77	1.02	Satisfied			
Workshops on cutting-edge technologies relevant to research and learning	2.88	1.10	Neutral			
Support for advanced data analysis and visualization tools	2.49	1.34	Dissatisfied			
Collaborative spaces equipped with resources for group research projects	2.92	1.19	Dissatisfied			
Total	2.81	0.67	Neutral			
Resources						
Wide range of digital resources beyond the basic requirements	2.49	0.60	Dissatisfied			
Library collection includes the latest editions and the up-to-date information	2.73	1.51	Neutral			
Diverse collection of multimedia materials, including video lectures and podcasts	2.16	0.89	Dissatisfied			
Access to specialized databases relevant to various fields of study	1.92	0.60	Dissatisfied			
Expand the scope of archives to include a broader range of perspectives and voices	2.89	1.52	Neutral			
Collaborative online platforms for knowledge sharing and discussion	2.06	0.97	Dissatisfied			
Systems that provide personalized recommendations based on user preferences	2.23	1.28	Dissatisfied			
Total	2.36	0.36	Dissatisfied			

Table 2: University students' performance features satisfaction

4.3. Excitement features satisfaction

Table 3 indicates that respondents' satisfaction with the excitement feature concerning library services was neutral (M = 2.71, SD = 0.66). The mean falling close to the midpoint on the scale suggests a balance between satisfaction and dissatisfaction, indicating a relatively neutral stance regarding fulfilling performance-related needs. The standard deviation suggests moderate variability in the respondents' assessments, indicating some diversity in opinions about performance-related satisfaction.

However, they were dissatisfied (M = 2.47, SD = 0.76) with library resources. The mean falling below the midpoint on the scale suggests a tendency towards a lower level of contentment, reflecting a consensus that the excitement feature provided does not meet the respondents' expectations or requirements. The relatively higher standard deviation implies a degree of variability in the respondents' assessments, indicating dissatisfaction.

The neutral satisfaction with excitement features in library services signals a potential hole in fulfilling more engaging and stimulating aspects within the library environment. It indicates an evolving expectation among students seeking innovative and interactive experiences in their academic spaces. Excitement features, encompassing virtual reality resources, online book clubs with interactive discussions (Tsang and Chiu, 2022), surprise guest lectures (Yu et al., 2023), and interactive learning apps (Okunlaya et al., 2022), possess the potential to dynamic and enriching academic create а environment when effectively integrated. However, the general dissatisfaction with library resources, including e-books lacking interactive elements (Okunlaya et al., 2022), virtual reality experiences (Mäkinen et al., 2022), augmented reality usage (Dalili Saleh et al., 2022), gamified learning modules (Jug, 2023), virtual spaces (Dalmer and Mitrovica, 2022), mystery book bundles (Emerson and Lehman, 2022), and digital archives (Jaillant, 2022), raises significant concerns. This discontent suggests a perceived inadequacy in implementing modern and interactive features within the library, thus impacting the student experience. Dissatisfaction

with specific elements indicates a desire for a more dynamic digital reading experience, immersive exploration of library resources, and hands-on, participatory learning methods. The desire for virtual spaces and collaborative online learning environments reflects a shift towards dynamic and cooperative learning settings. Therefore, it emphasizes the need for universities to critically assess and enhance their library resources to meet evolving expectations and create a more engaging and technologically enriched academic environment for contemporary students.

5. Conclusion

The satisfaction concerning the basic features of library services and resources goes beyond mere endorsement. It serves as a resounding endorsement of the library environment. The acknowledgment of both satisfaction in areas emphasizes the institution's adeptness and commitment to creating an environment that aligns with the evolving expectations of the students. This also underlines the library's pivotal role in supporting students' academic endeavors, contributing significantly to a positive. vibrant, and enriching educational experience within the university setting. The positive evaluation reaffirms the library's status as a central pivot for knowledge, research, and academic engagement within the academic community.

The findings reveal divergent patterns in the respondents' satisfaction with the performance features of both library services and resources. While neutral satisfaction was expressed with the library services, indicating an ambivalent perception of their effectiveness, a contrasting dissatisfaction was identified with library resources. This duality in satisfaction highlights a critical distinction between the tangible library offerings and the content and accessibility of its resources. The neutral stance on services suggests a complex perception, possibly influenced by factors such as extended service hours and technological workshops, demonstrating the need for a more targeted understanding of user expectations. In contrast, dissatisfaction with resources signals a substantial gap. This urges the library to reassess and enhance its resource acquisition strategies to better align with the student community's diverse academic needs and expectations. This dichotomy in satisfaction highlights the importance of a holistic approach to ensure an effective and well-rounded library experience for the university community.

Table 3: University students	' excitement features satisfaction
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	М	SD	Interpretation	
Services				
Virtual reality resources for immersive learning experiences	2.09	0.70	Dissatisfied	
Online book clubs with interactive discussions and author interactions	2.08	0.65	Dissatisfied	
Surprise guest lectures from renowned authors or experts	2.31	0.67	Dissatisfied	
Gamification elements in online learning platforms for fun learning experience		1.18	Neutral	
Themed learning events with activities and challenges		1.02	Satisfied	
Interactive learning apps or tools that make studying enjoyable	2.49	1.13	Dissatisfied	
Creative and aesthetically pleasing collaborative spaces	3.59	1.19	Satisfied	
Total	2.71	0.66	Neutral	
Resources				
e-books with interactive elements, such as multimedia content, quizzes, or annotations	2.50	0.60	Dissatisfied	
Virtual reality experiences for library tours, allowing users to explore the library in a new way		0.63	Dissatisfied	
The use of augmented reality to enhance traditional textbooks with interactive features		0.60	Dissatisfied	
Gamified elements in learning modules to make studying more engaging	2.35	0.87	Dissatisfied	
Virtual spaces where users can collaboratively conduct research, share findings, and engage in discussions	2.00	0.81	Dissatisfied	
Mystery book bundles, where users receive surprise selections based on their preferences	2.35	0.93	Dissatisfied	
Digital archives with storytelling elements providing narratives around historical artifacts	2.42	0.66	Dissatisfied	
Customized learning paths, exploring diverse topics in unique ways	4.26	0.71	Satisfied	
Total	2.47	0.76	Dissatisfied	

The results indicate a contrast in respondents' satisfaction with the excitement features of library services and resources. This divergence underscores a critical distinction between the dynamic elements incorporated into the library's services and the engaging features offered within its resource collection. The neutral stance on the excitement features of services implies a complex evaluation, potentially influenced by factors like virtual reality resources and interactive learning tools. Although not perceived as problematic, the identified performance features may not necessarily captivate students as particularly noteworthy or advantageous to their academic experience. This neutrality could stem from a lack of awareness or limited utilization of specific performance-oriented services, creating a gap between what is offered and what students actively engage with. In contrast, the dissatisfaction with the exciting features of resources identifies a significant gap that necessitates attention, urging the library to re-evaluate and enhance its collection with more innovative and stimulating elements such as virtual reality experiences, interactive e-books, and gamified learning modules. Addressing this divergence is key for the library to evolve as a dynamic and engaging academic space.

Applying the Kano Model in assessing university students' satisfaction with library services and resources has proven effective and insightful. It elucidates a framework for comprehending the intricacies of user satisfaction. By employing this model, the study delved into the diverse dimensions of satisfaction, ranging from fundamental expectations to aspects that generate excitement among students. This understanding guides institutions in tailoring their offerings to meet the needs of the university student population.

It is recommended that libraries should prioritize enhancing the efficiency and effectiveness of their services. This could involve improving the speed and accuracy of search tools, enhancing the ease of accessing and borrowing materials, and providing timely assistance and support to users. Additionally, it is crucial for libraries to invest in expanding and diversifying their collections. This could include acquiring new and relevant books, journals, digital resources, and multimedia materials that cater to the diverse interests and academic needs of students. Furthermore, libraries should consider implementing innovative programs and initiatives to engage students and make library visits more stimulating and enjoyable. This could involve organizing events, workshops, and exhibitions, as well as incorporating interactive technologies and multimedia resources into the library environment. By focusing on these specific areas of improvement, libraries can better meet the evolving needs and expectations of their users, ultimately enhancing satisfaction and engagement with their services and resources.

Compliance with ethical standards

Ethical consideration

This study was conducted in accordance with the ethical standards of Northern Iloilo State University and the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants involved in the study. Each participant was informed about the purpose of the research, the procedures used, potential risks, and their rights to confidentiality and withdrawal from the study without any penalty. Written consent was obtained prior to participation.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

- Alam MJ and Mezbah-ul-Islam M (2023). Impact of service quality on user satisfaction in public university libraries of Bangladesh using structural equation modeling. Performance Measurement and Metrics, 24(1): 12-30. https://doi.org/10.1108/PMM-06-2021-0033
- Alzoubi HM, Ahmed G, and Alshurideh M (2022). An empirical investigation into the impact of product quality dimensions on improving the order-winners and customer satisfaction. International Journal of Productivity and Ouality Management, 36(2): 169-186. https://doi.org/10.1504/IJPQM.2022.124711
- Butt K, Arif M, and Rafiq M (2023). Assessing university students' satisfaction with web-based library services based on SERVQUAL model: A case of a Pakistani University. Libri, 73(2): 153-165. https://doi.org/10.1515/libri-2022-0050
- Bygstad B, Øvrelid E, Ludvigsen S, and Dæhlen M (2022). From dual digitalization to digital learning space: Exploring the digital transformation of higher education. Computers and Education, 182: 104463. https://doi.org/10.1016/j.compedu.2022.104463
- Chen HM, Wu HY, and Chen PS (2022b). Innovative service model of information services based on the sustainability balanced scorecard: Applied integration of the fuzzy Delphi method, Kano model, and TRIZ. Expert Systems with Applications, 205: 117601. https://doi.org/10.1016/j.eswa.2022.117601
- Chen K, Jin J, and Luo J (2022a). Big consumer opinion data understanding for Kano categorization in new product development. Journal of Ambient Intelligence and Humanized Computing, 13: 2269-2288. https://doi.org/10.1007/s12652-021-02985-5
- Chiganze T and Sağsan M (2022). Relationship between human capital, innovation capability and employee job performance in academic libraries in Namibia, South Africa, and Zimbabwe. Libri, 72(3): 317-334.

https://doi.org/10.1515/libri-2021-0037

- Choy FC and Goh SN (2016). A framework for planning academic library spaces. Library Management, 37(1/2): 13-28. https://doi.org/10.1108/LM-01-2016-0001
- Cox A (2023). How artificial intelligence might change academic library work: Applying the competencies literature and the theory of the professions. Journal of the Association for Information Science and Technology, 74(3): 367-380. https://doi.org/10.1002/asi.24635
- Dalili Saleh M, Salami M, Soheili F, and Ziaei S (2022). Augmented reality technology in the libraries of universities of medical sciences: Identifying the application, advantages and challenges and presenting a model. Library Hi Tech, 40(6): 1782-1795. https://doi.org/10.1108/LHT-01-2021-0033
- Dalmer NK and Mitrovica BL (2022). The public library as social infrastructure for older patrons: Exploring the implications of online library programming for older adults during COVID-19. Library and Information Science Research, 44(3): 101177. https://doi.org/10.1016/j.lisr.2022.101177
- Datta A and Chaudhuri SK (2022). Application of Kano model in evaluating indoor environment qualities of university libraries. Annals of Library and Information Studies, 69(2): 149-157. https://doi.org/10.56042/alis.v69i2.59674
- De Vasconcelos CR, De Carvalho RSMC, De Melo FJC, and De Medeiros DD (2023). Improving quality in public health service: An integrated approach to the Kano model and the balanced scorecard. Journal of Nonprofit and Public Sector Marketing, 35(2): 215-241. https://doi.org/10.1080/10495142.2022.2066598

Desrochers N, Paul-Hus A, Haustein S, Costas R, Mongeon P, Quan-Haase A, Bowman TD, Pecoskie J, Tsou A, and Larivière V (2018). Authorship, citations, acknowledgments and visibility in social media: Symbolic capital in the multifaceted reward system of science. Social Science Information, 57(2): 223-248. https://doi.org/10.1177/0539018417752089

- Dube TV and Jacobs L (2023). Academic library services extension during the COVID-19 pandemic: Considerations in higher education institutions in the Gauteng Province, South Africa. Library Management, 44(1/2): 17-39. https://doi.org/10.1108/LM-04-2022-0039
- El-Sayed AAI and Abdelaliem SMF (2023). Application of Kano model for optimizing the training system among nursing internship students: A mixed-method Egyptian study. BMC Nursing, 22(1): 316. https://doi.org/10.1186/s12912-023-01485-5 PMid:37710268 PMCid:PMC10500916
- Emerson ME and Lehman LG (2022). Who are we missing? Conducting a diversity audit in a liberal arts college library. The Journal of Academic Librarianship, 48(3): 102517. https://doi.org/10.1016/j.acalib.2022.102517
- Esmaeili Givi M, Keshavarz H, and Kargar Azad Z (2023). Quality assessment of e-learning website using asymmetric impactperformance analysis and Kano's customer satisfaction model: A case study based on WebQual 4.0. Information Discovery and Delivery, 51(1): 35-46. https://doi.org/10.1108/IDD-08-2021-0083
- Fu Y, Lomas E, Inskip C, and Bunn J (2023). Understanding international users' library experience in the digital age-Joining the behavioral and experiential aspects. Journal of Documentation, 79(3): 608-634. https://doi.org/10.1108/JD-02-2022-0035
- Fujs D, Vrhovec S, Žvanut B, and Vavpotič D (2022). Improving the efficiency of remote conference tool use for distance learning in higher education: A Kano based approach. Computers and Education, 181: 104448. https://doi.org/10.1016/j.compedu.2022.104448 PMid:36568328 PMCid:PMC9758603
- Geiger L, Mastley CP, Thomas M, and Rangel E (2023). Academic libraries and DEI initiatives: A quantitative study of employee satisfaction. The Journal of Academic Librarianship, 49(1): 102627. https://doi.org/10.1016/j.acalib.2022.102627
- George B and Wooden O (2023). Managing the strategic transformation of higher education through artificial intelligence. Administrative Sciences, 13(9): 196. https://doi.org/10.3390/admsci13090196
- Gupta V (2023). Mobile application development lab and University of Toronto libraries: Advancing innovation through synergistic collaboration. Internet Reference Services Quarterly, 27(4): 223-231. https://doi.org/10.1080/10875301.2023.2242843
- Heidari Aqagoli P, Safari A, and Shahin A (2024). Cyberloafing attractiveness: A mixed-method based on Q methodology and Kano model. International Journal of Organizational Analysis, 32(2): 373-396. https://doi.org/10.1108/IJOA-10-2022-3460
- Hernández-Pérez O, Vilariño F, and Domènech M (2022). Public libraries engaging communities through technology and innovation: Insights from the library living lab. Public Library Quarterly, 41(1): 17-42. https://doi.org/10.1080/01616846.2020.1845047
- Hussain A (2023). Use of artificial intelligence in the library services: Prospects and challenges. Library Hi Tech News, 40(2): 15-17. https://doi.org/10.1108/LHTN-11-2022-0125
- Ig-Worlu MO and Ukaegbu B (2022). Signage and information and communication technology (ICT) facilities as correlate to utilisation of information resources in federal universities' libraries in south-south zone of Nigeria. International Journal of Librarianship, 7(2): 74-87. https://doi.org/10.23974/ijol.2022.vol7.2.242
- Ikhsan K (2023). The role of the library in fostering students' reading habit: A case in an Islamic primary school. Tadibia Islamika, 3(2): 89-94. https://doi.org/10.28918/tadibia.v3i2.1147

- Iqbal M, Rafiq M and Soroya S H (2022). Examining predictors of digital library use: An application of the information system success model. The Electronic Library, 40(4): 359-375. https://doi.org/10.1108/EL-01-2022-0008
- Jaillant L (2022). How can we make born-digital and digitised archives more accessible? Identifying obstacles and solutions. Archival Science, 22(3): 417-436. https://doi.org/10.1007/s10502-022-09390-7
- Jiang Q, Wang Z, and Sun J (2023). Investigating quality factors of interactive fitness games based on Kano model. Kybernetes. https://doi.org/10.1108/K-04-2023-0569
- Jin J, Jia D, and Chen K (2022). Mining online reviews with a Kansei-integrated Kano model for innovative product design. International Journal of Production Research, 60(22): 6708-6727. https://doi.org/10.1080/00207543.2021.1949641
- Jug T (2023). Exploring the role of games and gamification in academic libraries from the perspective of LIS educators. Education for Information, 39(3): 341-358. https://doi.org/10.3233/EFI-230038
- Kanwar A and Sanjeeva M (2022). Student satisfaction survey: A key for quality improvement in the higher education institution. Journal of Innovation and Entrepreneurship, 11(1): 27. https://doi.org/10.1186/s13731-022-00196-6
- Kaushal V and Yadav R (2022). The role of chatbots in academic libraries: An experience-based perspective. Journal of the Australian Library and Information Association, 71(3): 215-232. https://doi.org/10.1080/24750158.2022.2106403
- Kermanshachi S, Nipa TJ, and Nadiri H (2022). Service quality assessment and enhancement using Kano model. PLOS ONE, 17(2): e0264423. https://doi.org/10.1371/journal.pone.0264423 PMid:35213604 PMCid:PMC8880948

- Khan AU, Rafi M, Zhang Z, and Khan A (2023). Determining the impact of technological modernization and management capabilities on user satisfaction and trust in library services. Global Knowledge, Memory and Communication, 72(6/7): 593-611. https://doi.org/10.1108/GKMC-06-2021-0095
- Koomsap P, Dharmerathne BRY, and Hussadintorn Na Ayutthaya D (2023). Examination of common mistakes for successful leveraging the Kano model and proposal for enhancement. Journal of Engineering Design, 34(8): 591-615. https://doi.org/10.1080/09544828.2023.2245533
- Lee S, Park S, and Kwak M (2022). Revealing the dual importance and Kano type of attributes through customer review analytics. Advanced Engineering Informatics, 51: 101533. https://doi.org/10.1016/j.aei.2022.101533
- Lippitt P, Itani N, O'Connell JF, Warnock-Smith D, and Efthymiou M (2023). Investigating airline service quality from a business traveller perspective through the integration of the Kano model and importance-satisfaction analysis. Sustainability. 15(8): 6578. https://doi.org/10.3390/su15086578
- Lloyd JK, Alpi KM, Hoogland MA, Stephenson PL, and Meyer E (2022). Interlibrary loan and document delivery in North American health sciences libraries during the early months of the COVID-19 pandemic. Journal of the Medical Library Association, 110(3): 348-357. https://doi.org/10.5195/jmla.2022.1452 PMid:36589302 PMCid:PMC9782377
- Loučanová E, Olšiaková M, and Štofková J (2022). Open business model of eco-innovation for sustainability development: Implications for the open-innovation dynamics of Slovakia. Journal of Open Innovation: Technology, Market, and Complexity, 8(2): 98. https://doi.org/10.3390/joitmc8020098
- Mäkinen H, Haavisto E, Havola S, and Koivisto JM (2022). User experiences of virtual reality technologies for healthcare in learning: An integrative review. Behaviour and Information Technology, 41(1): 1-17.

https://doi.org/10.1080/0144929X.2020.1788162

- Mehra A, Singh R, Yadav A, Sharma A, and Chauhan AS (2023). Application of Kano model in customer requirements analysis of electric two-wheelers. AIP Conference Proceedings, AIP Publishing, Dehradun, India, 2521(1): 040013. https://doi.org/10.1063/5.0112621
- Noh Y (2015). Imagining library 4.0: Creating a model for future libraries. The Journal of Academic Librarianship, 41(6): 786-797. https://doi.org/10.1016/j.acalib.2015.08.020
- Ogunbodede KF and Wiche HI (2022). Nexus of Nigerian academic libraries and online education in the pandemic era. International Information and Library Review, 54(3): 216-224. https://doi.org/10.1080/10572317.2021.1973310
- Okunlaya RO, Syed Abdullah N, and Alias RA (2022). Artificial intelligence (AI) library services innovative conceptual framework for the digital transformation of university education. Library Hi Tech, 40(6): 1869-1892. https://doi.org/10.1108/LHT-07-2021-0242
- Oladokun BD, Yahaya DO, and Enakrire RT (2023). Moving into the metaverse: Libraries in virtual worlds. Library Hi Tech News, 40(9): 18-21. https://doi.org/10.1108/LHTN-08-2023-0147
- Otike F, Bouaamri A, and Barát ÁH (2022). Perception of international students on the role of university library during COVID-19 lockdown in Hungary. Library Management, 43(5): 334-352. https://doi.org/10.1108/LM-10-2021-0092
- Pandey A, Sahu R, and Joshi Y (2022). Kano model application in the tourism industry: A systematic literature review. Journal of Quality Assurance in Hospitality and Tourism, 23(1): 1-31. https://doi.org/10.1080/1528008X.2020.1839995
- Pandita A and Kiran R (2023). The technology interface and student engagement are significant stimuli in sustainable student satisfaction. Sustainability, 15(10): 7923. https://doi.org/10.3390/su15107923
- Pramesworo IS, Sembiring D, Sarip M, Lolang E, and Fathurrochman I (2023). Identification of new approaches to information technology-based teaching for successful teaching of millennial generation entering 21st century education. Jurnal Iqra': Kajian Ilmu Pendidikan, 8(1): 350-370. https://doi.org/10.25217/ji.v8i1.2722
- Rahman E, Jazman M, Zarnelly Z, and Permana I (2023). Analysis of digital library service quality on user satisfaction using WebQual, LibQual and IPA methods. Jurnal Teknik Informatika (JUTIF), 4(4): 715-722. https://doi.org/10.52436/1.jutif.2023.4.4.942
- Rahmat TE, Raza S, Zahid H, Abbas J, Sobri FA, and Sidiki SN et al. (2022). Nexus between integrating technology readiness 2.0 index and students' e-library services adoption amid the COVID-19 challenges: Implications based on the theory of planned behavior. Journal of Education and Health Promotion, 11(1): 50. https://doi.org/10.4103/jehp.jehp_508_21

PMid:35372596 PMCid:PMC8974977

- Renz A and Hilbig R (2023). Digital transformation of educational institutions accelerated by COVID-19: A digital dynamic capabilities approach. In: Whalley J, Stocker V, and Lehr W (Eds.), Beyond the pandemic? Exploring the impact of COVID-19 on telecommunications and the internet: 103-119. Emerald Publishing Limited, Bingley, UK. https://doi.org/10.1108/978-1-80262-049-820231004 PMid:36657455
- Riady Y, Sofwan M, Mailizar M, Algahtani TM, Yagin LN, and Habibi A (2023). How can we assess the success of information technologies in digital libraries? Empirical evidence from Indonesia. International Journal of Information Management Data Insights, 3(2): 100192. https://doi.org/10.1016/j.jjimei.2023.100192
- Seal RA (2015). Library spaces in the 21st century: Meeting the challenges of user needs for information, technology, and expertise. Library Management, 36(8/9): 558-569. https://doi.org/10.1108/LM-11-2014-0136

Shahin A and Nourmohammadi A (2023). Selecting new products by the revised ideal ratio: A Kano model approach. The TQM Journal, 35(7): 2052-2067. https://doi.org/10.1108/TQM-03-2022-0110

- Shapiro SD (2016). Engaging a wider community: The academic library as a center for creativity, discovery, and collaboration. New Review of Academic Librarianship, 22(1): 24-42. https://doi.org/10.1080/13614533.2015.1087412
- Sinha R, Batabyal D, Bagchi G, and Selem KM (2023). Establishing the nexus between library and tourism: An empirical approach. Journal of Quality Assurance in Hospitality and Tourism. https://doi.org/10.1080/1528008X.2023.2272632
- Sivankutty VS and Sudhakaran J (2023). Workplace reflections of librarians in India during the COVID pandemic. Global Knowledge, Memory and Communication. https://doi.org/10.1108/GKMC-03-2023-0096
- Smadi OY (2022). The satisfaction level of students with disabilities with library and information services. International Journal of Education in Mathematics, Science and Technology, 10(2): 436-457. https://doi.org/10.46328/ijemst.2352
- Spring M, Faulconbridge J, and Sarwar A (2022). How information technology automates and augments processes: Insights from Artificial-Intelligence-based systems in professional service operations. Journal of Operations Management, 68(6-7): 592-618. https://doi.org/10.1002/joom.1215
- Trisela L (2022). The effect of service quality and student satisfaction on student loyalty. Jurnal Manajemen, 26(2): 179-199. https://doi.org/10.24912/jm.v26i2.900
- Tsang ALY and Chiu DK (2022). Effectiveness of virtual reference services in academic libraries: A qualitative study based on

the 5E learning model. The Journal of Academic Librarianship, 48(4): 102533. https://doi.org/10.1016/j.acalib.2022.102533

- Tsang NK, Zhu M, and Au WCW (2022). Investigating the attributes of cultural creative product satisfaction-The case of the palace museum. Journal of China Tourism Research, 18(6): 1239-1258. https://doi.org/10.1080/19388160.2021.2025184
- Twum KK, Adams M, Budu S, and Budu RAA (2022). Achieving university libraries user loyalty through user satisfaction: the role of service quality. Journal of Marketing for Higher Education, 32(1): 54-72. https://doi.org/10.1080/08841241.2020.1825030
- Wojciechowska M (2023). The importance and level of individual social capital among academic librarians. New Review of Academic Librarianship, 29(1): 51-76. https://doi.org/10.1080/13614533.2022.2079538
- Yakubu H, Abdullah N, and Kaur K (2022). Sustainability of digital collections for Nigerian academic libraries: An exploration of conception, indicators for fulfillment and accrued benefits. Malaysian Journal of Library and Information Science, 27(1): 73-91. https://doi.org/10.22452/mjlis.vol27no1.5
- Yu PY, Lam ETH, and Chiu DK (2022). Operation management of academic libraries in Hong Kong under COVID-19. Library Hi Tech, 41(1): 108-129. https://doi.org/10.1108/LHT-10-2021-0342
- Zhou K and Yao Z (2023). Analysis of customer satisfaction in tourism services based on the Kano model. Systems, 11(7): 345. https://doi.org/10.3390/systems11070345
- Zulaiha D and Triana Y (2023). Students' perception toward the use of open educational resources to improve writing skills. Studies in English Language and Education, 10(1): 174-196. https://doi.org/10.24815/siele.v10i1.25797