Assessing Student Satisfaction in Business Mathematics Using Net Promoter Score

Azyan Yusra Kapi[1], Azrina Suhaimi[2*], Harshida Hasmy[3], Mohamad Faizal Ab Jabal[4]

[1,2,3,4]Department of Computer Science, Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus, 81750 Johor, Malaysia

[1]azyanyusra@uitm.edu.my,[2]azrin253@uitm.edu.my,[3]harshida@uitm.edu.my

[4]Applied Mathematics & System Development (AMSys)-Special Interest Group (SIG), Universiti Teknologi MARA Johor Branch Pasir Gudang Campus, 81750 Johor, Malaysia

m.faizal@uitm.edu.my

**Corresponding Author*

DOI: https://www.doi.org/10.24191/ijelhe.v20n2.2026

Received: 03 January 2025
Accepted: 19 May 2025
Date Published Online: 30 June 2025
Published: 30 June 2025

Abstract: *Assessing student satisfaction with instructional practices is critical to fostering engagement and improving educational outcomes, particularly in quantitative subjects such as business mathematics. This study investigates the use of the Net Promoter Score (NPS) as a metric for evaluating student satisfaction with structured practice exercises in an undergraduate business mathematics course. The course included three key topics: Trade and Cash Discounts, Markup and Markdown, and Instalment Purchase, each supported by a dedicated practice exercise designed to reinforce both conceptual understanding and practical skills. To capture student satisfaction, an NPS survey was administered to 64 students after they completed the exercises, asking them to rate their likelihood of recommending the practice sessions to their peers. Responses were categorised into Promoters, Passives, and Detractors, resulting in an overall NPS score of 77, reflecting a high level of satisfaction among participants. Additional analysis compared satisfaction*

levels across the three topics, providing insights into specific areas where instructional design effectively met student needs. The findings underscore the utility of NPS as a simple yet effective tool for measuring student satisfaction in educational settings, offering valuable insights that can guide curriculum design and instructional practices. This study contributes to the field of educational assessment by demonstrating the applicability of NPS for providing rapid, interpretable feedback on targeted learning activities, particularly in courses where structured practice is essential to student success.

Keywords: *business mathematics, Net Promoter Score, online survey, practice exercises, student satisfaction*

1. INTRODUCTION

In the continuously evolving landscape of higher education, student satisfaction and engagement serve as critical indicators of instructional effectiveness and the quality of learning experiences. (Gamarra-Moreno et al., 2021). One metric that has seen increasing adoption across various domains, including education, is the Net Promoter Score (NPS), a measure initially developed to gauge customer loyalty in business contexts (Lucero, 2022). NPS has become recognised as a straightforward yet robust tool for evaluating student satisfaction, offering insights into the likelihood that students will endorse a course, activity, or educational resource to their peers (Cruz et al., 2019). This metric is particularly valuable for educators and administrators, as it provides a precise, quantitative measure of students' experiences that can inform instructional strategies and foster improvements in course design (Yudet Millones-Liza & Emperatriz Garc'ia-Salirrosas, 2021; Smithson et al., 2015).

In higher education, particularly within quantitative disciplines like business mathematics, assessing student satisfaction with specific instructional elements, such as practice exercises, presents distinct challenges. While traditional satisfaction surveys and feedback mechanisms are insightful, they often lack the comparative potency and simplicity that NPS provides (Koladycz et al., 2018). Although the Net Promoter Score (NPS) is increasingly used in educational research to evaluate general course satisfaction and online

learning experiences (Lucero, 2022; Gamarra-Moreno et al., 2021), its specific application to structured practice exercises, particularly in business mathematics, has not been directly addressed in the existing literature. A review of available studies suggests that while NPS is widely recognised across disciplines, studies focusing on its use in assessing individual instructional strategies, such as structured exercises, remain limited. This observation is consistent with recent literature reviews (Adams et al., 2022; Baehre et al., 2021; Jaramillo et al., 2023), which highlight broad applications of NPS across fields but do not report its targeted use for structured mathematical practice. This gap in the literature highlights the need for focused studies that capture student satisfaction within such courses, while also investigating how NPS can enhance our understanding of effective instructional practices in specialised and quantitative domains (Wazzan, 2019).

This study aims to fill this gap by utilising the NPS to assess student satisfaction with structured practice exercises in a business mathematics course. Through the analysis of NPS scores, this research aims to assess the extent to which these exercises align with student expectations and support learning outcomes. The objective is to apply NPS within the novel context of business mathematics practice exercises and to explore how quantitative feedback derived from NPS can guide course design and instructional strategies in this field.

This study offers both academic and practical contributions. Academically, it establishes a foundation for the use of NPS as a reliable metric for assessing instructional components in quantitative courses (Ramadhan et al., 2022). Practically, it provides educators with actionable insights into student satisfaction, offering a metric that could inform future adjustments in curriculum design. This research demonstrates the broader application of NPS beyond conventional business settings, highlighting its effectiveness as a tool for enhancing student engagement and satisfaction in educational environments.

2. LITERATURE REVIEW

In higher education, student satisfaction and engagement are crucial metrics that reflect instructional effectiveness and the overall quality of the learning environment (Cruz et al., 2019). Traditional approaches to gauging student satisfaction often rely on comprehensive surveys, Likert-scale questionnaires, and qualitative feedback forms, capturing multiple dimensions of the student experience, including course content, teaching quality, and learning outcomes (Kapi et al., 2023). While these methods provide valuable insights, they demand extensive data analysis and may yield feedback that is difficult to interpret or to apply consistently across diverse courses and instructional strategies (Wazzan, 2019; German, 2021).

The NPS, introduced by Reichheld as a customer loyalty metric in the business sector, offers an alternative by focusing on a single, pivotal question regarding the likelihood of recommending a product or service (Reichheld, 2003). When adapted to educational contexts, NPS functions as a streamlined yet robust indicator of student satisfaction with specific courses, resources, or learning activities. By encapsulating overall sentiment in a straightforward, quantifiable format, NPS provides educators with a rapid and interpretable mechanism for assessing satisfaction and identifying areas for improvement. This approach positions NPS as an effective supplement to traditional evaluation methods, particularly in contexts where immediate feedback is essential to inform instructional practices (Gamarra-Moreno et al., 2021).

The application of NPS in educational settings has gained momentum as institutions seek efficient ways to assess and enhance student experiences. Recent studies illustrate NPS's effectiveness as an indicator of student satisfaction, engagement, and perceived value in educational environments (Lucero, 2022). For instance, Lucero (2022) demonstrates that NPS can effectively capture students' commitment to recommending educational programs, aligning these recommendations with perceived learning benefits. Gamarra-Moreno et al. (2021) found a positive correlation between higher NPS scores, student retention, and positive feedback on course content, further validating NPS as a tool to measure student satisfaction.

Despite the increasing popularity of NPS in broader educational evaluations, its application in assessing discrete instructional elements, such as practice exercises in mathematics, remains relatively unexplored. Previous research has primarily focused on general course satisfaction or engagement with digital learning platforms rather than examining student responses to specific learning activities. This gap suggests a need for focused studies investigating the applicability of NPS in evaluating targeted instructional practices, such as structured exercises, particularly in quantitative disciplines where consistent practice and engagement are integral to learning (Yudet Millones-Liza & Emperatriz García-Salirrosas, 2021).

Practice exercises occupy a foundational role in mathematics education by reinforcing theoretical knowledge and cultivating essential problem-solving skills. Empirical studies highlight the benefits of regular practice in enhancing students' understanding of mathematical concepts, increasing confidence, and improving retention (Ho et al., 2021). Structured exercises enable students to apply mathematical theories to real-world situations, facilitating the transition from abstract concepts to practical applications. The cumulative nature of mathematical knowledge underscores the importance of these exercises, which support foundational comprehension and enable students to progress to more advanced topics.

While the pedagogical value of practice exercises in mathematics is well-established (Ho et al., 2021), our review of existing literature suggests that their specific impact on student satisfaction has not been widely studied. Most NPS-related research in education focuses on broader evaluations, such as course-level satisfaction or platform usability (Lucero, 2022; Gamarra-Moreno et al., 2021), rather than isolating instructional elements like structured practice exercises. Research has shown that structured practice enhances confidence and improves performance (Ramadhan et al., 2022); however, the extent to which students find such exercises satisfying or recommendable remains underexplored (Sandok, 2021). Assessing satisfaction with structured exercises using the Net Promoter Score (NPS) may yield valuable data on the impact of targeted practice on students' overall educational experiences.

The integration of NPS into mathematics education research represents an innovative approach to evaluating student satisfaction with specific instructional practices. NPS provides a simplified, quantifiable assessment of satisfaction, enhancing current evaluation tools and potentially enriching the understanding of how structured practice influences student engagement and satisfaction in quantitative courses. Further research on the application of NPS in this context could enrich pedagogical strategies and contribute to refining instructional design within mathematics and other quantitative disciplines.

3. METHODOLOGY

This study employs a structured methodology consisting of five key components: (1) Study Context and Course Design, (2) NPS Survey Design and Administration, (3) NPS Calculation and Interpretation, (4) Data Analysis and Comparative Insights, and (5) Data Privacy and Ethical Considerations, as illustrated in Figure 1.

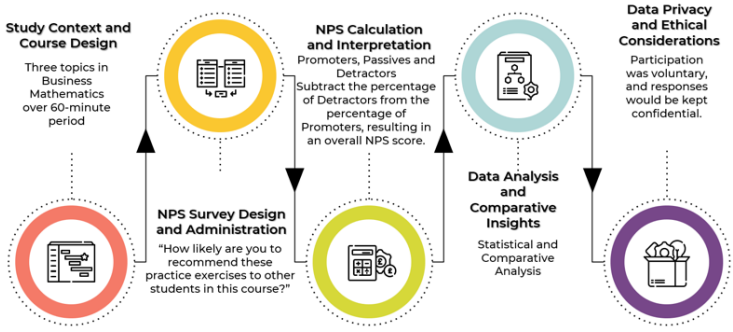

Figure 1: Overview of the five components in the research methodology for assessing student satisfaction with practice exercises in business mathematics using NPS

Each component was carefully designed to systematically assess student satisfaction with practice exercises in a business mathematics course, using the Net Promoter Score (NPS). The following sections present a detailed description of each component.

3.1 STUDY CONTEXT AND COURSE DESIGN

The first component establishes the context of the study within a business mathematics course for undergraduate students. The course curriculum included three main topics essential for practical business applications: Trade and Cash Discounts, Markup and Markdown, and Instalment Purchase. To support learning, each topic was reinforced through a dedicated practice exercise, which allowed students to apply theoretical knowledge to realistic business scenarios. Each exercise was designed to be completed within 60 minutes, providing students with an opportunity to work under time constraints as depicted in Figure 2.

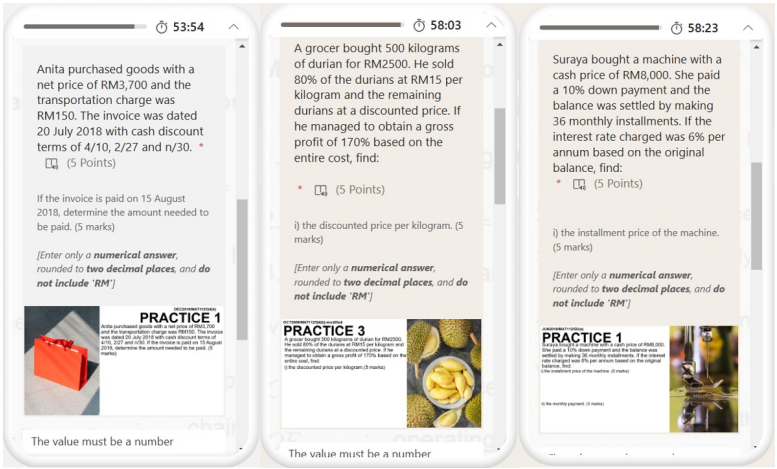

Figure 2: Examples of timed practice exercises in business mathematics delivered via Microsoft Forms in mobile view.

The practice exercises were designed to enhance students' comprehension of core mathematical principles and strengthen their problem-solving skills. By actively engaging with these exercises, students were expected to achieve better retention of the material, bridging the gap between theoretical understanding and practical application.

3.2 NPS SURVEY DESIGN AND ADMINISTRATION

In the second component, a Net Promoter Score (NPS) survey was administered to evaluate students' satisfaction with the practice exercises. The survey consisted of a single, standardised question: "How likely are you to recommend these practice exercises to other students in this course?" This question was intended to capture the overall sentiment and likelihood of recommendation, serving as a key indicator of student satisfaction.

The practice exercises and survey were distributed through Microsoft Forms, an online platform accessible via both mobile devices and computers. This flexibility allowed students to complete the exercises and survey on their preferred device, ensuring ease of access and convenience. The survey was administered immediately after the final practice exercise to 64 students, enabling students to provide feedback based on their recent experiences. Administering the survey at this time ensured that students' feedback was based on their recent experiences with the exercises, providing an accurate reflection of their satisfaction levels.

3.3 NPS CALCULATION AND INTERPRETATION

The third component focused on calculating and interpreting the NPS based on student responses. Following the standard NPS methodology (Reichheld, 2003), responses were categorised as follows:

- Promoters: Students who rated 9-10, indicating a high likelihood of recommending the exercises.
- Passives: Students who rated 7-8, indicating moderate satisfaction without strong enthusiasm.
- Detractors: Students who rated 0-6, indicating dissatisfaction or indifference.

The NPS was calculated by subtracting the percentage of Detractors from the percentage of Promoters, resulting in an overall NPS score for the practice exercises. A higher NPS score indicates a greater level of student satisfaction and willingness to recommend the exercises, providing an interpretable measure of overall sentiment within the class.

3.4 DATA ANALYSIS AND COMPARATIVE INSIGHTS

In the fourth component, data analysis was conducted to derive comparative insights into student satisfaction across three topics: Trade and Cash Discounts, Markup and Markdown, and Instalment Purchase. The analysis focused on the following key areas:

- Statistical Analysis: Calculation of the average scores, distribution of responses, and percentage of Promoters, Passives, and Detractors for each topic.
- Comparative Analysis: Comparison of NPS scores across topics to determine if any specific exercise contributed more significantly to student satisfaction or dissatisfaction.
- Qualitative Feedback: Optional open-ended responses, where students were invited to share specific feedback on their experiences with each exercise. This qualitative feedback was used to contextualise the NPS results, helping to identify aspects of the exercises that particularly resonated with or challenged students.

3.5 DATA PRIVACY AND ETHICAL CONSIDERATIONS

The fifth and final component focused on data privacy and ethical considerations. The survey was conducted anonymously, with students being assured that their participation was voluntary and that responses would remain confidential. All participants were informed that the purpose of the survey was to improve instructional practices and contribute to academic research.

4. RESULTS

The survey assessed student satisfaction with practice questions in Business Mathematics, specifically their likelihood of recommending the questions using the Net Promoter Score (NPS) system. A total of 64 students participated in the survey.

4.1 NPS ANALYSIS

The NPS categorises respondents into three groups based on their likelihood of recommending:

- Promoters (scores of 9-10): These are students who are highly satisfied with the practice questions and are enthusiastic about recommending them to peers. They view the questions as beneficial and engaging, contributing positively to their learning experience.
- Passives (scores of 7-8): Passives are students who are moderately satisfied with the questions. While they see value in the practice material, they are not as enthusiastic as promoters and are unlikely to promote the questions actively.
- Detractors (scores of 0-6): Detractors are students who are less satisfied with the practice questions. They may feel that the questions do not meet their needs or expectations and are unlikely to recommend them. Notably, there were no detractors in this survey.

In this survey of 64 students:

- Promoters (scores of 9-10): 49 students
- Passives (scores of 7-8): 15 students
- Detractors (scores of 0-6): 0 students

The Net Promoter Score, calculated as the percentage of promoters minus the percentage of detractors, is 76.56%. This score is significantly high, indicating strong student satisfaction and a willingness to recommend the practice questions. Most students rated the questions as either 9 or 10, showing strong support for the material.

4.2 COMPARISON WITH NPS BENCHMARKS IN EDUCATION AND BUSINESS

An NPS of 76.56% is notably high when compared to typical benchmarks in both education and business contexts. In the educational sector, scores around 30-40% are generally satisfactory, with anything above 50% considered excellent. For course satisfaction surveys at universities, scores between 20% and 50% are considered standard, depending on the course's engagement and difficulty. This survey's NPS surpasses these typical ranges, indicating a higher-than-average level of student satisfaction. Research has shown that structured improvement processes can significantly enhance student satisfaction. For instance, a study at the College of Pharmacy, Umm Al-Qura University, employed the DMAIC methodology to address various areas of dissatisfaction, including poor catering services and inadequate academic support. The implementation of an improvement plan resulted in an 11.9% increase in the NPS, demonstrating the effectiveness of targeted interventions in enhancing student satisfaction (Jastania et al., 2017). Similarly, the use of the Net Promoter Score in a virtual learning environment during the COVID-19 pandemic revealed high levels of student satisfaction. In courses such as Data Structures, Artificial Intelligence, and Emerging Technologies, the NPS exceeded 75%, which is significantly higher than the average satisfaction level of 71% in educational and training contexts. This indicates that well-structured online learning strategies can lead to exceptional student satisfaction (Gamarra-Moreno et al., 2021). Furthermore, the impact of university accreditation on student satisfaction was examined using the Net Promoter Score (NPS) as a metric. The research showed a significant increase in student satisfaction following the implementation of improvement plans under the SINEACE accreditation model. This underscores the positive effect of accreditation processes on perceived educational quality and student satisfaction.

In business contexts, companies often view an NPS above 50% as indicative of intense customer satisfaction. Leading brands such as Apple and Netflix frequently achieve scores in the 60-70% range. Achieving a score of 77% or higher in this survey places these practice questions on par with top consumer brands, underscoring their effectiveness and value from a student perspective. The Net Promoter Score (NPS) is a widely adopted metric used to gauge customer loyalty and satisfaction. It has been extensively applied

in various industries, including the hotel sector, where it is often integrated into annual budget planning and management evaluations (Baquero, 2022). The NPS is also employed to predict sales growth, with studies confirming its effectiveness in tracking overall brand health and future sales growth, despite some methodological concerns raised by academics (Baehre, 2022). Research has shown that while NPS is positively correlated with customer loyalty, satisfaction, and financial performance, other metrics such as Customer Experience Quality (CEQ) may surpass NPS in these areas, suggesting a synergistic relationship between the two metrics (Bennett & Molisani, 2020). Additionally, studies have indicated that NPS is neither superior nor inferior to other customer satisfaction metrics in predicting company growth rates, highlighting the importance of using a combination of metrics for a comprehensive assessment (Van Doorn et al., 2013).

In conclusion, achieving an NPS close to 77% is a significant accomplishment, placing these practice questions on par with top consumer brands like Apple and Netflix. This high score underscores the effectiveness and value of the practice questions from a student perspective, aligning with the broader understanding of NPS as a key indicator of customer satisfaction and loyalty.

4.3 FEEDBACK ON PRACTICE QUESTIONS

Most respondents (50) did not report any major complaints, with common responses like “no” or “tiada.” A few students provided specific feedback, including requests for answer keys to facilitate self-review for adjustments to decimal precision in some questions.

Many students praised the questions for their effectiveness in preparing for the test. Responses highlighted the challenging nature of the questions and their utility in revision, with one student remarking, “The questions are challenging and good for test preparation.”

Overall, the high NPS score and positive feedback indicate that the practice questions were valuable for students, particularly in enhancing test readiness and mathematical proficiency. This score, well above typical benchmarks in education and comparable to top business standards, underscores the positive impact these materials have on student learning.

5. DISCUSSION

The NPS of 76.56% achieved in this survey indicates an exceptionally high level of student satisfaction with the Business Mathematics practice questions. An NPS score above 50% is generally regarded as a positive indicator, with a score above 70% considered outstanding in both educational and business contexts. This high NPS score indicates that students found the practice questions both valuable and practical, which positively contributed to their academic performance and test readiness. The composition of responses further emphasises the strong satisfaction level: out of the 64 respondents, a large majority were Promoters (scoring 9-10), while there were no Detractors (scoring 0-6).

The large proportion of Promoters in this survey suggests that the practice questions align well with students' expectations and academic needs. Promoters are typically those who find the resources not only helpful but also critical to their learning, often perceiving a direct benefit to their performance. Students who rated the questions as highly likely felt that they effectively supported their preparation for exams, contributing to improved confidence and a deeper understanding of the material. Feedback from promoters emphasised that the questions were "challenging" and "useful for revision," indicating that they were perceived as high-quality materials that fostered both engagement and knowledge retention.

The absence of Detractors is particularly notable, as it suggests a lack of significant dissatisfaction among the students. There are several possible explanations for this. First, the practice questions were well-aligned with the course objectives and student skill levels, ensuring that even students who might typically be more critical found value in the questions. Additionally, students who felt supported in their learning journey by the questions may have had a generally positive perception of the material, which in turn reduced the likelihood of negative feedback. The open feedback section revealed minimal complaints, with many students stating there were "no errors" or "no issues" with the questions. This suggests that any potential areas for dissatisfaction were effectively addressed in the design and structure of the materials.

In educational settings, achieving an NPS score comparable to that of high-performing consumer brands—such as Apple and Netflix, which typically

score in the 60-70% range — is rare. Such a high score in an academic context underscores the quality and relevance of the practice questions. It may also reflect an instructional strategy that supports active learning, whereby students engage in practice to reinforce their understanding. This result highlights the use of practice questions as a potentially powerful tool in enhancing student learning and satisfaction, which may contribute to better academic outcomes.

5.1 LIMITATIONS

While the high NPS score provides a positive measure of student satisfaction, several limitations should be considered. One limitation is the lack of qualitative feedback in the form of in-depth comments, which could offer richer insights into students' specific preferences and perceptions regarding the practice questions. Although some students provided brief feedback, more detailed qualitative data would enable a deeper understanding of what students found most valuable, as well as any nuanced areas for improvement.

Additionally, the survey did not include performance data to correlate with satisfaction scores. Having data on students' actual performance, such as test scores before and after using the practice questions, would enable an analysis of whether higher satisfaction is associated with improved academic outcomes. This correlation could help validate the impact of the practice questions on knowledge retention and exam preparedness. Future research could address these limitations by incorporating mixed methods (both quantitative and qualitative approaches) and collecting performance data to provide a more comprehensive understanding of the effectiveness of the practice questions.

5.2 IMPLICATIONS FOR FUTURE PRACTICE

The high NPS score and positive feedback suggest that these practice questions could serve as a model for developing similar resources in other courses. Emphasising challenging yet relevant questions, as well as providing resources that closely align with course content and testing formats, may foster a similar level of student engagement and satisfaction. Additionally, incorporating student feedback to improve and adapt the materials continually could help maintain high satisfaction levels over time, potentially increasing both retention and academic performance in Business Mathematics, as well as in other related subjects.

6. CONCLUSION

This study revealed a high Net Promoter Score (NPS) of 77%, indicating intense student satisfaction with the Business Mathematics practice questions. The high proportion of Promoters and the absence of Detractors suggest that students found the questions highly effective and relevant to their learning needs. This positive feedback underscores the value of NPS as a reliable metric for evaluating student satisfaction in educational contexts, providing actionable insights for instructors and curriculum developers.

The findings carry practical implications for educational practice. Educators could consider incorporating regular NPS surveys to gauge student satisfaction with course materials and instructional methods. By systematically tracking NPS scores, instructors can pinpoint areas for improvement and refine their materials to enhance student engagement and learning outcomes. Additionally, NPS surveys can serve as a valuable tool for gathering continuous feedback, enabling educators to respond to students' evolving needs and expectations. Future research could build on these findings by exploring the relationship between NPS scores and actual student performance metrics, such as exam or assignment scores, better to understand the impact of satisfaction on academic achievement. Further studies may also apply NPS to various course types and educational contexts, examining how course content and delivery styles impact satisfaction. Such research could provide deeper insights into the factors contributing to student engagement and learning effectiveness in diverse educational settings.

7. ACKNOWLEDGEMENTS

The author(s) would like to thank the students who participated in the survey for their valuable feedback and insights, which made this study possible. Special thanks are extended to the academic and administrative staff who assisted in distributing the survey and collecting the responses. We also acknowledge the support of Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus, which provided the resources and guidance necessary to complete this research. Their encouragement and support in exploring innovative metrics, such as the Net Promoter Score, in an educational context are greatly appreciated.

8. FUNDING

This study was conducted without any external funding or financial support from grants or sponsorships. The research, survey administration, and analysis were carried out solely using the resources available at Universiti Teknologi MARA Johor Branch, Pasir Gudang Campus. We gratefully acknowledge the institutional support and the dedication of the research team, who completed this work independently and without reliance on external financial contributions.

9. AUTHORS' CONTRIBUTION

Azyan Yusra Kapi @ Kahbi contributed to the conceptualisation and design of the study, developed the research methodology, and led the data analysis. She also made significant contributions to the drafting and editing of the manuscript. Azrina Suhaimi was involved in data collection and management, assisted with data analysis, and contributed to the interpretation of the results. She also reviewed and edited the manuscript for intellectual content and clarity. Harshida Hasmy conducted the literature review, provided critical insights into the theoretical framework, and contributed to the development of the discussion section. She also played a role in revising the manuscript to ensure coherence and academic rigour.

Mohamad Faizal Ab Jabal assisted with the research methodology, helped with data visualisation and presentation, and provided feedback on the manuscript's structure. He also contributed to the final proofreading and approval of the manuscript.

All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

10. CONFLICT OF INTEREST DECLARATION

The authors hereby certify that they have no conflicts of interest in the subject matter or materials discussed in this manuscript. There are no financial, personal, or professional affiliations or relationships that could be perceived as influencing the research, analysis, or interpretation presented. This declaration is made to affirm the authors' commitment to the integrity and objectivity of the research process, ensuring that the findings and conclusions of this study are presented impartially and without bias.

11. REFERENCES

Adams, C., Walpola, R., Schembri, A., & Harrison, R. (2022). The ultimate question? Evaluating the use of Net Promoter Score in healthcare: A systematic review. Health Expectations: An International Journal of Public Participation in Health Care and Health Policy, 25, 2328–2339. https://doi.org/10.1111/hex.13577. Baquero, A. (2022). Net Promoter Score (NPS) and Customer Satisfaction: Relationship and Efficient Management. Sustainability, 14(4), 2011.

Baehre, S., O'Dwyer, M., O'Malley, L., & Lee, N. (2021). The use of Net Promoter Score (NPS) to predict sales growth: insights from an empirical investigation. Journal of the Academy of Marketing Science, 50, 67–84. https://doi.org/10.1007/s11747-021-00790-2.

Bayrak, F., T\ib\i, M. H., & Altun, A. (2020). Development of an online course satisfaction scale. Turkish Online Journal of Distance Education, 21(4), 110–123.

Cruz, J. O., Moreno, E. E., & Silupu, W. C. (2019). Effect of the Implementation of University Accreditation on the satisfaction of engineering students using the Net Promoter Score. 2019 IEEE Sciences and Humanities International Research Conference (SHIRCON), 1–4.

Gamarra-Moreno, A., Gamarra-Moreno, D., Gamarra-Moreno, A., & Gamarra-Moreno, J. (2021). Assessing Problem-Based Learning satisfaction using Net Promoter Score in a virtual learning environment. 2021 IEEE World Conference on Engineering Education (EDUNINE), 1–5.

German, E. (2021). TEACHERS AND STUDENTS' NET PROMOTER SCORE (NPS) ON THE CAMBRIDGE LEARNING MANAGEMENT SYSTEM (CLMS). Journal of English Teaching, Applied Linguistics and Literatures (JETALL). https://doi.org/10.20527/jetall.v4i2.9708

Ho, I. M. K., Cheong, K. Y., & Weldon, A. (2021). Predicting student satisfaction of emergency remote learning in higher education during COVID-19 using machine learning techniques. Plos One, 16(4), e0249423.

Jaramillo, S., Deitz, G., Hansen, J., & Babakus, E. (2023). Taking the measure of net promoter score: An assessment of construct and predictive validity. International Journal of Market Research, 66, 278–302. https://doi.org/10.1177/14707853231213274.

Kapi, A. Y., Suhaimi, A., Hasmy, H., & Ab Jabal, M. F. (2023). Innovation of Digital Multimedia: Recognising the Advantages. E-Academia Journal, 12(2).

Koladycz, R., Fernandez, G., Gray, K., & Marriott, H. (2018). The Net Promoter Score (NPS) for insight into client experiences in sexual and reproductive health clinics. Global Health: Science and Practice, 6(3), 413–424.

Lucero, K. S. (2022). Net Promoter Score (NPS): What does Net Promoter Score offer in the evaluation of continuing medical education? Journal of European CME, 11(1), 2152941.

Ramadhan, A., Trisetyarso, A., Zarlis, M., Abdurachman, E., & others. (2022). Measuring students' satisfaction and loyalty on Microsoft Power BI using the system usability scale and net promoter score for the case of students at Bina Nusantara University. 2022 International Conference on Data Science and Its Applications (ICoDSA), 155–160.

Reichheld, F. F. (2003). The One Number You Need to Grow. Harvard Business Review, 81(12), 46–54.

Smithson, J., Birks, M., Harrison, G., Nair, C. S., & Hitchins, M. (2015). Benchmarking for the effective use of student evaluation data. Quality Assurance in Education, 23(1), 20–29.

Sandok, S. (2021). Online Education in the Age of Social Media Influencers: Applying Net Promoter Scores to Asynchronous Online Delivery. The Interactive Journal of Global Leadership and Learning, 2(3), 3.

Suhaimi, A., Ab Jabal, M. F., Hasmy, H., & Kapi, A. Y. (2024). Evaluation of SPARK C++ usability: modular programming for mechanical and civil engineering students. Journal of Computing Research and Innovation (JCRINN), 9(2), 188–200.

Wazzan, W. A. (2019). Higher education for students with autism, using the Net Promoter Score to assess parents' satisfaction. Creative Education, 10(11), 2495–2503.

Yudet Millones-Liza, D., & Emperatriz García-Salirrosas, E. (2021, July). Analysis of the loyalty and intention to return of the university student: Challenges of educational management in a crisis context. In Proceedings of the 2021 12th International Conference on E-business, Management and Economics (pp. 802-807).

Ziegler, A., Peisl, T., & Raeside, R. (2023). Improving service quality through customer feedback–the case of NPS in IBM's training services. International Journal of Quality and Service Sciences, 15(2), 190-203.