



Multidimensional Service Quality Evaluation in a Private English Course Institution: A SERVQUAL-Adapted Percentage-Based Performance Mapping

Yayah Takziyah¹, Sumangala²

¹Elementary Madrasah Teacher Education Program, Faculty of Islamic Education and Teacher Training, Syarif Hidayatullah State Islamic University Jakarta, Jakarta, Indonesia

²Dapartement Foreign Language Education, Social Sciences, Sri Lanka Institute of Advanced Technological Education, Sri Lanka

Article Info

Article history:

Received Nov 23, 2025

Revised Nov 27, 2025

Accepted Dec 9, 2025

OnlineFirst Dec 12, 2025

Keywords:

English Course
Non-Formal Education
Performance Mapping
Service Quality
SERVQUAL

ABSTRACT

Purpose of the study: This study aims to evaluate multidimensional service quality in a private English course institution based on students' perceptions using an adapted SERVQUAL framework and percentage-based categorical classification to determine institutional performance levels across key academic, administrative, infrastructural, financial, and certification dimensions

Methodology: This study employed a quantitative descriptive survey design using a structured SERVQUAL-adapted questionnaire with a five-point Likert scale. Data were collected from active students through total sampling. Instrument reliability was tested using Cronbach's Alpha. Data were analyzed using descriptive statistical techniques and percentage-based performance categorization.

Main Findings: The results indicate that overall service quality is categorized as good to very good across all ten dimensions. The highest scores were found in certification credibility, small-class system effectiveness, consultation facilities, and scheduling flexibility, while replacement class availability received the lowest score but remained within the good category.

Novelty/Originality of this study: This study introduces a multidimensional percentage-based performance mapping model that adapts SERVQUAL specifically to private English course institutions. Unlike prior studies focusing on general satisfaction indices, this research integrates academic, administrative, infrastructural, financial, and certification dimensions into a unified categorical benchmarking framework.

This is an open access article under the [CC BY](https://creativecommons.org/licenses/by/4.0/) license



Corresponding Author:

Yayah Takziyah,

Elementary Madrasah Teacher Education Program, Faculty of Islamic Education and Teacher Training, Syarif Hidayatullah State Islamic University Jakarta,

Ir H. Juanda, Tangerang, Jakarta, 15412, Indonesia

Email: yayatazkiyah@gmail.com

1. INTRODUCTION

The growing significance of English proficiency in the globalized era has transformed English from a supplementary academic subject into a strategic competence for higher education access, professional competitiveness, and international mobility [1]-[3]. In non-English speaking countries, students often encounter limitations in formal classroom instruction, particularly in communicative exposure and authentic interaction. Consequently, private English course institutions have become an essential alternative learning space that

complements formal education. These institutions are expected not only to deliver effective instructional programs but also to provide comprehensive educational services that ensure satisfaction, trust, and sustained engagement among learners [4], [5]. This transformation positions private language institutions within a competitive service-based educational market.

In the context of educational management, service quality has emerged as a central determinant of institutional sustainability. Unlike product-based industries, education operates within an intangible service framework in which learning experiences, institutional credibility, and student perceptions become core evaluative dimensions [6], [7]. Parasuraman et al. introduced the SERVQUAL model, which conceptualizes service quality through five primary dimensions: tangibles, reliability, responsiveness, assurance, and empathy [8], [9]. Although initially developed for commercial service industries, this framework has been widely adapted to educational contexts to assess institutional performance. The SERVQUAL dimensions offer a structured lens to evaluate not only physical facilities but also instructional reliability, administrative responsiveness, and professional assurance.

In educational settings, the SERVQUAL dimensions are often expanded to accommodate specific academic characteristics [10]. Tangibles relate to classroom facilities, learning resources, and environmental comfort reliability refers to consistent instructional delivery and program implementation; responsiveness includes scheduling flexibility and academic support services assurance encompasses teacher competence and certification credibility; and empathy reflects personalized attention through small-class systems and consultation services [11], [12]. When adapted to private English course institutions, these dimensions collectively represent a multidimensional ecosystem of service quality that directly influences students' perceived value and satisfaction levels.

Several empirical studies have applied SERVQUAL or modified service quality models within higher education institutions and public schools [13]-[15]. These studies generally confirm that instructional competence, physical facilities, and administrative responsiveness significantly influence student satisfaction and institutional image. However, most of these investigations focus on formal higher education contexts and measure satisfaction as the primary dependent variable. Limited research has comprehensively examined private English course institutions by integrating academic, infrastructural, administrative, financial, and certification dimensions into a unified performance mapping framework. Furthermore, percentage-based categorical interpretation of service performance remains underexplored in non-formal educational research [16], [17].

This limitation indicates a significant research gap. While SERVQUAL provides a conceptual foundation for measuring service quality, its application in private English course institutions often lacks contextual adaptation and integrated performance categorization [18]. Existing studies tend to analyze dimensions separately or emphasize general satisfaction indices without offering clear institutional benchmarking indicators. As a result, management decision-making processes may rely on fragmented data rather than systematic multidimensional evaluation. There is a need for a structured assessment model that not only measures perception quantitatively but also translates results into categorical performance levels that are practically interpretable [19], [20].

The present study responds to this gap by adopting and contextualizing SERVQUAL principles within a multidimensional service quality framework tailored to private English course institutions. This research integrates ten service dimensions tuition proportionality, teacher qualification, consultation facilities, classroom comfort, small-class systems, replacement class availability, location accessibility, extra support programs, scheduling flexibility, and certification credibility into a unified percentage-based evaluative model [21]-[23]. The novelty of this study lies in its comprehensive integration of SERVQUAL -adapted dimensions with categorical performance mapping (*good, very good*) to enhance institutional benchmarking accuracy. By moving beyond general satisfaction metrics, this study strengthens theoretical application of service quality models in non-formal education sectors [24].

The urgency of this research is underscored by the increasing reliance of students on private English course institutions as strategic investments for academic and professional advancement. As learners allocate substantial financial resources and time commitments, transparent service evaluation becomes essential to ensure accountability and continuous quality improvement [25]. A systematic and multidimensional evaluation model grounded in established service quality theory provides both theoretical contribution and managerial relevance. Therefore, this study aims to evaluate multidimensional service quality in a private English course institution based on students' perceptions, using a SERVQUAL-adapted framework and percentage-based categorical classification to determine institutional performance levels across key service dimensions.

2. RESEARCH METHOD

2.1. Research Design

This study employed a quantitative descriptive research design with a survey approach [26]. The quantitative method was selected to measure students' perceptions numerically and to classify institutional service

performance into categorical levels. The descriptive design aimed to systematically portray the level of service quality across multiple dimensions without manipulating variables.

The research adopted an adapted SERVQUAL-based framework to evaluate multidimensional service quality within a private English course institution. The SERVQUAL model was contextualized into ten service dimensions relevant to non-formal English education, ensuring theoretical alignment and contextual validity. The evaluation results were expressed in percentage form and interpreted into performance categories (*very good, good, etc.*) to facilitate institutional benchmarking.

2.2. Population and Sample

The population of this study consisted of all active students enrolled in the private English course institution during the research period [27]. The participants represented various proficiency levels and program types to ensure comprehensive perception coverage. A total sampling (census) technique was employed, meaning all accessible active students were included as research respondents. This technique was chosen to minimize sampling bias and to ensure representativeness of institutional service evaluation. The final number of respondents included in the analysis was (n = ...) students. The object of this research was multidimensional service quality, measured through students' perceptions across academic, infrastructural, administrative, financial, and certification dimensions.

2.3. Data Sources and Data Collection Techniques

This study utilized primary and secondary data sources [28]. (1) primary data, were obtained from students' responses to a structured questionnaire measuring perceptions of service quality. (2) Secondary data were collected from institutional documents, including program descriptions, facility information, scheduling systems, and certification policies to support contextual interpretation.

Data collection was conducted using a survey technique. The questionnaire was distributed directly to students after instructional sessions. Respondents were informed about the purpose of the study and provided instructions for completing the instrument. All responses were collected and tabulated for statistical analysis.

2.4. Research Instrument

The research instrument used in this study was a structured questionnaire [29] developed based on SERVQUAL dimensions adapted to the context of private English course institutions. The instrument employed a five-point Likert scale, 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree. The questionnaire consisted of ten service quality dimensions, as shown in Table 1.

Table 1. SERVQUAL-Adapted Service Quality Dimensions

Dimension	SERVQUAL Basis	Indicator Description
Tuition proportionality	Reliability	Tuition fees are proportional to course quality
Qualified native teachers	Assurance	Teachers are competent and experienced
Course consultant facility	Empathy	Academic consultation services are available and helpful
Classroom comfort	Tangibles	Classrooms are comfortable and well-equipped
Small-class system	Empathy	Learning occurs in effective small-class format
Replacement class availability	Responsiveness	Institution provides replacement sessions when needed
Strategic location	Tangibles	Institution is easily accessible
Extra support program	Responsiveness	Additional academic support programs are provided
Flexible scheduling	Responsiveness	Class schedules are flexible
Official certificates	Assurance	Institution provides credible certificates and diplomas

Prior to distribution, the instrument was reviewed to ensure clarity, relevance, and contextual suitability. Instrument validity and reliability, content validity was ensured through theoretical alignment with the SERVQUAL framework and adaptation to the institutional context. Reliability testing was conducted using Cronbach's Alpha coefficient to measure internal consistency. A reliability coefficient above 0.70 was considered acceptable, indicating that the instrument consistently measured service quality perceptions.

2.5. Data Analysis Technique

Data were analyzed using descriptive statistical techniques. The analysis procedure included, (1) Scoring each questionnaire response according to the Likert scale. (2) Calculating the total score for each dimension. (3) Converting total scores into percentages using the formula.

$$Percentage = \frac{Obtained\ Score}{Maximum\ Score} \times 100\%$$

(4) Interpreting percentage values into categorical performance levels. The percentage interpretation criteria were as follows, 81% – 100% = Very Good, 61% – 80% = Good, 41% – 60% = Fair, 21% – 40% = Poor, 0% – 20% = Very Poor. The results were presented in tabular form to facilitate clear institutional performance mapping across dimensions.

2.6. Research Procedure

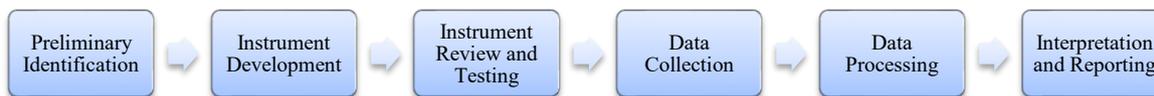


Diagram 1. Research Procedure Diagram

The research was conducted through six systematic stages beginning with preliminary identification of service quality dimensions based on SERVQUAL theory and institutional context. This was followed by instrument development through the construction of Likert-scale questionnaire items aligned with the identified dimensions. The instrument was then reviewed and tested to ensure clarity and reliability. Subsequently, data were collected from active students, processed through scoring and percentage calculation, and categorized into performance levels. Finally, the findings were interpreted in relation to service quality theory and presented in descriptive and tabular formats to provide comprehensive institutional performance mapping.

3. RESULTS AND DISCUSSION

3.1. Multidimensional Service Quality Performance

The findings of this study reveal that the overall service quality of the private English course institution is categorized within the good to very good range across all evaluated dimensions. Based on percentage analysis, the highest score was obtained in the dimension of official certificates and diplomas (85%), followed by effective small-class system (84%), course consultant facilities (83.5%), flexible scheduling system (82%), comfortable and air-conditioned classrooms (81.7%), and qualified and experienced native teachers (81.5%). Meanwhile, tuition proportionality (77%), strategic and accessible location (76%), EF extra support program (76%), and replacement class availability (72%) were categorized as good. These results indicate that no dimension fell into the fair or poor category, demonstrating consistent institutional performance across academic, infrastructural, administrative, and certification services.

Table 2. Summary of Multidimensional Service Quality Performance

Dimension	Percentage	Category
Tuition fees proportional to course quality	77%	Good
Qualified and experienced native teachers	81.5%	Very Good
Course consultant facilities	83.5%	Very Good
Comfortable and air-conditioned classrooms	81.7%	Very Good
Effective small-class system	84%	Very Good
Availability of replacement classes	72%	Good
Strategic and accessible location	76%	Good
Extra support program	76%	Good
Flexible scheduling system	82%	Very Good
Official certificates and diplomas	85%	Very Good

The strong performance in the certification dimension (85%) reflects a high level of assurance perceived by students. Within the SERVQUAL framework, assurance relates to institutional credibility, professional competence, and trustworthiness [30]. The provision of official certificates enhances students’ academic confidence and perceived value of investment. This finding aligns with prior research indicating that certification credibility significantly influences institutional image and student satisfaction in educational service contexts [31]. The result confirms that formal recognition mechanisms are central in shaping students’ long-term trust and institutional loyalty.

Similarly, the effective small-class system (84%) and course consultant facilities (83.5%) demonstrate strong empathy and responsiveness dimensions. Small-class settings allow personalized attention, improved interaction, and enhanced learning engagement. According to [32], empathy in educational services increases perceived learning effectiveness and emotional connection between students and institutions. The presence of accessible consultation services further strengthens academic support systems. These findings support the argument that student-centered service orientation contributes significantly to perceived institutional quality.

The dimensions of flexible scheduling (82%) and classroom comfort (81.7%) indicate positive performance within the tangibles and responsiveness dimensions. Comfortable learning environments and adaptable schedules are essential factors in non-formal education sectors where students often balance academic, professional, and personal commitments. [33] Emphasizes that physical environment quality and administrative flexibility directly influence students' satisfaction and retention decisions. The findings of this study are consistent with this perspective, confirming that infrastructural adequacy and scheduling adaptability function as strategic service differentiators in competitive educational markets.

Although categorized as *good*, the replacement class availability dimension (72%) recorded the lowest percentage among all dimensions. This suggests that while students generally perceive the service positively, there remains room for improvement in responsiveness when handling schedule disruptions. In SERVQUAL terms, responsiveness reflects the institution's willingness to help and provide prompt service [34]. The gap between high-performing assurance dimensions and relatively lower responsiveness in replacement scheduling highlights a minor service imbalance that management may address for optimization.

From a gap analysis perspective, the findings of this study are largely consistent with previous research on educational service quality. Studies by [35] and [36] reported that assurance, instructional competence, and tangibles often receive higher satisfaction ratings compared to administrative responsiveness components. However, the present study extends these findings by integrating financial proportionality and certification credibility into a unified performance mapping system. Unlike earlier studies that primarily focused on satisfaction indices, this research categorizes performance using percentage-based benchmarks, offering clearer managerial interpretation. Therefore, while the empirical trends align with prior literature, the methodological mapping approach provides added analytical clarity.

The integration of ten dimensions into a multidimensional categorical framework represents a structured advancement of SERVQUAL adaptation in non-formal education [37]. Rather than measuring service quality abstractly, this study operationalizes institutional performance into measurable and interpretable levels (*very good* and *good*). This comprehensive discussion indicates that institutional strengths are concentrated in assurance and empathy-related dimensions, while minor optimization is required within responsiveness components. Overall, the service ecosystem demonstrates structural balance and positive student perception, reinforcing the institution's competitive positioning in the private English education sector.

The novelty of this study lies in its integrative multidimensional evaluation framework that adapts SERVQUAL principles specifically to private English course institutions and translates perception scores into categorical percentage-based performance mapping [38]. Unlike previous studies that focus primarily on satisfaction or general service quality indices, this research consolidates academic, infrastructural, administrative, financial, and certification dimensions into a unified benchmarking system. This structured mapping approach provides clearer institutional diagnostic insight and strengthens the theoretical application of service quality models within non-formal education contexts.

The findings of this study have both theoretical and practical implications. Theoretically, this research reinforces the adaptability of SERVQUAL within non-formal education settings and demonstrates the importance of multidimensional integration rather than fragmented evaluation [39], [40]. Practically, the percentage-based categorization model provides institutional managers with a clear decision-making framework to identify priority improvement areas, particularly within responsiveness-related services such as replacement class scheduling. The results may serve as a reference model for other private educational institutions seeking structured service quality benchmarking mechanisms.

Despite its contributions, this study has several limitations. First, the research employed a descriptive quantitative design without incorporating inferential statistical testing or comparative institutional analysis. Second, the study focused on a single private English course institution, which may limit generalizability to broader non-formal education contexts. Third, the evaluation relied solely on students' perception data without incorporating teacher or managerial perspectives. Future research may expand the model through comparative multi-institutional analysis, longitudinal evaluation, or mixed-method approaches to enhance analytical depth and generalizability.

4. CONCLUSION

This study concludes that the overall service quality of the private English course institution is categorized as good to very good across all evaluated dimensions, with assurance and empathy emerging as the strongest aspects, particularly in official certification, teacher competence, and small-class learning systems. The findings indicate that students highly value institutional credibility, personalized academic support, and structured learning environments, while administrative responsiveness especially regarding replacement class availability remains an area for further optimization. Theoretically, the results reinforce the contextual adaptability of the SERVQUAL framework in non-formal education settings, while methodologically contributing through percentage-based categorical performance mapping. However, since this study was limited to a single institution and employed a descriptive quantitative design without comparative or inferential analysis, future research is recommended to involve multiple institutions, apply mixed-method or longitudinal approaches, and integrate perspectives from teachers and management to enhance analytical depth and generalizability.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to all parties who contributed to the completion of this study. Appreciation is extended to the respondents who willingly participated and provided valuable data, as well as to those who offered constructive feedback and support throughout the research process. Their contributions have been essential in ensuring the successful completion of this study.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the preparation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

REFERENCES

- [1] G. Giray, "An assessment of student satisfaction with e-learning: An empirical study with computer and software engineering undergraduate students in Turkey under pandemic conditions," *Educ. Inf. Technol.*, vol. 26, no. 4, pp. 6651–6673, 2021, doi: 10.1007/s10639-021-10454-x.
- [2] K. Fuchs and K. Fangpong, "Fuchs, kevin, and fangpong, keerati. (2021), using the servqual framework to examine the service quality in higher education in Thailand," *Educ. Q. Rev.*, vol. 4, no. 2, pp. 363–370, 2021, doi: 10.31014/aior.1993.04.02.286.
- [3] M. W. Akram, A. Abbas, and I. A. Khan, "Effects of perceived value, service quality and customer trust in home delivery service staff on customer satisfaction: Evidence from Pakistan," *Int. J. Manag. Res. Emerg. Sci.*, vol. 12, no. 4, pp. 128–152, 2022, doi: 10.56536/ijmres.v12i4.351.
- [4] Z. Chang, "Research on Strategies of Synchronous Interaction Hybrid Basic Sports and University Education Interaction Model Based on SERVQUAL Model Research on Strategies of Synchronous Interaction Hybrid Basic Sports and University Education Interaction Model Based," *Trans. Asian Low-Resource Lang. Inf. Process.*, vol. 34, no. 2, 2026, doi: 10.1145/3533316.
- [5] Taufiq, Faridi, and Hardono, "Decision Support of System Performance Appraisal of Education Services Using Servqual And Analytical Hierarchy Process Method," *HFLVLRQ 6XSSRUW RI 6 \ VWHP 3HUIRUPDQFH \$ SSUDLVDO RI (GXFDWLRQ 6HUFLFHV 8VLQJ 6HUJTXDO \$ QG \$ QDO \ WLFDO + LHUDEFK \ 3URFHVV*," in *Journal of Physics: Conference Series PAPER*, IOP Publishing, 2020. doi: 10.1088/1742-6596/1477/3/032022.
- [6] I. Firdaus, Farikhin, and B. Surarso, "Application of fuzzy servqual method to measure user satisfaction of mooc service quality," in *E3S Web of Conferences*, 2020. doi: 10.1051/e3sconf/202020214007.
- [7] A. Alemu, "Assessing service quality in tertiary education using adapted SERVQUAL scale," *Cogent Educ.*, vol. 10, no. 2, 2023, doi: 10.1080/2331186X.2023.2259733.
- [8] R. Rahmawati, J. Permana, D. Nurdin, C. Triatna, and F. Fadhli, "Analysis of university student satisfaction levels with the learning process on five dimensions of service quality (SERVQUAL)," *Al-Ishlah: Jurnal Pendidikan*, vol. 15, no. 2, pp. 1944–1957, 2023, doi: 10.35445/alishlah.v15i2.2355.
- [9] N. Hasanah, E. W. Prihono, H. Retnawati, and S. Fajaruddin, "Analysis of islamic higher education quality mapping based on student service satisfaction using multidimensional scaling method," *Cendekia J. Kependidikan dan Kemasyarakatan*, vol. 20, no. 1, pp. 58–73, 2022, doi: 10.21154/cendekia.v1i1.3816.
- [10] Y. Luthfiana and M. Said, "Strategic insights to enhance student loyalty through service quality and satisfaction: Importance-performance map analysis," *J. Ilm. Adm. Publik*, vol. 11, no. 3, pp. 322–336, 2025, doi: 10.21776/ub.jiap.2025.011.03.5.
- [11] M. Melania, A. Kadir, A. Respati, and P. Sachin, "Contribution of non-formal education to improve the quality of human resources," *J. Nonform. Educ.*, vol. 10, no. 1, pp. 169–178, 2024, doi: 10.15294/jone.v10i1.2015.
- [12] T. Thanh and T. Doan, "The effect of service quality on student loyalty and student satisfaction: An empirical study of universities in Vietnam," *J. Asian Financ. Econ. Bus.*, vol. 8, no. 8, pp. 251–258, 2021, doi: 10.13106/jafeb.2021.vol8.no8.0251.
- [13] A. Grájeda *et al.*, "Assessing student-perceived impact of using artificial intelligence tools: Construction of a synthetic index of application in higher education Assessing student-perceived impact of using artificial intelligence tools:"

- Construction of a synthetic index of application in higher education,” *Cogent Educ.*, vol. 11, no. 1, 2024, doi: 10.1080/2331186X.2023.2287917.
- [14] R. Ana, A. Rui, S. Margarida, and L. Gracieth, “The SERVQUAL instrument to measure service quality in higher education – A case study,” in *SHS Web of Conferences*, 2023, pp. 1–11. doi: 10.1051/shsconf/202316001011.
- [15] R. F. Ruhayat, H. A. Pradesa, A. Novira, and R. Wijayanti, “Implementation of the balanced scorecard for performance evaluation at the West Java provincial plantation service,” *J. Manag. Bank.*, vol. 12, no. 1, pp. 14–27, 2025, doi: 10.55963/jumpa.v12i1.729.
- [16] B. Manunggal and B. Afriadi, “Servqual in higher education institutions,” *Ana, Rolo Rui, Alves Margarida, Saraiva Gracieth, Leandro*, vol. 4, no. 1, pp. 107–114, 2023, doi: 10.56442/ijble.v4i1.132.
- [17] M. A. Dzakwan and F. Ubit, “Understanding service quality and satisfaction in education and training through the servqual model: A literature review,” *Publ. Balai Diklat Keagamaan Aceh*, vol. 4, no. 1, 2025, doi: 10.47655/seulanga.v4i1.220.
- [18] I. O. Salome, O. A. Ayotunde, O. O. Samuel, and O. O. Samuel, “From service quality to e-service quality: Measurement, dimensions and model,” *From Serv. Qual. to e-service Qual. Meas. Dimens. Model*, vol. 25, no. 1, pp. 1–15, 2022, doi: 10.48550/arXiv.2205.00055.
- [19] H. V. Nguyen and M. Saleem, “The influence of service quality on student satisfaction and student loyalty in Vietnam : the moderating role of the university image,” *Student Satisf. student Loyal.*, vol. 12, no. 1, pp. 37–59, 2026, doi: 10.1108/JTS-12-2023-0032.
- [20] K. Yilmaz, “The effects of educational service quality and socio-cultural adaptation difficulties on international students’ higher education satisfaction,” *Orig. Res.*, vol. 10, no. 7, pp. 1–18, 2022, doi: 10.1177/21582440221078316.
- [21] M. Moslehpour, K. Y. Chau, J. Zheng, A. N. Hanjani, and M. Hoang, “The mediating role of international student satisfaction in the influence of higher education service quality on institutional reputation in Taiwan,” *Technol. Educ.*, vol. 12, no. 100, pp. 1–16, 2020, doi: 10.1177/1847979020971955.
- [22] M. Yolandari and T. Setyorini, “Effect of service quality on customer satisfaction pt. Pos Indonesia (persero) kupang branch,” *J. Prat. Manag. Stud.*, vol. 1, no. 1, pp. 1–6, 2023, doi: 10.61106/jpms.v1i1.1.
- [23] M. Fadhullah *et al.*, “Comparison of service quality and stakeholder perception on bus services for urban transportation in klang valley,” *Int. J. Acad. Res.*, vol. 1, no. 2, pp. 1352–1362, 2021, doi: 10.6007/IJARBS/v11-i2/9210.
- [24] D. Salih, “Measuring service quality level : Istanbul public hospitals,” *J. Curr. Res. Heal. Sect.*, vol. 13, no. 1, pp. 103–112, 2023, doi: 10.26579/jocrehes.13.1.8.
- [25] M. Raihan and I. Thoifah, “Synergizing islamic religious education and scientific learning in the 21 st century : A systematic review of literature,” *J. Pendidik. Agama Islam (Journal Islam. Educ. Stud.*, vol. 11, no. 1, pp. 109–130, 2023, doi: 10.15642/jpai.2023.11.1.109-130 Synergizing.
- [26] L. A. Rozak *et al.*, “Empirical evaluation of educational service quality in the current higher education system,” *Emerg. Sci. J.*, vol. 6, no. Special Issue, pp. 55–77, 2022, doi: 10.28991/ESJ-2022-SIED-05.
- [27] B. Tanujaya, R. C. I. Prahmana, and J. Mumu, “Likert scale in social sciences research: Problems and difficulties,” *J. Soc. Sci. Winter*, vol. 16, no. 4, pp. 89–101, 2022, doi: 10.51709/19951272/Winter2022/7.
- [28] A. A. Zumrawi and L. P. Macfadyen, “Proposed metrics for summarizing student evaluation of teaching data from balanced Likert scale surveys Proposed metrics for summarizing student evaluation of teaching data from balanced Likert scale surveys,” *Cogent Educ.*, vol. 10, no. 2, 2023, doi: 10.1080/2331186X.2023.2254665.
- [29] L. Chen, “Methods to analyze likert-type data in educational technology research,” *J. Educ. Technol. Dev. Exch.*, vol. 13, no. 2, pp. 39–60, 2020, doi: 10.18785/jetde.1302.04.
- [30] I. Kusmaryono, D. Wijayanti, and H. R. Maharani, “Number of response options, reliability, validity, and potential bias in the use of the likert scale education and social science research: A literature review,” *Int. J. Educ. Methodol.*, vol. 8, no. 4, pp. 625–637, 2022, doi: 10.12973/ijem.8.4.625.
- [31] N. Roselidyawaty and M. Rokeman, “Likert measurement scale in education and social sciences: Explored and explained,” *J. Soc. Sci.*, vol. 10, no. 1, pp. 77–88, 2024, doi: 10.37134/ejoss.vol10.1.7.2024.
- [32] S. Nikolic *et al.*, “ChatGPT versus engineering education assessment: a multidisciplinary and multi- institutional benchmarking and analysis of this generative artificial intelligence tool to investigate assessment integrity ChatGPT versus engineering education assessment: ,” *Eur. J. Eng. Educ.*, vol. 3797, no. May, 2023, doi: 10.1080/03043797.2023.2213169.
- [33] R. Rostamzadeh and O. Akbarian, “Application of dea in benchmarking: A systematic literature review from 2003–2020,” *Technol. Econ. Dev. Econ.*, vol. 27, no. 1, pp. 175–222, 2021, doi: 10.3846/tede.2021.13406.
- [34] Z. Y. Dong, Y. Zhang, C. Yip, S. Swift, and K. Beswick, “Smart campus : definition , framework , technologies , and services,” *Inst. Eng. Technol.*, vol. 2, no. 1, 2020, doi: 10.1049/iet-smc.2019.0072.
- [35] A. G. Almutairi, S. Al Mashrafi, and T. Al Kalbani, “Implications of language barriers for healthcare: A systematic review 1 1,” *Oman Med. J.*, vol. 35, no. 2, 2020, doi: 10.5001/omj.2020.40.
- [36] B. S. Gershenson, C. M. D. Hart, J. Hyman, C. A. Lindsay, and N. W. Papageorge, “The -long-run impacts of -same-race teachers,” *Am. Econ. J. Econ. Policy*, vol. 14, no. 4, pp. 300–342, 2022, doi: 10.1257/pol.20190573.
- [37] L. Prieto, “Computers in Human Behavior Emergency remote teaching and students ’ academic performance in higher education during the COVID-19 pandemic : A case study b,” *Comput. Human Behav.*, vol. 119, no. January, 2021, doi: 10.1016/j.chb.2021.106713.
- [38] L. Wang and L. Calvano, “Class size , student behaviors and educational outcomes,” *Organ. Manag. Journa*, vol. 19, no. 4, pp. 126–142, 2026, doi: 10.1108/OMJ-01-2021-1139.
- [39] M. Taghizadeh, “Investigating a blended learning environment: Contribution of attitude, interaction, and quality of teaching to satisfaction of graduate students of TEFL,” *Asia-Pacific Educ. Res.*, vol. 30, no. 5, pp. 459–469, 2021, doi: 10.1007/s40299-020-00531-z.
- [40] P. C. James, “What determines student satisfaction in an e-learning environment? A comprehensive literature review of

