

STUDENT SATISFACTION TOWARDS WI-FI SERVICES: A CASE STUDY OF POLITEKNIK MUKAH

Nur Azlinda binti Md Saru¹

¹ Commerce Department, Politeknik Mukah, 96400 Mukah, Sarawak, Malaysia
(E-mail: nur.azlinda@pmu.edu.my)

Article history

Received date : 24-4-2025
Revised date : 25-4-2025
Accepted date : 20-5-2025
Published date : 3-6-2025

To cite this document:

Md Saru, N. A. (2025). Student satisfaction towards wi-fi services: A case study of Politeknik Mukah. *Jurnal Penyelidikan Sains Sosial (JOSSR)*, 8 (27), 1 - 8.

Abstract: *In the digital age, reliable internet connectivity has become a fundamental requirement in higher education institutions. This study aims to assess the level of student satisfaction with Wi-Fi services at Politeknik Mukah (PMU) and to identify the primary factors contributing to user dissatisfaction. Utilizing a quantitative research method, a total of 301 students from various academic departments responded to a structured questionnaire distributed via Google Forms. Data were analysed using the Statistical Package for the Social Sciences (SPSS) version 27, focusing on mean scores to assess satisfaction levels. The findings reveal that student satisfaction with the Wi-Fi service at PMU is moderate, with an average mean score of 2.65. Major issues identified include limited coverage areas and slow connection speeds. The study concludes with several recommendations aimed at enhancing the quality and accessibility of Wi-Fi services to better support students' academic needs and online learning experiences. Future research may expand by incorporating technical performance metrics and qualitative feedback to support long-term digital infrastructure strategies.*

Keywords: *Wi-Fi, student satisfaction, higher education, Politeknik Mukah, campus connectivity.*

Introduction

In today's digital-centric academic environment, access to reliable and high-speed Wi-Fi is not merely a convenience but a foundational necessity in higher education. Across Malaysia, digital learning platforms such as Curriculum Information Document Online System (CIDOS) and User Information Management System (SPMP) form the backbone of teaching and administrative operations in Malaysia's polytechnic institutions, enabling students to access resources, submit assignments and engage with lecturers remotely. According to the Malaysian Communications and Multimedia Commission (MCMC), over 95% of tertiary students in Malaysia rely on Wi-Fi for educational access. As demonstrated by Syahrial & Chern Ern (2024), the functionality and accessibility of online academic tools are critical determinants of student experience in digital learning environments.

A growing body of literature underscores several recurring technical and experiential deficiencies that compromise students' satisfaction with campus Wi-Fi services. In approximately 80–90% of studies, poor technical infrastructure such as inadequate bandwidth, weak signal strength, unstable connections and limited coverage is reported as the primary driver of dissatisfaction among university and polytechnic students (Sulaiman & Yaakub, 2010; Pei et al., 2017; Ismail et al., 2021; Moate et al., 2017). Compounding these issues are service quality concerns including low responsiveness to complaints, inefficient troubleshooting protocols and inadequate IT support (Martin & Bolliger, 2022; Saja et al., 2022). Service quality attributes including the availability and responsiveness of support when using internet applications play a significant role in shaping students' satisfaction with institutional Wi-Fi (Imran, A. I., & Wok, S. (2011).

Further, access-related challenges such as overcrowded hotspots, insufficient access points and even intermittent electricity supply have been documented, particularly in underserved educational settings (Khairusy & Febriani, 2023; Panicker, 2020). The user experience dimension is equally critical: demographic variables (e.g., gender, academic level), perceived ease of use and interface accessibility significantly influence how students evaluate the overall usefulness of Wi-Fi services (Islam et al., 2018).

Despite these insights, context-specific evaluations of digital infrastructure remain limited in Malaysia's polytechnic institutions. Therefore, this study investigates student satisfaction towards Wi-Fi services at Politeknik Mukah, a rural campus in Sarawak. This study was therefore conducted to systematically assess student satisfaction with the existing Wi-Fi services at Politeknik Mukah with the aim of identifying critical weaknesses and proposing targeted improvements that support a more robust digital learning environment.

Literature Review

A reliable and high-speed Wi-Fi connection has become a crucial component of higher education infrastructure, particularly in supporting online learning, cloud-based academic systems and digital assessments. While the adoption of these technologies has accelerated post-COVID-19, there remain persistent gaps in service quality, accessibility and user experience especially in rural and semi-urban institutions. To inform this study, this section critically categorises previous research into thematic domains relevant to student satisfaction with Wi-Fi services.

Factors Influencing Wi-Fi Satisfaction

Student satisfaction with Wi-Fi services is shaped by perceived usefulness, ease of use and reliability. Islam et al. (2018) demonstrated that perceived ease of use and computer self-efficacy significantly influence student satisfaction in higher education contexts. In Malaysian polytechnics, Ismail et al. (2021) found that factors such as reliability, responsiveness and empathy played critical roles in shaping satisfaction. Supporting this, Andai, M. N. (2019) identified moderate satisfaction levels among students at Politeknik Melaka, emphasizing the importance of reliable access to platforms like CIDOS. However, many of these studies remain descriptive and lack contextual exploration of underserved regions like Sarawak, which this study aims to address.

Impact on Academic Performance and Well-being

Internet quality has a direct impact on students' academic outcomes and well-being. Mohamad Ashari et al. (2022) reported that excessive internet use correlates with decreased life satisfaction among university students. During the COVID-19 pandemic, Wan Mamat et al. (2022) found that reliable Wi-Fi was a strong predictor of e-learning satisfaction. A. Baker El-Ebiary et al. (2018) emphasized that mobile learning, as an emerging educational strategy, relies heavily on stable and accessible Wi-Fi infrastructure reinforcing the idea that connectivity is essential for modern pedagogy. Meanwhile, Omar et al. (2018) found that while general Wi-Fi use was not directly linked to academic performance, specific activities like online gaming negatively affected student outcomes. These findings indicate the complex and multifaceted relationship between internet access and academic success.

Technological and Infrastructure Considerations

Several technical factors such as signal strength, bandwidth availability and latency significantly influence user satisfaction with Wi-Fi services. Sulaiman & Yaakub (2010) reported that channel overlapping and network saturation degraded the Quality of Service (QoS) across campus-wide networks. Pei et al. (2017) emphasized the importance of minimising connection setup time to improve user experience. More recently, Pandita & Kiran (2023) underlined the role of cyberinfrastructure and e-content design in shaping student engagement and satisfaction. While these studies provide important technical insights, few evaluate their impact in rural higher education settings where infrastructural constraints are more severe.

Cultural and Regional Perspectives

Cultural and regional contexts also play a vital role in shaping students' expectations and satisfaction with internet services. Sriram & Sarayrih (2016) found that speed, accessibility, and reliability were pivotal among Omani undergraduates. In Malaysia, Saja et al. (2022) demonstrated that teaching strategies and multimedia effectiveness were closely tied to Wi-Fi stability in online Arabic courses. Panicker (2020) explored cultural barriers in the Indian higher education sector, identifying how uncertainty avoidance and power distance influence technology adoption. However, there remains a lack of localised research focusing on East Malaysian institutions, where cultural diversity and infrastructure disparity could yield distinct user experiences.

Comprehensive Reviews and Frameworks

Several recent systematic reviews have summarised patterns in how satisfied students are with digital infrastructure. Khairusy & Febriani (2023) highlighted key determinants including institutional image and service quality. Matus et al. (2021) emphasised the need for integrated

evaluation frameworks that consider both technical and human dimensions of user satisfaction. Martin & Bolliger (2022) developed an online learner satisfaction framework, underscoring the essential role of internet connectivity and digital support. These reviews highlight the need for more detailed studies focused on specific institutions, especially in underrepresented regions, an area this study aims to address.

While the reviewed literature identifies a range of technical, cultural and experiential variables influencing Wi-Fi satisfaction, there is a clear need for localised, data-driven research in Malaysian polytechnic settings particularly in rural regions like Sarawak. This study addresses this gap by providing an empirical assessment of student satisfaction with Wi-Fi services at Politeknik Mukah.

Methodology

This study employed a quantitative research design to assess student satisfaction with the Wi-Fi services provided at Politeknik Mukah. The methodology integrates standardised sampling, validated survey instruments and statistical analysis using SPSS to derive meaningful insights into the perceived quality of Wi-Fi access on campus. The following subsections describe the research process in a structured and replicable format.

Research Design

A cross-sectional survey approach was adopted to collect data from a diverse student population across multiple academic departments. The research instrument was a structured questionnaire distributed via digital platforms. This design enabled efficient data acquisition and broad participation within a limited timeframe.

Sampling Strategy

The target population comprised all active students at Politeknik Mukah, totaling 1,986 individuals. Using the Krejcie and Morgan sample size determination table, a representative sample size of 301 students was selected. A random sampling method was applied to ensure unbiased representation from all academic programs and semesters.

Instrumentation

The data collection instrument was a questionnaire adapted from a previously validated study on Wi-Fi usage in Malaysian polytechnics. It consisted of two main sections:

Section A: Demographic information (gender, ethnicity, academic department and semester).

Section B: Ten items measuring student satisfaction using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree).

The instrument's validity was ensured through adaptation from established frameworks and reliability was addressed through consistent item formatting.

Data Collection Procedure

Data were collected via Google Forms, which was distributed using communication channels; WhatsApp and Telegram. QR codes were also displayed in common student areas such as the cafeteria, library and residential colleges to maximise reach and participation.

Data Analysis

Collected responses were exported into SPSS Version 27 for statistical analysis. Descriptive statistics, primarily mean scores, were computed for each item to assess the level of satisfaction. The interpretation of the mean values was guided by Wiersma's categorization scale:

Table 1 : Wiersma's categorization scale

1.00–2.33	Low satisfaction
2.34–3.66	Moderate satisfaction
3.67–5.00	High satisfaction

Result and Discussion

The demographic distribution of respondents supports the generalisability of the results. Table 2 shows the demographics of the respondents. The sample included 60% Bumiputera Sarawak, followed by 28.3% Malay, 7.7% Chinese, 2% Indian, and 2% Bumiputera Sabah students. The gender distribution leaned slightly toward females (59.7% female, 40.3% male) and respondents represented all six academic semesters, with the highest participation from Semester 3 students (41.5%) and mostly were from Commerce Department (34.2%).

Table 2: Demographics of the respondents

Demographics		%
Gender	Male	40.3
	Female	59.7
Ethnicity	Malay	28.3
	Chinese	7.7
	Indian	2
	Bumiputera Sarawak	60
	Bumiputera Sabah	2
Semester	Semester 1	16.3
	Semester 2	6.2
	Semester 3	41.5
	Semester 4	7.1
	Semester 5	26.2
	Semester 6 and above	2.7
Academic Department	Commerce Department	34.2
	Mechanical Engineering Department	11.4
	Electrical Engineering Department	8.1
	Civil Engineering Department	19.8
	Information and Communication Technology Department	26.5

The analysis revealed that overall student satisfaction with the campus Wi-Fi service was at a moderate level, with an average mean score of 2.65. This finding indicates that while the service meets basic requirements, significant room for improvement remains to enhance user experience and support academic activities.

Table 3: Mean scores for individual satisfaction items related to Wi-Fi service at Politeknik Mukah

No	Item	Mean
1	I find it easy to access the available Wi-Fi.	2.27
2	The Wi-Fi service provided is satisfactory.	2.25
3	Wi-Fi coverage areas are strategically located.	2.62
4	The Wi-Fi service meets student needs.	2.61
5	Wi-Fi provided is the primary source of internet access for me.	3.19
6	The Wi-Fi service meets my expectations.	2.49
7	Internet browsing speed via Wi-Fi is satisfactory.	2.50
8	Download speed via Wi-Fi is satisfactory.	2.35
9	Loading speed of websites is satisfactory.	2.70
10	The Wi-Fi service does not meet student needs.	3.52

A closer examination of the individual item scores highlights several areas of concern. The lowest mean score (2.25) was observed for the statement, “*The Wi-Fi service provided is satisfactory*” reflecting a general sense of dissatisfaction. Similarly, the ease of access to Wi-Fi scored 2.27, suggesting that students face challenges in establishing reliable connections across campus locations.

Conversely, the item indicating that Wi-Fi is the primary source of internet access for students received a higher mean score of 3.19, suggesting that despite limitations, students depend heavily on the service for academic and communication purposes. This dependence further underscores the critical need for infrastructure improvements.

Of notable concern is the item stating that “*The Wi-Fi service does not meet student needs,*” which received the highest mean score of 3.52. This score reinforces the perception that the current infrastructure fails to align with students’ academic demands, particularly in supporting e-learning platforms such as CIDOS and SPMP.

The results highlight a digital infrastructure gap that can impede learning outcomes, particularly in a post-pandemic educational environment that emphasises blended and online learning. The findings also align with prior studies conducted at other Malaysian polytechnics (e.g., Politeknik Melaka and Politeknik Kota Bharu), further validating the systemic nature of the issue.

Conclusion and Future Direction

This study set out to evaluate student satisfaction with Wi-Fi services at Politeknik Mukah and successfully identified key pain points in service accessibility, coverage and performance. The findings confirm that while Wi-Fi is a primary internet source for students, the infrastructure currently in place does not fully meet their academic or technological needs. The moderate

satisfaction level (mean = 2.65) and specific dissatisfaction with connectivity ease and service reliability underscore the urgency of targeted improvements.

The research has significant implications for both technical upgrades and institutional decision-making. From a technological perspective, the study emphasises the need for expanded access points, stronger signal distribution and proactive IT support services. Educationally, enhanced connectivity is crucial for sustaining blended learning platforms such as CIDOS, ensuring inclusive and equitable access for all students. These conclusions align with the goals of Sustainable Development Goal (SDG) 4: Quality Education and SDG 9: Industry, Innovation, Technology and Infrastructure by advocating for resilient educational infrastructure in rural and semi-urban regions.

Future initiatives should integrate real-time performance monitoring, cross-semester evaluations and user-driven feedback systems. Additionally, inter-institutional benchmarking across Malaysian polytechnics may provide further insight into scalable strategies for nationwide digital equity in technical and vocational education.

Acknowledgements

The author would like to express sincere gratitude to the lecturers at the Commerce Department, Politeknik Mukah, for their invaluable guidance and support. Special thanks are also extended to all the students who participated in the survey and contributed to the success of this research.

References

- A.Baker El-Ebiary, Y., Abbas Al-Sammarraie, N., Salman Shukur, B., Almandeel, S., & Alshamasi, A. (2018). Mobile Learning as a New E-Learning Strategy. *International Journal of Engineering and Technology*, 7(4.38), 876-879. <https://doi.org/10.14419/ijet.v7i4.38.27600>
- Andai, M. N. (2019) Penggunaan Internet Tanpa Wayar (Wi-Fi) Di Politeknik: Satu Tinjauan Pelajar Mengenai Persepsi Pelajar Dalam Menggunakan Kemudahan Internet Tanpa Wayar. *e-Proceedings of the National Technology Research in Engineering, Design and Social Science (nTrends'19)*(pp. 94-101). Politeknik Melaka, Melaka.
- Imran, A. I., & Wok, S. (2011). Satisfaction with the Free Wireless Connection among Muslim University Students.
- Islam, A. Y. M. A., Mok, M. M. C., Xiuxiu, Q., & Leng, C. H. (2018). Factors influencing students' satisfaction in using wireless internet in higher education. *The Electronic Library*, 36(1), 2–20. <https://doi.org/10.1108/EL-07-2016-0150>
- Ismail, N. A. N., Khairul Nazmi, N. A. A., Abdul Razak, N. A., Azhar, N. A., Shaari, R., & Omar, M. S. (2021). INFLUENCE OF WI-FI PERFORMANCE ON STUDENTS' SATISFACTION. *International Journal of Modern Education*, 3(8), 226–237. <https://doi.org/10.35631/ijmoe.380018>
- Khairusy, M. A., & Febriani, R. (2023). University Student Satisfaction A Systematic Literature Review. *JBTI: Jurnal Bisnis: Teori dan Implementasi*, 14(1), 267-272. <https://doi.org/10.18196/jbti.v14i1.17035>
- Martin, F., & Bolliger, D. U. (2022). Developing an online learner satisfaction framework in higher education through a systematic review of research. In *International Journal of Educational Technology in Higher Education* (Vol. 19, Issue 1). Springer Science and Business Media Deutschland GmbH. <https://doi.org/10.1186/s41239-022-00355-5>
- Matus, N., Rusu, C., & Cano, S. (2021). Student eXperience: A Systematic Literature Review. *Applied Sciences*, 11(20), 9543. <https://doi.org/10.3390/app11209543>

- Moate, K. M., Chukwuere, J. E., & Mavhungu, M. B. (2017). The Impact Of Wireless Fidelity On Students' Academic Performance In A Developing Economy. *Proceedings of the 31st International Academic Conference, London*. <https://doi.org/10.20472/IAC.2017.031.032>
- Mohamad Ashari, Z., Solihah Hassan, H., Farhana Zainudin, N., & Farhana Jumaat, N. (2022). *Sains Humanika Internet Addiction and Its Relationship with Happiness and Life Satisfaction among University Students*. <https://doi.org/10.11113/sh.v14n3-2.2012>
- Morgan, K. (1970). Sample size determination using Krejcie and Morgan table. *Kenya Projects Organization (KENPRO)*, 38, 607-610.
- Omar, M., Ahmad, M., Yasin, A., Ibrahim, H., Ghazali, O., & Khamis, S. (2018). The impact of Wi-Fi usage on students' academic performance. In *International Journal of Engineering & Technology*. <https://www.researchgate.net/publication/329573552>
- Pandita, A., & Kiran, R. (2023). The Technology Interface and Student Engagement Are Significant Stimuli in Sustainable Student Satisfaction. *Sustainability*, 15(10), 7923. <https://doi.org/10.3390/su15107923>
- Panicker, P. (2020). *Exploring cultural challenges to implementing Educational Technology in the higher education sector in India*. <http://arxiv.org/abs/2005.11020>
- Pei, C., Wang, Z., Zhao, Y., Wang, Z., Meng, Y., Pei, D., Peng, Y., Tang, W., & Qu, X. (2017). Why it takes so long to connect to a WiFi access point. *IEEE INFOCOM 2017 - IEEE Conference on Computer Communications*, 1–9. <https://doi.org/10.1109/INFOCOM.2017.8057164>
- Saja, I., Mazlan, N. A., Fauzi, A., Zamri, N. A. K., Rohana, N. A. M., & Rapa, A. A. (2022). Augmented Reality in Language Learning: Enhancing Student Engagement in a Third Language Subject. *International Journal of Academic Research in Business and Social Sciences*, 12(8). <https://doi.org/10.6007/ijarbss/v12-i8/14729>
- Sriram, B., & Sarayrih, M. A. (2016). An analytical study on user satisfaction on Wi-Fi services: A case study on Omani undergraduate environment. *Indian Journal of Science and Technology*, 9(9). <https://doi.org/10.17485/ijst/2016/v9i9/61902>
- Sulaiman, N., & Yaakub, C. Y. (2010). Investigation on QoS of Campus-wide WiFi Networks. *arXiv preprint arXiv:1004.4588*.
- Syahrial, E., & Ern, D. L. C. (2024) The Impact of Internet Applications on Student Satisfaction in Higher Education Institutions. *Proceedings of the International Conference on Industrial Engineering and Operations Management*. <https://doi.org/10.46254/AP05.20240313>
- Wan Mamat, W. H., Mohd Nazry, S. S., & Mohamad Shariff, N. (2022). Impact, Effectiveness and Satisfaction of E-Learning among Undergraduate Students During Pandemic Covid-19. *INTERNATIONAL JOURNAL OF CARE SCHOLARS*, 5(3), 12–20. <https://doi.org/10.31436/ijcs.v5i3.222>