Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

VALIDATION OF THE COURSE SATISFACTION QUESTIONNAIRE (CSQ) THROUGH EXPLORATORY FACTOR ANALYSIS IN PAKISTANI UNIVERSITY STUDENTS

Urooj Niaz[1], Muhammad Kamran[2], Muhammad Junaid Ghazali[3]

Abstract

The objective of the study was to evaluate the psychometric properties of the Course Satisfaction Questionnaire (CSQ) among Pakistani university students. A random sample of 739 students (29.6% men, 70.4% women) were recruited from public and private universities in Pakistan. Exploratory factor analysis (EFA) was conducted, and the reliability of the CSQ was assessed using Cronbach's Alpha values. The CSQ and its subscales demonstrated strong internal consistency, with values exceeding .70. Initially, EFA revealed a three-factor structure: Factor 1, labeled 'Satisfaction with Course,' consisted of 13 items (α=.77); Factor 2, labeled 'Satisfaction with Instructor,' comprised 6 items (α=.84); and Factor 3, labeled 'Quantity of Interaction between you and your Instructor,' included only 1 item. Factor 3 was removed from further analysis as it consisted of only one item, and its reliability could not be determined. The overall reliability of the entire scale was high (.88). The study concludes that the CSQ is a valid tool for assessing satisfaction levels among both adolescents and adults within the context of courses. The implications of these findings are discussed, and it is recommended that both indigenous Pakistani and international researchers adopt the CSQ for their studies. In summary, the study confirmed the reliability and validity of the CSQ among Pakistani university students and suggests its use in future research on satisfaction levels in academic settings.

Keywords: *Course Satisfaction Questionnaire, Exploratory Factor Analysis, Pakistani University Students*

Introduction

In the 21st century, there is a plenty of courses available to both online and traditional students, offering affordable tuition fee, flexible scheduling, and a number of educational options (Smith, 2020). This diversity provides the foundation for the development of hybrid courses, seamlessly combining online learning with classroom instruction to accommodate to the needs of distance learners who seek on-campus experiences (Johnson et al., 2018). Because of the affordability and ease of remote learning, more and more students are choosing to enroll in courses with online components (Jones, 2021).

According to Ho and Lim (2021), adult learners may face difficulties in their educational journey when they shift from traditional classrooms to online environments. Studies indicate that adult learners are more likely to succeed in student-centered environments rather than teacher-centered ones, highlighting the significance of stressing individual interests, learning experiences, and learner autonomy (Albert & Hallowel, 2013; Taylor, 2013).

To cultivate student-centered contexts and enhance student motivation, engagement, positive beliefs and satisfaction are deemed essential (Donnell et al., 2015). According to Washington (2013), these elements are essential for quickening the learning process. The efficiency of online

[1] Research Scholar, Comsats University Lahore, Islamabad, Pakistan. uroojniaz99@gmail.com
[2] Assistant Professor (Education), University of Loralai, Balochistan, Pakistan, muhammad.kamran@uoli.edu.pk
[3] National Institute of Psychology, Quaid-I-Azam University Islamabad, Pakistan. junaidghazali@hotmail.com

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

learning may be hampered by issues like unsatisfactory interactions, despite the apparent advantages (Abuhassna et al., 2020).

According to DeLone and McLean (1992), when assessing system quality or user satisfaction, user satisfaction takes precedence over system quality for overall success. Learner satisfaction is widely acknowledged as a key indicator of educational success (Ramayah & Lee, 2012; Xu & Du, 2019). Satisfaction is widely acknowledged as a critical component in assessing the effectiveness of educational initiatives (DeLone & McLean, 2003; Ojo, 2017).

Research supports for the consideration of satisfaction and acceptance in any phenomenon contributing to success (Wixom & Todd, 2005; Mardiana et al., 2015; Tsai et al., 2012). Learner satisfaction is defined as personal feelings about the learning process, encompassing emotions and positive experiences during learning activities (DeLone & McLean, 2004; Liao & Hsieh, 2011; Debourgh, 1999). High satisfaction levels correlate with increased persistence, commitment to a program, and lower drop-out rates (Yukselturk & Yildirim, 2008).

Notably, learner satisfaction plays a key role in the quality of learning environments (Jung, 2014). Course satisfaction is characterized by emotions and attitudes regarding outcomes and experiences (Salam, 2020). According to Zolotov et al. (2018), the degree to which learners are satisfied with a learning system and want to stick with it over time is a common indicator of its effectiveness. Sustaining contentment is a sign of an effective learning system. (Martins et al., 2019; Al-Samarraie et al., 2018).

Understanding learner satisfaction helps illustrate concepts related to pedagogical content, feedback, instruction and technology support. Given that satisfaction influences learning outcomes in numerous course formats (Lim et al., 2022), it becomes imperative to have a robust scale for measuring students' satisfaction in the courses they undertake.

In Pakistan, the availability of a specific scale for measuring learners' satisfaction about any course is limited, prompting the need for a comprehensive study to develop such a scale for the benefit of both indigenous and international researchers (Hussain & Malik, 2023). As of now, there is no validated instrument in Pakistan for assessing course satisfaction. The developed scale, stemming from the adaptation and validation of the Course Satisfaction Questionnaire (CSQ) proposed by Frey et al. (2003a), is expected to have significant practical significance at many academic levels. Its applicability spans both general and research-oriented courses, spanning the academic spectrum from undergraduate (BS) to graduate (MS/M.Phil.) and doctoral (Ph.D.) levels. This adaptable tool is set to play a significant role in the detailed evaluation of students' satisfaction levels in educational settings.

At the undergraduate level (BS), the scale is expected to play a pivotal role in analyzing the satisfaction of students undertaking fundamental courses. Advancing to the graduate domain (MS/M.Phil.), the utility of the scale extends to more specialized and research-centric course. As the academic journey ascends to the doctoral level (Ph.D.), the scale assumes paramount importance in assessing satisfaction within highly specialized and research-intensive contexts.

Method

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

Participants

Current study included 739 participants, with 70.4% being women and 29.6% men, enrolled in public and private universities in Pakistan. Of the participants, 38.2% resided in rural areas, while 61.8% were from urban areas. Age distribution revealed that 56.7% were in the 18-22 age group, 26.4% in the 22-26 age group, 6.5% in the 26-30 age group, and 10.4% were above 30 years old. Regarding their academic courses, 50.9% were enrolled in a mixed method research course, 16.8% in a qualitative research method course, 20.3% in a quantitative research method course, and 12.0% in a statistics course for research.

Instrumentation

Course Satisfaction Questionnaire (CSQ), developed by Frey et al. (2003b), was administered to participants via in person, WhatsApp, Gmail and through different online forums. Comprising 21 items, the CSQ aimed to assess students' contentment with the courses they were undertaking at universities. The questionnaire covered aspects such as student-faculty interaction, peer interaction, the relevance of course content, and the effectiveness of teaching methods in delivering the content. Respondents provided feedback on a 5-point Likert scale, ranging from 1 (completely dissatisfied) to 5 (completely satisfied). CSQ scores ranged from 21 to 105, where a minimum score indicated complete dissatisfaction, and a maximum score signified complete satisfaction with the course. Frey et al. (2003c) reported a high reliability coefficient for the CSQ, with Cronbach's alpha measuring at .97.

Data Collection Procedures

While the majority of researchers have utilized the Course Satisfaction Questionnaire (CSQ) to estimate the satisfaction of students in online courses, our current study uniquely applied the CSQ to students who were attending courses in both physical classrooms and online settings. Significantly, the CSQ was found to be applicable in both online and physical contexts.

Prior to the administration of CSQ, the study objectives were clearly communicated to the students, and assurances were provided regarding the confidentiality of their information. Participants who were taking online forums were instructed that completing the questionnaire only necessitated an active internet connection. Additionally, students were instructed not to seek assistance from their peers. Following the provision of directions, the students proceeded to independently fill out the questionnaires.

Data Analysis

To analyze the data, an exploratory factor analysis was conducted to explore the underlying structure of the variables within the Course Satisfaction Questionnaire (CSQ). Pearson correlation coefficients were employed to assess the relationships between subscales, providing insights into the interdependencies among different aspects measured by the CSQ. Additionally, Cronbach's alpha reliability coefficient was calculated to evaluate the internal consistency of the CSQ, ensuring the reliability of the instrument in measuring participants' satisfaction with various aspects of their courses.

Results

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

Table 1

Psychometric Properties for Scale

Scale	*M*	*SD*	Variance	Cronbach's α
Course Satisfaction	48.80	15.74	247.83	.88
Factor 1	31.20	9.96	-	.77
Factor 2	15.07	7.05	-	.84
Factor 3	1.98	.864	-	-

Table 1 indicate psychometric properties of the CSQ used in current study. The Cronbach's α value for CSQ scale and for all its subscales was more than .70 which shows higher internal consistency.

Exploratory factor analysis of CSQ

we performed an exploratory factor analysis of the Course Satisfaction Questionnaire (CSQ) utilizing Varimax rotation. The results of the exploratory factor analyses are detailed in Tables 2 and 3. The Kaiser-Meyer-Olkin (KMO) test value, coupled with a significant Bartlett's Test, indicated the appropriateness of the data for factor analysis.

Our analyses yielded three factors with eigenvalues surpassing 1, collectively explaining 48.99% of the variance in the data. Factor 1 accounted for a substantial portion, representing 24.80% of the total variance, while Factor 2 explained 18.79% of the variance, and Factor 3 contributed 5.38% to the overall variance but factor 3 was excluded from further analysis due to its sole loading of only one item. These findings provide insights into the underlying factors influencing course satisfaction among participants, revealing distinct dimensions that contribute to the overall variability in the CSQ responses.

Table 2

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.948
Bartlett's Test of Sphericity	Approx. Chi-Square	5663.022
	df	210
	Sig.	.000

Figure 1.

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

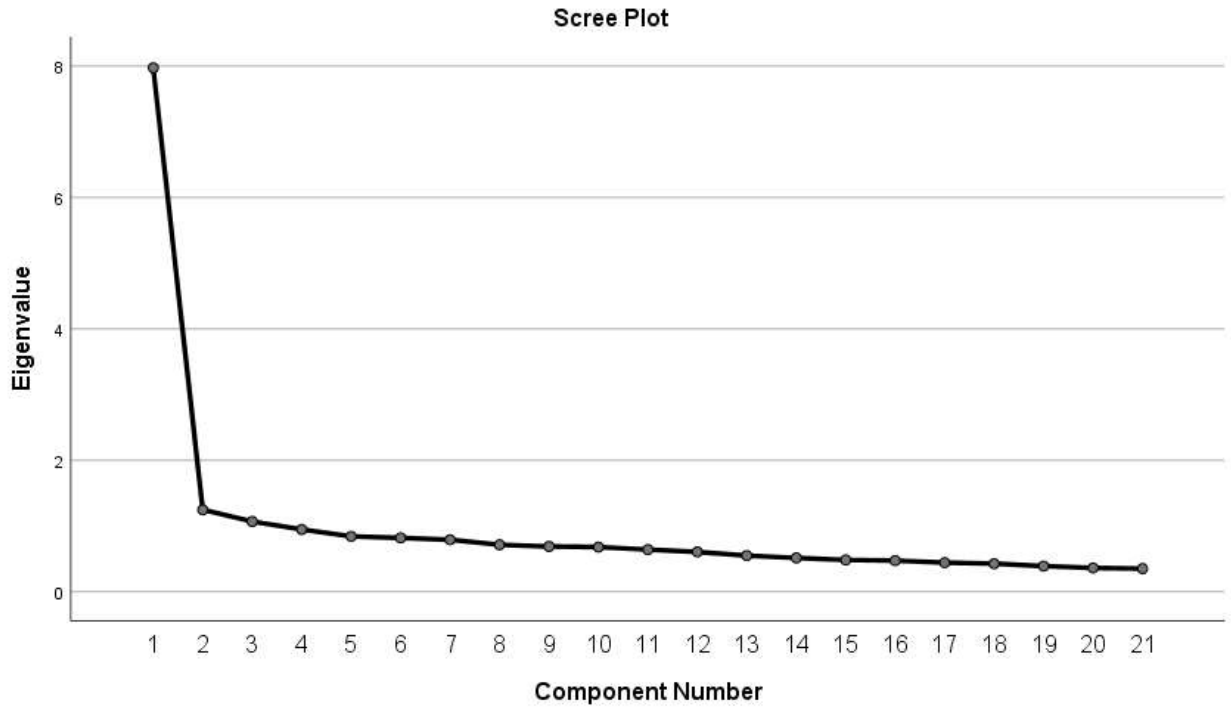

Table 3

Exploratory factor analysis of Course Satisfaction Questionnaire (N=739)

	Course Satisfaction Items	Factor 1	Factor 2	Factor 3
3	The cooperation between you and your classmates.	**.489**	.131	.018
4	The manner in which the syllabus was distributed.	**.610**	.233	-.235
5	The logical organization of the course content.	**.633**	.255	-.212
6	The reminders given to you about assignments due.	**.553**	.294	-.173
7	The manner in which guidelines were given on the completion of assignments.	**.686**	.184	.-114
8	The lecture notes provided to you.	**.537**	.306	.006
9	The extra learning resources provided to you (e.g., extra handouts, on-line resources, list of frequently asked questions, on-line discussion	**.614**	-.215	-.115

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

	groups, and on-line weekly quizzes).			
10	The format of the different assignments.	**.655**	.248	.080
11	The learning value of the assignments.	**.622**	.297	.080
12	The options available to you to hand in assignments.	**.619**	.263	.107
13	The time it took for your instructor to provide feedback on graded assignments.	**.571**	.304	.376
14	The quality of the feedback provided on graded assignments.	**.577**	.343	.255
15	Access to your grades during the semester.	**.442**	.430	.246
2	The quality of interaction between you and your instructor.	.321	**.493**	-.103
16	The teaching style of your instructor.	.281	**.685**	.044
17	The assistance given by the instructor in completing the course successfully.	.388	**.604**	.159
18	The instructor in terms of his [/her] devotion to the course.	.339	**.608**	.071
19	The accommodation of your approach to learning in the way this course was taught.	.436	**.562**	-.603
20	The increase in your knowledge and/or skills as a result of this course.	.224	**.751**	-.039
21	The increase in confidence in using the knowledge and/or skills as a result of this course.	.101	**.778**	.006
1	The amount of interaction between you and your instructor.	-.061	.004	**.800**
	Eigenvalue	7.94	1.24	1.068
	% of Variance	24.80	18.79	5.38
	% of total Variance			48.99

Extraction Method: Maximum Likelihood

Rotation Method: Varimax with Kaiser Normalization.

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

Following the criteria proposed by Floyd and Widaman (1956) for determining the suitability of items for each factor, the analysis revealed the following guidelines: 1) factor loadings exceeding 0.30-0.40, and 2) a factor loading difference greater than 0.10 when one item loaded on more than two factors.

In our study, Factor 1 was identified and labeled as 'Satisfaction with Course,' encompassing 13 items. Factor 2, labeled as 'Satisfaction with Instructor,' comprised 6 items. In the final analysis, Factor 3, labeled as 'Quantity of Interaction between you and your Instructor,' comprised only one item and was consequently excluded from further consideration. These factor labels represent distinct dimensions within the Course Satisfaction Questionnaire (CSQ), offering a nuanced understanding of the aspects contributing to overall satisfaction with courses.

Table 4

Correlations for Study Variables

Variables	1	2
Factor 1	-	.16*
Factor 2	-	-

*p<05. **p<.01. ***p<.001

Table 4 revealed that both factors are significantly related to each other.

Discussion

In the extensive exploration undertaken in our study, our primary objective was to explore the intricate factor structure of the Course Satisfaction Questionnaire (CSQ), a meticulously designed tool for estimating course satisfaction, while concurrently assessing its reliability within the distinctive context of Pakistani university students. The robust findings of our investigation not only advocate for the suitability and commend ability of employing Cronbach's α as a measure of reliability for the CSQ but also stands as a valuable instrument for evaluating student satisfaction with courses in range of Pakistani universities. These results align with previous research highlighting the importance of reliable instruments in understanding student satisfaction across diverse educational settings (Smith & Alarcon, 2018; Ramsden, 2002). Through meticulous exploratory factor analyses, a two-factor model embedded within the CSQ was revealed. Factor 1, denoted as 'Satisfaction with Course,' emerged as a comprehensive dimension encapsulating 13 distinct items. Factor 2, identified as 'Satisfaction with Instructor,' comprised 6 items. The substantial interrelationships and robust internal consistency exhibited by these factors align with findings from Miltiadou and Yu (2000) and Kember and Leung (2005), who, in their investigations, found that course satisfaction was influenced by a variety of factors.

Course Satisfaction Items	Factor 1	Factor 2
Satisfaction with Course		

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

3	The cooperation between you and your classmates.	**.489**	.131
4	The manner in which the syllabus was distributed.	**.610**	.233
5	The logical organization of the course content.	**.633**	.255
6	The reminders given to you about assignments due.	**.553**	.294
7	The manner in which guidelines were given on the completion of assignments.	**.686**	.184
8	The lecture notes provided to you.	**.537**	.306
9	The extra learning resources provided to you (e.g., extra handouts, on-line resources, list of frequently asked questions, on-line discussion groups, and on-line weekly quizzes).	**.614**	-.215
10	The format of the different assignments.	**.655**	.248
11	The learning value of the assignments.	**.622**	.297
12	The options available to you to hand in assignments.	**.619**	.263
13	The time it took for your instructor to provide feedback on graded assignments.	**.571**	.304
14	The quality of the feedback provided on graded assignments.	**.577**	.343
15	Access to your grades during the semester.	**.442**	.430
	Satisfaction with Instructor		
2	The quality of interaction between you and your instructor.	.321	**.493**
16	The teaching style of your instructor.	.281	**.685**
17	The assistance given by the instructor in completing the course successfully.	.388	**.604**
18	The instructor in terms of his [/her] devotion to the course.	.339	**.608**
19	The accommodation of your approach to learning in the way this course was taught.	.436	**.562**
20	The increase in your knowledge and/or skills as a	.224	**.751**

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

	result of this course.		
21	The increase in confidence in using the knowledge and/or skills as a result of this course.	.101	**.778**
	Eigenvalue	7.94	1.24
	% of Variance	24.80	18.79
	% of total Variance		43.59%

The decision to exclude Factor 3, focusing on 'Quantity of Interaction between you and your Instructor,' was based on methodological considerations and supported by Guvendir and Ozkan (2022). Including a factor with only one item compromises reliability and interpretability. Our study aimed for a robust factor structure, aligning with established psychometric principles and enhancing the quality of our findings on course satisfaction among Pakistani university students.

Factor We Dropped

	Course Satisfaction Items	**Factor 1**	**Factor 2**	**Factor 3**
1	The amount of interaction between you and your instructor.	-.061	.004	**.800**
	Eigenvalue			1.068
	% of Variance			5.38

Reinforcing our findings, the foundational principles outlined by Polloff and Pratt (2001) regarding student satisfaction with instructors were intricately woven into our results. Their contention, emphasizing the positive impact of instructors who foster regular communication, employ engaging teaching strategies, set high standards, emphasize task time investment, and provide timely feedback, resonates strongly with the identified factors in our study. These principles are consistent with broader research on effective teaching practices and their influence on student satisfaction (Seymour & Hewitt, 2004; Hattie & Timperley, 2007).

Moreover, our study aligns with the broader literature on satisfaction in higher education, where the quality of interactions with instructors and the course itself plays a pivotal role in shaping students' perceptions (Elliott & Shin, 2002; Vignoles et al., 2003).

In essence, the insights garnered from this research, supported by established literature, not only endorse the applicability of the CSQ but also provide a nuanced understanding of the factors contributing to course satisfaction among Pakistani university students. The depth of our investigation, complemented by a synthesis of relevant research, lays the groundwork for future studies to further dissect the intricacies of student satisfaction, contributing to the continuous improvement of educational practices and policies in the Pakistani higher education landscape.

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

Conclusion

Need for a reliable scale to measure course satisfaction among students is crucial, especially in the Pakistani context. Our study applied the Course Satisfaction Questionnaire (CSQ) by Frey et al. (2003) through exploratory factor analysis, confirming its two sub-factors. The results indicate that sub-factors in the CSQ are correlated, establishing its validity as an effective measure to assess course satisfaction among Pakistani university students. This contributes valuable insights to the literature on student satisfaction in higher education.

Implications

The implications of this paper are multifaceted and significant. Firstly, the successful adaptation and revalidation of the Course Satisfaction Questionnaire (CSQ) for use in Pakistan fill a crucial gap in educational assessment tools designed to the local context, enabling more accurate evaluations of student satisfaction and educational quality. Secondly, by adhering to stringent ethical considerations throughout the research process, this paper sets a high standard for ethical research practices in educational assessment, observing the importance of participant rights, research integrity, and data confidentiality. Moreover, the validated CSQ provides a reliable instrument for assessing student satisfaction in Pakistani educational settings, offering valuable insights for researchers, policymakers, and institutions, to improve educational quality and student learning experiences. Overall, this paper enhances educational assessment practices in Pakistan and offers valuable insights and resources for promoting ethical research conduct in the field of education.

Limitations

Study limitations include a narrow focus on university-level education, limiting generalizability to secondary or vocational levels. The contextual specificity to the Pakistani educational system may restrict applicability to diverse cultural and educational settings. Relying on self-reported data through the Course Satisfaction Questionnaire (CSQ) introduces potential response bias and may not fully capture the all-inclusive nature of student experiences. The cross-sectional design offers a snapshot of satisfaction at a specific time, limiting insights into trends over time. Exclusively using quantitative methods may overlook nuanced qualitative aspects of satisfaction. Reliance on a single instrument, the CSQ, may neglect other factors influencing satisfaction that other qualitative methods could capture. External factors like socioeconomic background and cultural differences are not explored, potentially impacting course satisfaction but not addressed in this research.

Suggestions

To enhance the study, consider adopting a mixed-methods approach by integrating qualitative methods alongside quantitative data to capture a deeper understanding of contextual factors influencing student experiences. Additionally, expanding the study to include faculty perspectives on incorporating external factors and course delivery, such as support services and campus facilities, could offer a more comprehensive view of student satisfaction dynamics. These adjustments will contribute to a more nuanced exploration of course satisfaction among Pakistani university students, offering actionable insights for both practical improvements and academic research in educational settings.

Ethical Considerations

In adapting the CSQ for Pakistan, we followed strict ethical guidelines, including anonymity,

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

confidentiality, and informed consent. Our study prioritized maintained research integrity, diversity, and protected vulnerable groups. Ethical approval was obtained, publication ethics were strictly observed, and participant feedback was incorporated. Our commitment to ethical research extends to ensuring long-term positive impacts.

References

Abuhassna, H., Al-Rahmi, W. M., Yahya, N., Zakaria, M. A. Z. M., Kosnin, A. B., & Darwish, M. (2020). Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction. *International Journal of Educational Technology in Higher Education, 17*(1), 1-23.

Albert, A., & Hallowel, M. R. (2013). The role of student-centered teaching approaches in encouraging student engagement. *Journal of Management Education, 37*(6), 762–794. Al-Samarraie, H., Teng, B. K., Alzahrani, A. I., & Alalwan, N. (2018). E-learning continuance satisfaction in higher education: a unified perspective from instructors and students. *Studies in higher education*, *43*(11), 2003-2019.

American Educational Research Association. (2018). *Standards for educational and psychological testing.* American Educational Research Association.

Cidral, W. A., Oliveira, T., Di Felice, M., & Aparicio, M. (2018). E-learning success determinants: Brazilian empirical study. *Computers & Education, 122*, 273-290.

Debourgh, G. A. (1999). Technology is the tool, teaching is the task: Student satisfaction in distance learning. In *Society for Information Technology & Teacher Education International Conference* (pp. 131-137). Association for the Advancement of Computing in Education (AACE).

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research, 3*(1), 60-95.

DeLone, W. H., & McLean, E. R. (2004). Measuring e-commerce success: Applying the DeLone & McLean information systems success model. *International Journal of Electronic Commerce, 9*(1), 31-47.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9-30.

Donnell, A. A., Dunn, P. P., Fryer, L. K., & Renz, D. O. (2015). Understanding factors affecting student satisfaction and persistence in the online learning environment. *Journal of Online Learning and Teaching, 11*(2), 242–258.

Elliott, K. M., & Shin, D. (2002). Student satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management, 24*(2), 197–209.

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

Fieger, P. (2012). Measuring student satisfaction from the Student Outcomes Survey. Retrieved from https://files.eric.ed.gov/fulltext/ED532394.pdf

Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7*, 286–299.

Frey, A., Yankelov, P., & Faul, A. C. (2003). Student perceptions of web-assisted teaching strategies. *Journal of Social Work Education*, 39, 443–457

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112.

Ho, C., & Lim, J. M. H. (2021). Critical factors affecting adult learners' satisfaction in online learning: A review of the literature. *Educational Research Review, 34*, 100358.

Ho, Y. Y., & Lim, L. (2021). Targeting student learning needs: The development and preliminary validation of the Learning Needs Questionnaire for a diverse university student population. *Higher Education Research & Development, 40*(7), 1452-1465.

Hossain, I., & Malik, A. (2023). Emerging trends in e-learning during the COVID-19 pandemic: A systematic review. *Education and Information Technologies, 28*(3), 3619–3647.

Hussain, I., & Malik, A. (2023). Emerging trends in e-learning during the COVID-19 pandemic: A systematic review. *Education and Information Technologies, 28*(3), 3619–3647.

Jung, I. (2014). The dimensions of e-learning quality: From the learner's perspective. *Educational Technology Research and Development, 62*(4), 401–420.

Johnson, R. D., Horvath, J. C., & Miron, D. (2018). Is hybrid teaching better teaching? A comparison of classroom and online instruction in a large introductory course. *The Journal of Effective Teaching, 18*(2), 18–34.

Jones, M. (2021). The effectiveness of online learning in educating students. *Journal of Human Behavior in the Social Environment, 31*(2), 117–132.

Kember, D., & Leung, D. Y. (2005). The influence of active learning experiences on the development of graduate capabilities. *Studies in Higher Education, 30*(2), 155–170.

Liao, Y. K., & Hsieh, Y. C. (2011). Assessment of online student satisfaction and perceived learning in web-based multimedia courses. *Interactive Learning Environments, 19*(4), 421–436.

Lim, L., Lim, S. H., & Lim, W. Y. R. (2022). A Rasch analysis of students' academic motivation toward Mathematics in an adaptive learning system. *Behavioral Sciences, 12*(7), 244.

Mardiana, M., Fitriyani, N. L., Suharso, P., & Sari, W. R. (2015). The influence of system, service, and information quality on student satisfaction. *Procedia Computer Science, 59*, 305–313.

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

Martins, C., Oliveira, T., & Popovič, A. (2019). Understanding the internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management, 44*, 77–93.

Martins, J., Branco, F., Gonçalves, R., Au-Yong-Oliveira, M., Oliveira, T., Naranjo-Zolotov, M., & Cruz-Jesus, F. (2019). Assessing the success behind the use of education management information systems in higher education. *Telematics and Informatics, 38*, 182-193.

Miltiadou, M., & Yu, C. (2000). Exploring the relationships among satisfaction, academic performance, and self-concept in learning disabled students. *Remedial and Special Education, 21*(4), 194–203.

Naranjo-Zolotov, M., Oliveira, T., & Casteleyn, S. (2018). Citizens' intention to use and recommend e-participation: Drawing upon UTAUT and citizen empowerment. *Information Technology & People.*

Oliveira, T., Cidral, W. A., Di Felice, M., & Aparicio, M. (2018). E-learning success determinants: Brazilian empirical study. *Computers & Education, 122*, 273-290.

Ojo, I. A. (2017). Measuring quality of e-learning: Scale development and validation. *European Journal of Open, Distance and E-learning, 20*(2), 19–36.

Poi/off, R. M., & Pratt, K. (2001). Lessons from the cyberspace classroom. The realities of online teaching. *San Francisco: Jossey-Bass.*

Polloff, J., & Pratt, D. D. (2001). The influence of teaching philosophy on learning to teach: Impact on commitment and perceptions of preparedness to teach. *Teacher Education Quarterly, 28*(1), 97–113.

Ramayah, T., & Lee, J. W. C. (2012). System quality, information quality, and perceived usefulness in the context of SMS banking. *International Journal of Mobile Communications, 10*(4), 341–360.

Ramsden, P. (2002). *Learning to teach in higher education.* Routledge.

Salam, S. (2020). Factors influencing students' satisfaction in higher education. *Cogent Business & Management, 7*(1), 1786650.

Smith, P. J. (2020). The role of hybrid learning in the education sector. *Journal of Research in Innovative Teaching & Learning, 13*(1), 3–11.

Seymour, E., & Hewitt, N. M. (2004). Talking about leaving revisited: Persistence, relocation, and loss in undergraduate STEM education. *Springer.*

Shin, D., & Elliott, K. M. (2002). Student satisfaction: An alternative approach to assessing this important concept. *Journal of Higher Education Policy and Management, 24*(2), 197–209.

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

Taylor, A. (2013). Learner-centered practices: Providing the right environment for adult learners. *Adult Learning, 24*(4), 128–134.

Taylor, J. A. (2013). What is student centredness and is it enough?. *International Journal of the First Year in Higher Education, 4*(2), 39-48.

Tsai, C. W., Lai, C. F., & Chou, T. Y. (2012). Understanding the quality of online learning: The perspectives of student satisfaction and motivation. *Journal of Educational Technology & Society, 15*(3), 127–136.

Vignoles, A., Owe, E., Becker, M., Smith, P., Easterbrook, M., Brown, R., ... & Hartung, F. M. (2003). Beyond the warmth of the native land: Effects of group-referenced interest on immigrant students' academic self-concept. *Journal of Personality and Social Psychology, 84*(1), 165–183.

Walkington, C. A. (2013). Using adaptive learning technologies to personalize instruction to student interests: The impact of relevant contexts on performance and learning outcomes. *Journal of Educational Psychology, 105*(4), 932–945.

Wixom, B. H., & Todd, P. A. (2005). A theoretical integration of user satisfaction and technology acceptance. *Information Systems Research, 16*(1), 85–102.

Xu, D., & Du, J. T. (2019). The impact of service quality, customer satisfaction and loyalty programs on customer's loyalty: Evidence from banking sector of Pakistan. *International Journal of Economics, Commerce and Management, 7*(7), 28–38.

Yukselturk, E., & Yildirim, Z. (2008). Investigation of interaction, online support, course structure and flexibility as the contributing factors to students' satisfaction in an online certificate program. *Journal of Educational Technology & Society, 11*(4), 51–65.

Zolotov, A., Shavit, M., & Hochstein, N. (2018). Measuring students' satisfaction in the age of personalization. *The International Review of Research in Open and Distributed Learning, 19*(4), 1–19.

Vol. 4, No. 2 (2024)
EDUCATIONAL RESEARCH AND INNOVATION (ERI)
e-ISSN:2710-4354
p-ISSN:2076-9660
Received: 11/02/2024 Published: 15/09/2024

Appendix A

Item No	Course Satisfaction Items
	Satisfaction with Course
1.	The cooperation between you and your classmates.
2.	The manner in which the syllabus was distributed.
3.	The logical organization of the course content.
4.	The reminders given to you about assignments due.
5.	The manner in which guidelines were given on the completion of assignments.
6.	The lecture notes provided to you.
7.	The extra learning resources provided to you (e.g., extra handouts, on-line resources, list of frequently asked questions, on-line discussion groups, and on-line weekly quizzes).
8.	The format of the different assignments.
9.	The learning value of the assignments.
10.	The options available to you to hand in assignments.
11.	The time it took for your instructor to provide feedback on graded assignments.
12.	The quality of the feedback provided on graded assignments.
13.	Access to your grades during the semester.
	Satisfaction with Instructor
14.	The quality of interaction between you and your instructor.
15.	The teaching style of your instructor.
16.	The assistance given by the instructor in completing the course successfully.
17.	The instructor in terms of his [/her] devotion to the course.
18.	The accommodation of your approach to learning in the way this course was taught.
19.	The increase in your knowledge and/or skills as a result of this course.
20.	The increase in confidence in using the knowledge and/or skills as a result of this course.