

Students' Satisfaction with Teaching Equipment and Learning Facilities Among Diploma in Architectural Technology Students

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Abstract

This study evaluates the satisfaction level of Diploma in Architectural Technology students at Kolej Komuniti Sabak Bernam regarding the teaching equipment and facilities provided. A total of 36 students from Semester 2 and Semester 4 participated as respondents. The study adopted a quantitative approach, employing a questionnaire as the main instrument, with data analyzed descriptively using SPSS version 27.0. Findings indicate that students reported a high level of satisfaction, particularly with computers, design software, projectors, interactive devices, teaching aids, learning spaces, and the cleanliness of basic facilities. Nevertheless, areas requiring improvement include internet speed, student lounge and restroom facilities, as well as the provision of additional design software in BIM laboratories. In conclusion, the teaching equipment and facilities at Kolej Komuniti Sabak Bernam are generally satisfactory, but continuous improvement is essential to further enhance teaching and learning effectiveness.

Keywords: Community College; Facilities; Student satisfaction, Teaching equipment.

1.0 Introduction

Higher education institutions must enhance education quality through improved teaching materials, facilities, methods, and assessments, including classrooms, libraries, and student services (Ikram & Kenayathulla, 2023). When integrated, these elements positively influence students' learning experience. Higher education is also recognized as a key driver of socio-economic and technological development, with its quality directly linked to national performance (Tandilashvili, 2019). As the main recipients of institutional services, student satisfaction has become a critical concern that influences management practices and institutional priorities (Roslina, 2009).

Student satisfaction refers to the degree of contentment derived from learning experiences, influenced by teaching quality, facilities, and the learning environment. It arises when actual experiences meet or diverge from expectations (Oliver, 1980). High satisfaction enhances motivation, while dissatisfaction may lead to withdrawal and reduced achievement. Thus, service providers must strengthen quality to ensure positive outcomes (Hai, 2021). The quality and accessibility of classrooms, libraries, laboratories, and

staffrooms significantly influence academic performance (Kingsley, 2019). Furthermore, effective teaching services, functional facilities, and responsive management collectively determine the effectiveness of the overall student learning experience. The originality of this study lies in its focus on a specific academic program, Diploma in Architectural Technology, within a community college setting. Unlike previous studies conducted in larger institutions, this research provides localized insights that can serve as a reference model for other community colleges offering technical and design-based programs. Developing and maintaining physical assets such as classrooms, laboratories, libraries, and hostels is costly and complex, requiring attention to quality, safety, and sustainability (Musa & Ahmad@Baharum, 2012).

At Kolej Komuniti Sabak Bernam, facilities like design studios and BIM laboratories are provided to support the Diploma in Architectural Technology program. However, despite the availability of facilities, there is limited empirical evidence that evaluates the actual satisfaction level of students with teaching and learning facilities at community colleges in Malaysia, particularly in architectural programs. Most previous studies focused on polytechnics or universities, leaving a research gap in understanding how these factors influence student experience in the community college context. However, the extent of student satisfaction with these facilities must be assessed. Accordingly, this study aims to (i) identify the satisfaction level of students with teaching equipment and teaching aids, and (ii) evaluate satisfaction with physical facilities, basic amenities, and technological infrastructure.

This study is important for institutional management as it provides evidence-based insights into how students perceive the adequacy and quality of teaching equipment and facilities. The findings can assist the college administration and policymakers within the Jabatan Pendidikan Politeknik dan Kolej Komuniti (JPPKK) in prioritizing budget allocations, upgrading technological infrastructure, and developing facility maintenance policies that align with student needs. The originality of this study lies in its focus on a specific academic program, Diploma in Architectural Technology, within a community college setting. Unlike previous studies conducted in larger institutions, this research provides localized insights that can serve as a reference model for other community colleges offering technical and design-based programs. The outcomes are expected to highlight strengths and weaknesses, guiding improvement efforts and contributing to a more conducive learning environment at Kolej Komuniti Sabak Bernam.

2.0 Methodology

This chapter describes the methodology applied in conducting the study. It outlines the research design, sampling and data collection, as well as the instrument used to measure the level of student satisfaction with teaching equipment and learning facilities at Kolej Komuniti Sabak Bernam. This study adopts a quantitative research design as it focuses on measuring the level of student satisfaction using numerical data. The quantitative approach enables

the researcher to analyze the findings through descriptive statistical analysis, which illustrates the extent of student satisfaction across several dimensions. A survey method was employed using structured questionnaires as the primary research instrument. This method was chosen because it allows for systematic data collection within a limited timeframe and provides a practical way to quantify perceptions among a clearly defined population. The design also ensures consistency and replicability, allowing the results to be generalized within the context of the studied program. The quantitative approach is particularly appropriate for institutional satisfaction studies, as it enables the measurement of trends, comparisons across facility categories, and identification of priority areas for improvement. By translating perceptions into measurable indicators, this method supports evidence-based decision-making for management and policy development at the institutional level. In addition, the analytical process emphasized descriptive statistics, including frequency, percentage, and mean score analysis, to determine the satisfaction level of students for each variable.

The population of this study comprised students enrolled in the Diploma in Architectural Technology program at Kolej Komuniti Sabak Bernam. As the total number of students in this program during Session II 2024/2025 was relatively small, a census sampling technique was adopted, in which all students were selected as respondents. This approach ensured complete representation of the study population and avoided sampling bias. A total of 36 students participated, representing 100 percent of the program's population. The respondents consisted of students from two cohorts — Semester 2 and Semester 4 — thus reflecting diverse learning experiences within the program. Data were collected through an online questionnaire (Google Form), distributed directly to students. Participants were given sufficient time to respond voluntarily and anonymously to encourage honest and unbiased answers. This method also increased accessibility and minimized data entry errors.

The main instrument used in this study was a structured questionnaire developed by the researchers based on previous literature and adapted to the context of community college facilities. The instrument was designed to measure students' satisfaction with teaching equipment and learning facilities provided at Kolej Komuniti Sabak Bernam. To ensure content validity and reliability, the questionnaire underwent expert validation by three academic professionals specializing in architecture education and research methodology. A pilot test was also conducted among ten students from a different cohort, and the instrument achieved a Cronbach's alpha value of 0.89, indicating strong internal consistency. The questionnaire comprised four sections:

- i. Section A: Respondents' demographic information
- ii. Section B: Satisfaction with teaching equipment and teaching aids
- iii. Section C: Satisfaction with physical, basic, and technological facilities
- iv. Section D: Open-ended suggestions for improvement

Each item in Sections B and C used a five-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*), allowing quantitative measurement of satisfaction levels. The open-ended section (Section D) provided qualitative insights that supported the quantitative results, offering a more holistic understanding of students' perceptions.

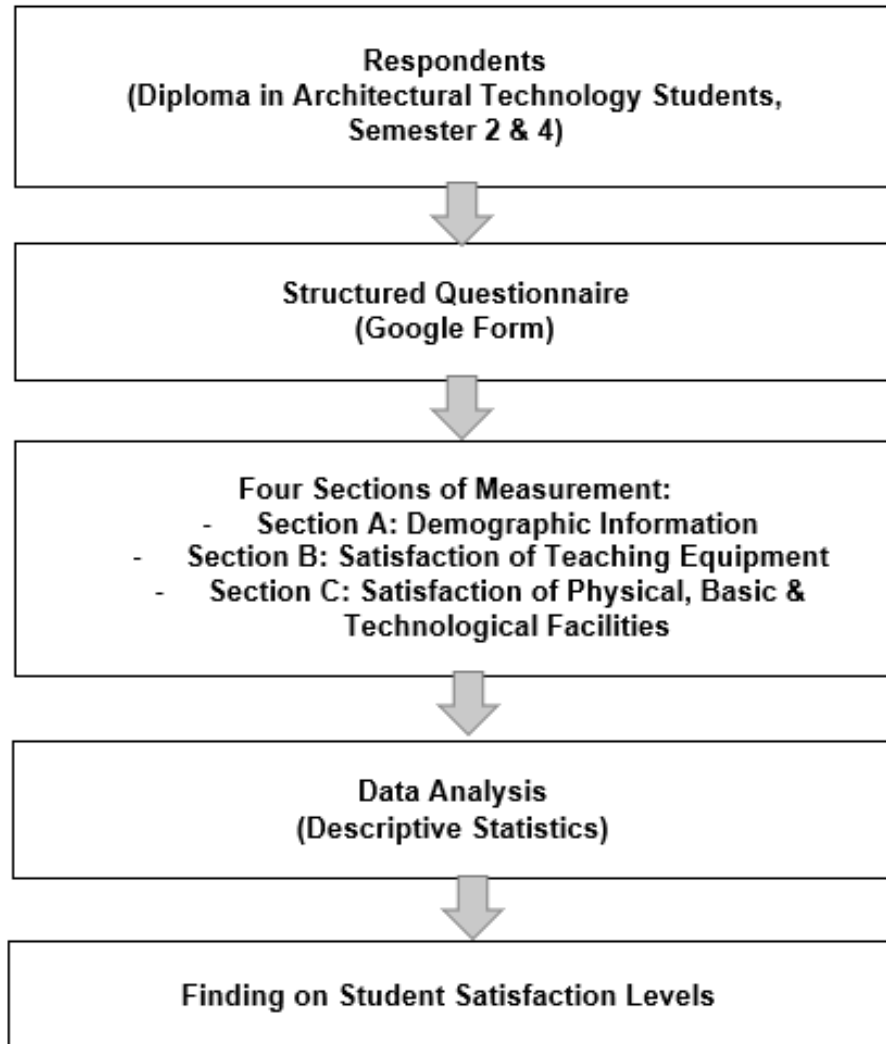


Figure 1: Conceptual Framework of Questionnaire Method

As indicated in Table 1 below, a Likert scale was used to produce this questionnaire. It has five ordinal ratings of agreement with each item, ranging from 1 to 5.

Table 1: Likert's Scale

Significant	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Number	1	2	3	4	5

3.0 Result and Discussion

The data collected were analysed using SPSS software. The analysis was carried out using simple descriptive analysis such as percentage, frequency, and mean score. To answer the research questions, the researcher applied the Level Determination based on Mean Score as shown in Table 2 below.

Table 2 : Level Determination Based on Mean Score
(Nunnally & Bernstein, 1994)

Mean Range	Interpretation of Mean Score
1.00 – 2.00	Low
2.01 – 3.00	Moderately Low
3.01 – 4.00	Moderately High
4.01 – 5.00	High

Source: (Noor & Abdullah, 2020)

3.1 Section A: Respondents' Demographic Information

There are three instruments in this section, which aim to obtain the background of respondents, including gender, age, and class for Semester II 2024/2025. A total of 36 respondents participated in this survey. Figure 2 shows the demographic distribution of respondents according to gender, indicating that the majority of participants were male (69.4%), while female students accounted for 30.6% of the sample. This gender disparity corresponds with overall enrolment trends in architecture-related fields, where male involvement is frequently greater because of the discipline's technical and practical aspects (Kingsley, 2019). The even allocation of students in Semester 2 (47.2%) and Semester 4 (52.8%) enhances the credibility of the results, showcasing the experiences of both novice and experienced learners. From a critical perspective, the demographic makeup might affect views on satisfaction; for instance, male learners might emphasize functionality and the performance of equipment, whereas female learners could prioritize comfort and accessibility in educational settings (Ikram & Kenayathulla, 2023). Thus, demographic diversity offers a crucial perspective for comprehensively interpreting satisfaction outcomes, and future studies may investigate whether satisfaction rates vary by gender or semester level using inferential analysis to enhance comprehension of user experience trends.

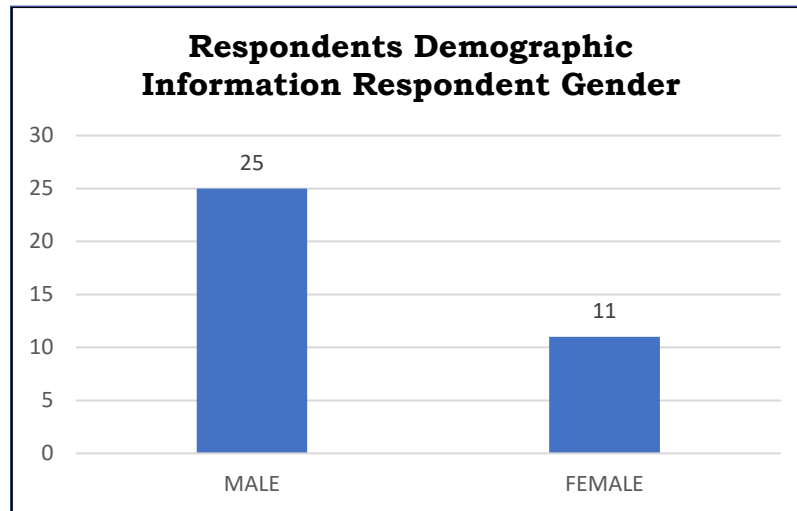


Figure 2: Respondents Gender for Demographic Information

Figure 3 shows the demographic distribution of respondents by class. The results show that there were 17 respondents (47.2%) from Semester 2 and 19 respondents (52.8%) from Semester 4. This indicates that the data collection involved almost the same number of respondents from both classes.

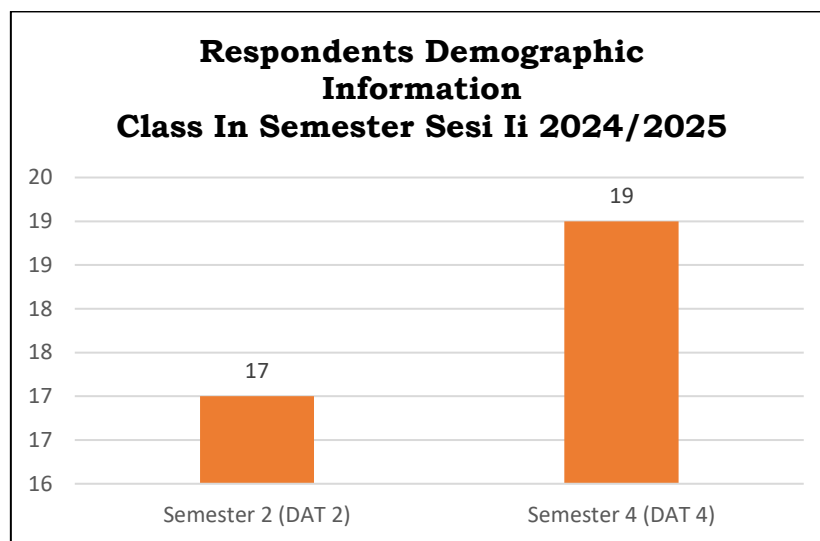


Figure 3: Class Involved for Demographic Information

3.2 Section B: Student Satisfaction with Teaching Equipment and Teaching Aids

Section B consists of 12 items designed to identify the satisfaction level of Diploma in Architectural Technology students with teaching equipment and teaching aids at Kolej Komuniti Sabak Bernam. The results from summary Section B, show that students at KKSB demonstrate a high level of satisfaction with teaching equipment and instructional aids, particularly in relation to digital learning resources and platforms. Tools such as Google Classroom, YouTube, structured learning modules, and multimedia resources received overwhelmingly positive responses, reflecting the institution's strong

digital learning environment. This finding shows a partial agreement with (Calvin Zakaria Swai et al., 2022), who reported positive student perceptions of educational facilities. However, unlike their study, which recorded lower satisfaction with ICT access, the present study revealed very high satisfaction with digital and online tools, suggesting that KKSB has achieved significant progress in integrating technology into teaching and learning.

Nevertheless, the findings also reveal a notable decline in satisfaction with physical learning equipment such as drawing tool kits and model-making tools, which received comparatively lower ratings. This result supports the findings of Aishah et al. (2020), who found that limited access to physical resources in community colleges can restrict the development of essential hands-on skills among students. Similarly, Ikram and Kenayathulla (2023) highlighted that inconsistent maintenance and availability of physical facilities directly influence students' satisfaction levels. Thus, while KKSB has successfully embraced digitalisation, the results suggest a need to simultaneously strengthen traditional, manual learning resources that support practical and design-based learning. To address this imbalance, it is recommended that KKSB implement a structured maintenance system and an equitable resource distribution policy to ensure continuous access to both digital and physical learning tools. Achieving this balance is crucial to nurture well-rounded graduates who possess both technological proficiency and practical craftsmanship in architecture and design education (Calvin Zakaria Swai et al., 2022).

The overall findings from Table 3 and Figure 4 for Section B conclude that the students are generally very satisfied with teaching equipment and aids, especially in terms of digital platforms, software, and structured modules. The highest satisfaction is with Google Classroom/YouTube (72.2% strongly agree), while the lowest satisfaction is seen in drawing tool sets (36.1% strongly agree), indicating areas for further improvement.

Table 3: Summary for Section B: Student Satisfaction with Teaching Equipment and Teaching Aids

Item	Statement	Strongly Agree & Agree (%)	Neutral/ Disagree (%)	Conclusion
B1	Computers with design software	97.2	2.8	Majority strongly agree, facilities are well provided.
B2	Projectors & interactive display systems	97.3	2.8	High satisfaction, showing good condition and usability.
B3	Graphic tablets / touch screens	88.9	11.1	High satisfaction, but some see limited provision.

B4	Drafting tables	88.9	11.2	Well provided, though a few students disagree.
B5	Drawing tool sets	69.4	30.6	Mixed responses, showing room for improvement.
B6	Model-making tools	77.8	22.2	Good satisfaction, but some students feel less supported.
B7	Demonstration/simulation tools	86.1	13.9	Mostly positive, majority agree tools meet learning needs.
B8	Clear & up-to-date notes	97.2	2.8	Very high satisfaction with lecturer notes.
B9	Structured learning modules	100	0	Excellent satisfaction, modules well structured.
B10	Digital resources (videos, simulations)	100	0	High satisfaction, resources effectively provided.
B11	Google Classroom / YouTube	100	0	Excellent support, widely appreciated by students.
B12	Reference sources available	97.2	2.8	Strong satisfaction, resources are accessible.

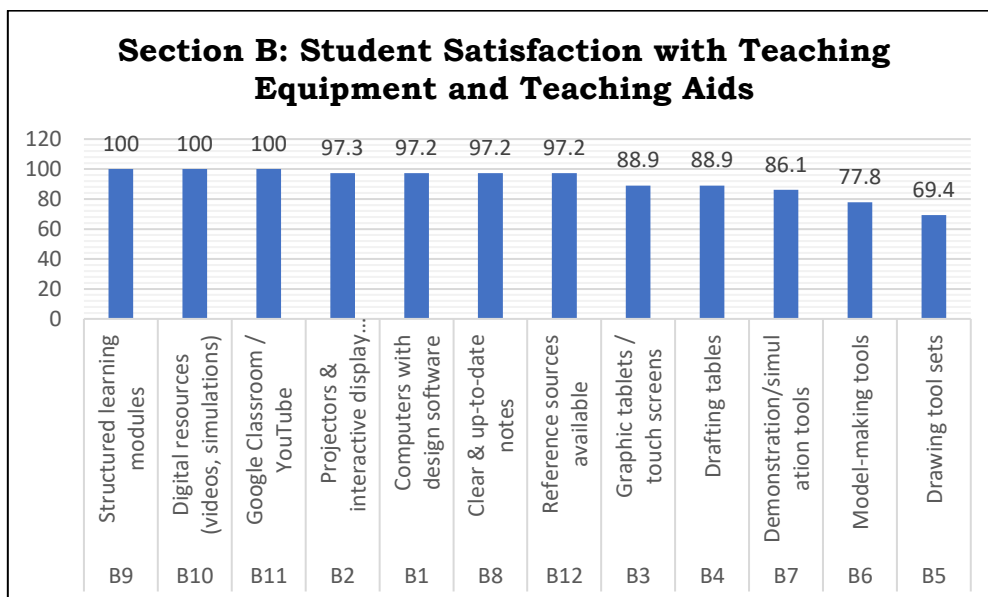


Figure 4: Finding Section B for Student Satisfaction with Teaching Equipment and Teaching Aids

3.3 Section C: Student Satisfaction with Physical Facilities, Basic Facilities, and Technological Facilities

Section C consists of 15 items aimed at identifying the level of satisfaction among Diploma in Architectural Technology students with physical facilities, basic facilities, and technological facilities provided at Kolej Komuniti Sabak Bernam. According to the results in Section C, the assessment of physical, basic, and technological facilities indicated that students demonstrated a high level of satisfaction with design studios, laboratories, and overall cleanliness, reflecting effective infrastructure management. This finding aligns with Kingsley (2019), who stated that supportive and well-organized learning environments enhance students' concentration and academic achievement. As illustrated in Figure 5, Design Studios and Labs, Facilities Toilets, and the Learning Space – BIM Lab achieved the highest satisfaction ratings (100%), highlighting their excellent functionality and maintenance. Similarly, facilities such as 3D Printers/Scanners/Plotters, Communication Apps (WhatsApp/Telegram), Learning Platforms (Google Classroom/Drive), and the Library scored 97%, showing that modern technologies and digital learning tools effectively support students' academic needs.

However, lower satisfaction levels were reported for student lounges, prayer areas, and Wi-Fi speed (ranging between 72% and 86%), indicating persistent disparities between academic and non-academic resources. The issue of unreliable internet connectivity reinforces Hai's (2021) conclusion that inadequate digital infrastructure negatively impacts higher education quality, particularly in technology-dependent fields like architecture. As reliance on cloud-based design platforms increases, poor connectivity can interrupt learning continuity and reduce satisfaction even when other facilities are sufficient. Moreover, the presence of BIM labs and 3D printing resources reflects the institution's alignment with Tandilashvili (2019), who emphasized the importance of higher education in developing technological skills. Nonetheless, variations in satisfaction between physical and digital facilities suggest uneven prioritization in resource management, consistent with Musa and Ahmad@Baharum (2012), who argued that sustainable educational resources require balanced investment, continuous maintenance, and user-centered management. Overall, KKSB's success in maintaining functional and modern academic environments demonstrates institutional commitment, but greater focus on comfort and connectivity would further improve student satisfaction. Incorporating Total Facilities Management (TFM) principles could ensure that both academic and welfare facilities evolve cohesively to meet students' comprehensive needs.

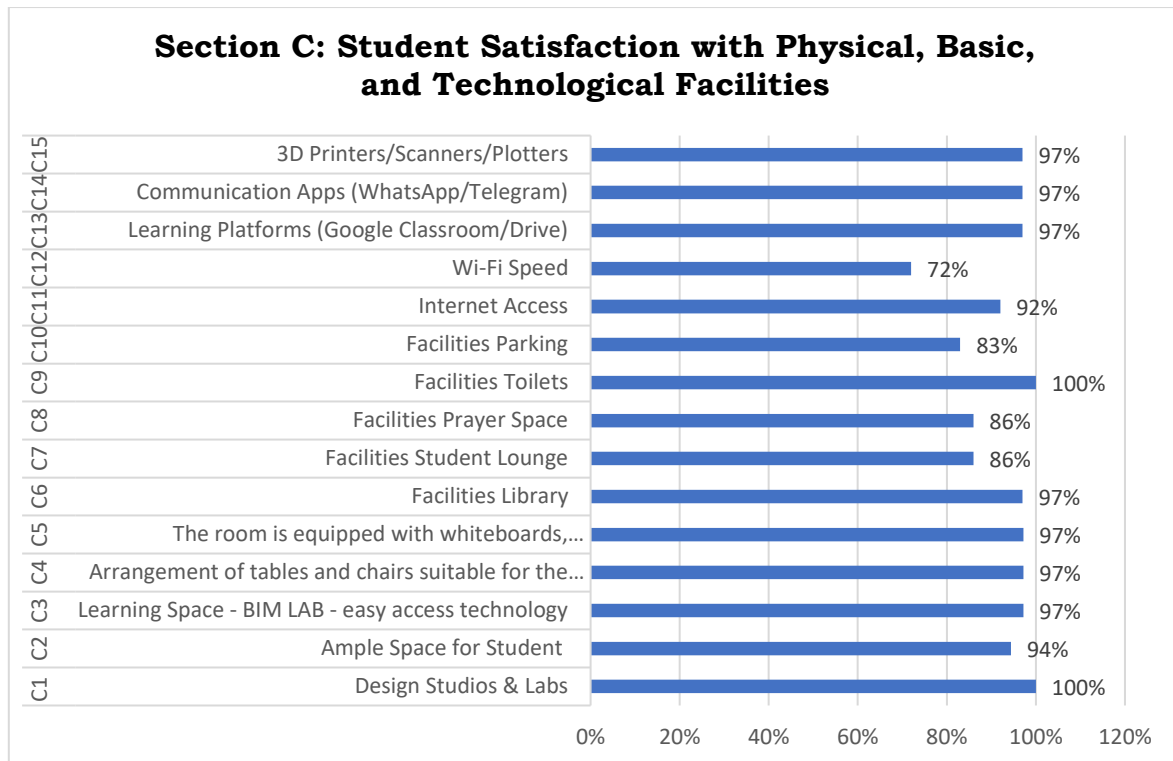


Figure 5: Summary of Section C: Student Satisfaction with Physical, Basic, and Technological Facilities

Section D gathered qualitative feedback from 36 students regarding improvements to teaching equipment and facilities in the Diploma in Architectural Technology Unit at Kolej Komuniti Sabak Bernam (KKSBB). Overall, students expressed satisfaction with the existing facilities, describing them as generally functional and supportive of learning. However, several recurring concerns were highlighted. These include slow Wi-Fi connectivity, insufficient internet reliability, requests for the installation of Lumion software in the BIM Lab, and suggestions to enhance comfort in student lounges and rest areas. These responses indicate that while the college has provided adequate academic resources, students still face limitations related to digital accessibility and facility management. This aligns with Oliver's (1980) Expectancy-Disconfirmation Theory, which emphasizes that satisfaction decreases when actual experiences fall short of expectations.

Similarly, the findings resonate with Ikram and Kenayathulla (2023), who emphasized that improving student satisfaction in higher education institutions requires systematic enhancement of teaching materials, equipment quality, and learning facilities. They argue that these quality indicators directly influence student engagement and learning outcomes, and institutions must continuously improve infrastructure and instructional support to meet evolving academic needs. In this context, the students' calls for upgraded software, better-maintained equipment, and improved digital infrastructure suggest a desire for a learning environment that keeps pace with professional standards in architecture education. This is consistent with

the view that higher education institutions should align their facilities with global education quality indicators, as recommended by UNESCO, to ensure a comprehensive and competitive learning experience. In conclusion, while KKSB demonstrates a strong foundation in academic infrastructure, addressing gaps in internet performance, software availability, and facility comfort would significantly enhance student satisfaction. Prioritising these improvements would support better learning outcomes, encourage practical skill development, and reinforce the institution's commitment to providing high-quality architectural education.

4.0 Conclusion

The results of this study indicated that students enrolled in the Diploma in Architectural Technology program at KKSB were generally satisfied with the teaching tools and facilities provided. High satisfaction was recorded for computers equipped with design software, structured learning modules, BIM laboratories, and advanced technologies such as 3D printers. These findings are consistent with Ikram and Kenayathulla (2023), who reported that improved educational quality is closely associated with the enhancement of teaching facilities and resources, and with Ali (2018), who emphasized that adequate teaching tools enhance instructional effectiveness and lead to better learning outcomes. However, several aspects, including internet accessibility, student lounges, restrooms, and the availability of specialized design software, were identified as areas for improvement. This aligns with Kingsley (2019), who noted that the quality and suitability of physical facilities influence student satisfaction, and with Roslina (2009), who highlighted that satisfaction is crucial in shaping institutional priorities. The observed dissatisfaction also supports Oliver's (1980) expectancy-disconfirmation theory, which explains that dissatisfaction arises when actual experiences fall short of expectations.

Furthermore, the findings correspond with Musa and Ahmad@Baharum (2012), who asserted that maintaining higher education facilities is both costly and essential, and with Hai (2021), who emphasized that effective management of educational facilities ensures smooth academic operations. Extending the work of Faiz et al. (n.d.), this study highlights that often-overlooked elements such as the comfort of student lounges and restrooms can significantly influence overall satisfaction. In conclusion, while modern technology and teaching tools have effectively met students' learning needs, continuous investment and maintenance of essential facilities remain vital. The results affirm the interconnection between technological infrastructure, physical environment, and institutional management in shaping student satisfaction, and future research could expand this study to other community colleges to provide comparative insights into facilities management and student experience in higher education.

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Author Contributions

S. L. Khusnin: Conceptualization, Methodology, Data Collection, Writing - Original Draft Preparation; **N. Masud:** Data Curation, Validation, Supervision, Review & Editing.

Conflict Of Interest

The manuscript has not been published elsewhere and is not under consideration by other journals. All authors have approved the review, agree with its Submission and declare no conflict of interest in the manuscript.

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