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The Satisfaction Level of UniMAP Rental Bus Services among Faculty of Civil Engineering and Technology Students from Various Perspectives

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Abstract

This paper analyze the level of satisfaction of Faculty of Civil Engineering and Technology (FKTA) students with the UniMAP bus services on various perspective and explore and understand the management methods of UniMAP transportation, focusing on identifying strengths, weaknesses, and areas for improvement and identify the problems that students are facing and suggestions to be present to the University management to further improve efficiency in the transport management system. A questionnaire was used to collect data on student satisfaction, analyzed using SPSS. Additionally, interviews with rental bus service management provided insights into routes, costs, and services as a support for more understanding on UniMAP Transportation Unit. The findings indicate that while students are partially satisfied with punctuality, safety, and facilities, they are dissatisfied with delays and overcrowding. Recommendations include rescheduling bus timings, improving bus stop facilities, increasing comfort at bus stops, prioritizing safety, and implementing a more effective communication and reporting system. This will ensure a more reliable and satisfying experience for all students.

Keywords: Satisfaction, Bus transportation, Various perspectives, Students

1.0 INTRODUCTION

Faculty of Civil Engineering & Technology, University Malaysia Perlis is located at Jejawi, Perlis and the faculty students are accommodating at university hostel (Tan Sri Aishah Ghani Residential College Wang Ulu) which is located 21 kilometers away from the faculty. The university has provided rented chartered bus service as the main transport system to take students from their accommodation to their respective faculties according to the set timetable that operates. The primary goal of renting buses is to ensure that students can be at class on time. Although the administration has made great efforts to meet student expectations.

User perceptions of bus service quality are influenced by several key elements, as highlighted by elements include Bus Stops, Bus Services, Driver Attitude, Bus Capacity, and Vehicle Condition (Sonita et al., 2020a). Using confirmatory factor analysis, provided a comprehensive framework for assessing user satisfaction with bus services (Sonita et al., 2020b). Additionally, this study draws inspiration from the categories of attributes proposed (Minhans et al., 2015) Incorporates the six performance characteristics identified by namely safety, vehicle condition and cleanliness, comfort, reliability and convenience, information availability, and acceptable travel charges. These factors collectively impact user perceptions of service quality (Deb & Ahmed, 2019).

The evaluation of city bus services is further enriched by examines aspects such as schedule availability, ease of ticket purchasing, timetable accuracy, driver attitude, vehicle condition, bus capacity, and responsiveness (Losel, 2021) Furthermore, research underscores the importance of delivering competent service quality, emphasizing automobile cleanliness and tidiness, responsive services, and punctuality, all of which should be accompanied by driver skill development (Pasharibu et al., 2018). These comprehensive insights provide a robust basis for understanding and enhancing consumer satisfaction in the context of bus transportation services.

Despite the comprehensive framework for assessing bus service quality, practical issues persist that affect user satisfaction. FKTA students at UniMAP have expressed disappointment with the new bus schedule, frequent delays that cause them to be late for classes. Additionally, students are dissatisfied with the facilities provided by the UniMAP transport department. Many of these facilities are either damaged or fail to meet the comfort needs of users, further exacerbating their dissatisfaction with the overall bus service quality.

This study aims to analyze the level of satisfaction of FKTA students with UniMAP bus services from various perspectives, including bus, punctuality, cleanliness, driver's behavior, safety, bus facilities including bus stops, and management responsiveness. Standard bus stops are important for a safe and comfortable bus stop which is involved in students' satisfaction (Chee et al., 2021). Building bus stops

that prioritize bus patron convenience, safety, accessibility to sites, safe and efficient transit operations, and traffic flow. It also seeks to explore and understand the management methods of UniMAP transportation by conducting a detailed review of the current policies and procedures, identifying strengths, pinpointing weaknesses, and suggesting potential improvements based on best practices and student feedback. Furthermore, the study aims to identify specific problems faced by students and provide actionable suggestions to the University management to enhance the efficiency of the transport management system, ultimately improving the overall user experience.

■2.0 LITERATURE REVIEW

In most Indian cities, city buses are the main form of public transportation, but dissatisfaction with the service has led to a decline in passenger numbers. To assess the quality of the bus service, a questionnaire survey was conducted to gather user perceptions of current and expected service quality. Data from the survey were analyzed using factor analysis, path analysis, and regression analysis to identify factors influencing user perceptions. It was found that a mismatch between current and expected quality leads to dissatisfaction. Six performance indicators influence users' perceptions of service quality: safety, vehicle condition and hygiene, comfort, reliability and convenience, information availability, and affordable travel charges. Users are particularly dissatisfied with the bus service's safety, comfort, vehicle condition and hygiene, reliability and convenience, and information availability. The analysis also shows that as wealth and age increase, consumers prioritize safety, comfort, and vehicle condition and hygiene over travel costs (Deb et al., 2022).

The public transit industry faces several major challenges, and public transport providers must adapt to changing mobility demands and customer perceptions to maintain profitability. This research focuses on analyzing consumer satisfaction with bus services in three locations of Johor Bahru, Malaysia. A total of 225 samples were evaluated to determine satisfaction levels based on seven primary features across three income categories. Passengers provided qualitative feedback on their satisfaction with the bus service, which was assessed based on seven qualities: reliability, transit service and amenities, bus pricing, bus features, behavior, information, and appropriateness. Table 1 lists the 7 qualities and 25 sub-attributes used to assess passenger opinions of bus service quality.

Table 1 Categories of attributes used for the study

Categories of attributes	Sub-attributes
Reliability	— Hours of operation in a day
	— Frequency of bus operation
	— Availability of buses to cater peak-hour demand
	— Punctuality of buses
Transit Service & Facilities	— Bus network coverage
	— Location of the bus stop
	— Number of bus halts made
	— Appearance of the bus stops
	— Weather protection at bus stops
Bus Fare	— Appropriate fare structures
	— Appropriate bus fares
	— Fare collection types
Bus Characteristics	— Inside neatness of buses
	— Bus condition and appearance
	— Bus air conditioning system
	— Bus seat comfort
	— Available space for luggage
Conduct	— Driver's conduct
	— Co-passengers conduct
Information	— Availability of the bus /time table
	— Provision of time table at each stop
	— Notification of bus route/fare changes
	— Information provided on buses
Suitability	— Suitability of bus to education status
	— Suitability of bus to income status

(Source: Sani et al., 2020; Esmailpour et al., 2020)

Researchers collected and examined feedback on bus service quality perceptions and satisfaction levels. SPSS statistical software was used to analyze differences in customer satisfaction levels with bus quality indicators among groups. Passengers' conflicts and agreements were reviewed to assess service quality. The study found that users are dissatisfied with the timeliness of bus service and the operators' failure to present a tentative plan for operations. Public transport passengers were happy with the number of operating days and available bus facilities. The study found that the operators' reliability does not align with passenger expectations (Minhans et al., 2015).

The quality of public transportation remains a global concern for governments and transportation stakeholders. This study addresses this issue by identifying key factors that influence customers' perceptions of bus service quality in Phnom Penh City. Researchers measured bus riders' impressions through questionnaire surveys, analyzing the data using factor analysis. Exploratory factor analysis (EFA) examined twenty-four quality criteria, leading to the identification of five major elements affecting user perceptions: Bus Stops, Bus

Services, Driver Attitude, Bus Capacity, and Vehicle Condition. Confirmatory factor analysis (CFA) was used to validate the factor structure, with high factor loadings indicating a strong positive influence on city bus service quality. The study's findings will help authorities and stakeholders understand and address the underlying issues, ultimately improving city bus service quality (Sonita et al., 2020a).

■3.0 PROBLEM STATEMENT

FKTA students are disappointing with new bus schedule of experiencing delay to the classes. Students are also unhappy with the facilities provided by the UniMAP transport department, since some of them are damaged or do not meet the comfort needs of users. Response to the new bus schedule should be in the most priority list of UniMAP managements. The bus stops are also a significant aspect of total bus service, as we can see at certain campuses such as Muhibah and Ikom, which do not have safe and comfortable bus stops, but on the other campus, there are good-condition bus stops at Pauh, Dragon, and Kubang Gajah (Chee *et al*., 2021).

Although the administration has made great efforts to meet student expectations, FKTA students are disappointed with new bus schedule of experiencing delays to the classes. Students are also unhappy with the facilities provided by the UniMAP transport department, since some of them are damaged or do not meet the comfort needs of users. On the other side, the buses to Kangar on weekdays have been discontinued as of the new semester 2023/2024 and only trips are provided on weekends. Due to economic constraints and an increase in the number of students allocated to the Pauh campus, Distance and travel duration of a bus trip have risen, bus travel from university to hostel is becoming limited. UniMAP is struggling with a shortage of funds to rent out more buses. On behalf of the UniMAP bus management the Student Representative Council (MPP) has conduct the survey via online form to measure the efficient of bus movement on early of semester (Sani et al., 2020). Therefore, improvements and suggestions regarding bus routes and response to the new bus schedule should be in the most priority list of UniMAP managements. The bus stops are also a significant aspect of total bus service, as we can see at certain campuses such as Muhibah and Ikom, which do not have safe and comfortable bus stops, but on the other campus, there are good-condition bus stops at Pauh, Dragon, and Kubang Gajah. Therefore, conducted a study on FKTA students' satisfaction and opinions through a questionnaire and understanding the UniMAP bus management approach through an interview to management personnel and present the student satisfaction levels, dissatisfaction factors, and steps to resolve the problems that FKTA students are experiencing.

■4.0 METHODOLOGY

4.1 Research Flow

The flowchart showing flow of research work is as depicted in Figure 1. Preparation of questioner, method of distribution and data analysis are discussed in the following sections. This case study adopts a mixed-methods approach, combining qualitative and quantitative research methodologies.

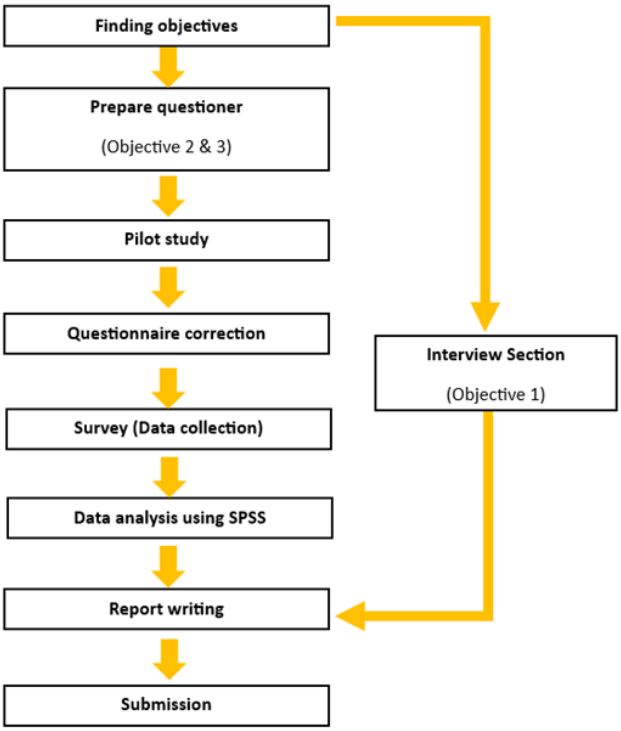

Figure 1 Research Methodology Flow Chart
(Source: Author's own work)

4.2 Questionnaire and Data Collection

A questionnaire prepared used Google Form. Based on Krejcie and Morgan table for 965 FKTA student population the significate sample size is 276 students, for this study overall 321 students have responded. The number of questions 15 with four (3) sections, section a: demographic background of UniMAP student, section b: general questioned, section c: level of satisfaction on UniMAP bus, section d: Problems and suggestion. On the first section, about demographic questions such as gender, age, year and course. On second section, about the bus service and management satisfaction related questions with included 1 independent variable question with "yes" (satisfied) or "no" (not satisfied) and others dependent variable scale/range of 1 to 5 which the scale indicated, (1. Strongly disagree), (2. Disagree), (3. Neutra), (4. Agree), (5. Strongly agree). On the lasted section, there was any additional problems and suggestion from student. The questions would have been mainly consented on level of satisfaction, Safety, hygiene of the bus, behavior of the staff or driver, bus service/schedule, waited timed before or after class, availability of seats, speed range of the bus in etc.

Distribution of the surveyed at a number of bus stations, Dragon, Muhibah, Kubang Gajah, and around Wang Ulu residential area, also given a key chain to respondents as a complimentary gift to encourage students. In other side the code link has shared to several Whatsapp groups for the responses and shared their feedback and recommendations with us.

4.3 Interview Section

On the other side, the interview section was conducted with UniMAP transportation unit officer as supporting data. This helped us to study more details about bus management, the cause of unsatisfaction received from student side and the best realistic problem-solved suggestion for future from the discussion will be made. It brought more clarity to the study as well. An interview section will be arranged with Mr Irhamuddin. In interview section the question included the transportation arrangement and relations between IR-SAF and UniMAP authorities, stages or method of planning bus schedule for every year, expenses management, problems had faced and the step had been taken for fixed it to fulfil the student's requirements.

4.4 Data Analysis

The study utilized Google Forms, SPSS software, and Excel for data collection and analysis. Google Forms survey facilitated efficient sample size classification, ensuring that the survey data was correctly and successfully analyzed. For data analysis, SPSS was employed. Specifically, descriptive data analysis and one-way ANOVA were used in SPSS to examine means and standard deviations for each group, allowing for an understanding of score distributions and significant differences between groups. Additionally, suggestions from students and responses from interviews with management were documented in written form as a synopsis. This comprehensive approach ensured that both quantitative and qualitative data were effectively gathered and analyzed to provide meaningful insights.

■5.0 RESULTS AND DISCUSSION

5.1 Results

The research is based on 2 major types of finding which are by interview section and following headings are used to present the findings of questionnaire: demographic or personal information, satisfaction level of FKTA students with the UniMAP bus services on various satisfaction measure perspective scales and analysis on problem the students has experienced and upgrade expectations of students. The analysis was conducted by using SPSS Version 27.

5.2 Level of Satisfaction on UniMAP Bus

The data is analyzed by frequency percentage, descriptive statistics and ANOVA identify FKTA students' satisfaction with the UniMAP bus service significantly from perceptions of specific aspects such as punctuality, cleanliness, driver's behavior, safety, facilities, and management responsiveness.

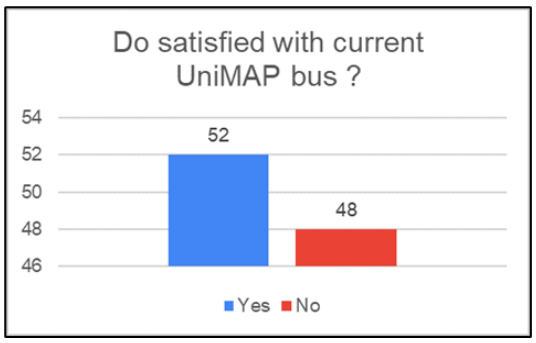

Figure 2 Students Satisfaction
(Source: Author's own work)

The study found that 52% of students are satisfied with the current UniMAP bus service, while 48% are not, indicating a nearly even split in satisfaction levels. To identify the areas causing dissatisfaction, a scale measurement was conducted on various aspects, including punctuality, cleanliness, driver behavior, safety, facilities, report and action management.

5.2.1 Punctuality

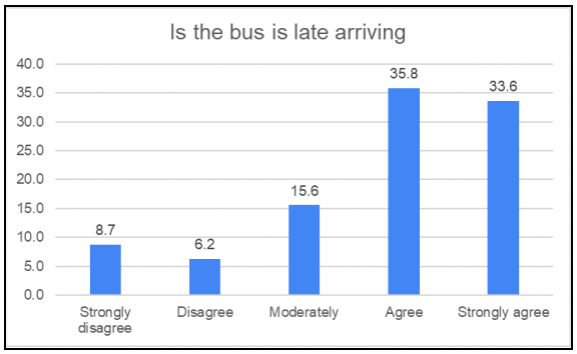

Figure 3 Level of Agreement on Bus Late Arrivals
(Source: Author's own work)

Table 2 Measurement Model Assessment

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
a. Punctuality	321	1	5	3.79	1.220
Valid N (listwise)	321				

(Source: Author's own work)

On first measure punctuality, for question "is the bus is late arriving" 8.7% of students are strongly disagree, 6.2% are disagree, 15.5 % of students are choose moderately, 35.8% agreed and 33.6% students are strongly agreed. A majority of students say the bus arrives late for class. It takes students from campus to the hostel. On subjective answers most students reported the bus is late by 5 to 15 minutes. Descriptive statistics reveal the mean is 3.79 which is greater than 3(moderately). The standard deviation is 1.220. This indicates the bus is not prompt and late as mentioned in the problem statement.

5.2.2 Cleanliness

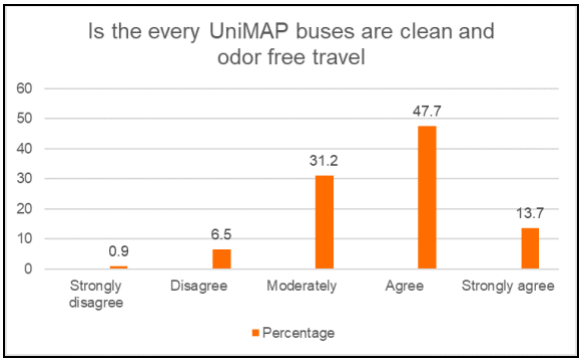

Figure 4 Level of Agreement on Bus Cleanliness and Odor-Free Condition
(Source: Author's own work)

Table 3 SPSS Descriptive Analysis of Cleanliness

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
b. Cleanliness [Is the every UniMAP buses are clean and odor free travel?]	321	1	5	3.67	.828
Valid N (listwise)	321				

(Source: Author's own work)

On second measure cleanliness, for question "is every UniMAP buses are clean and odor free travel" 0.9% of students are strongly disagree, 6.5% are disagree, 31.2 % of students are choose moderately, 47.7% students are agreed and 13.7% students are strongly agreed. Most students feel that the bus is clean and odor free. According to descriptive statistics, mean is 3.67. This is larger than 3 (moderately). The standard deviation equals 0.828. It demonstrates that students are happy with the hygiene of the UniMAP buses.

5.2.3 Driver/Supervisor's Behavior

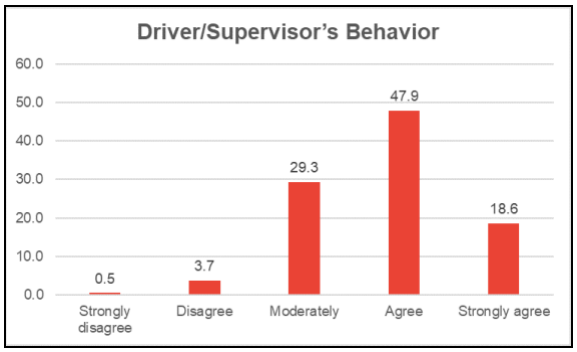

Figure 5 Level of Agreement on Driver/Supervisor Behavior
(Source: Author's own work)

Table 4 SPSS Descriptive Analysis of Driver/Supervisor's Behavior

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
c. Driver/Supervisor's Behavior [The drivers are friendly and polite to the students.]	321	1	5	3.73	.797
c. Driver/Supervisor's Behavior [The bus drivers are well attired.]	321	1	5	3.69	.812
c. Driver/Supervisor's Behavior [UniMAP bus drivers are following traffic rules.]	321	1	5	3.99	.752
Valid N (listwise)	321				

(Source: Author's own work)

On third measure driver/supervisor's behavior, contains 3 questions as "The drivers are friendly and polite to the students", "The bus drivers are well attired", and "UniMAP bus drivers are following traffic rules". The average response to three questions is 0.5% strongly disagreed, 3.7% disagreed, 29.3% chose moderately 47.9% agreed and 33.6% strongly agreed. The majority of students agreed. According to descriptive statistics, the mean is 3.73. 3.69 and 3.99 are also means which are larger than 3 (moderately). The standard deviations are 0.797, 0.812 and 0.752.

5.2.4 Safety

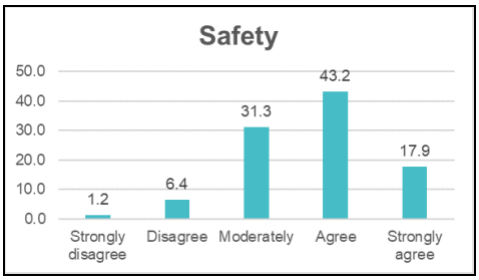

Figure 6 Level of Agreement on Safety
(Source: Author's own work)

Table 5 SPSS Descriptive Analysis of Driver/Supervisor's Behavior

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
d. Safety [Feeling safe while on the bus travel]	321	1	5	3.81	.833
d. Safety [Feeling safe while waiting for the bus at bus stop.]	321	1	5	3.75	.880
d. Safety [UniMAP bus completed with safety equipment (exm: fire extinguisher, stocked first aid kit, and reflective warning devices)]	321	1	5	3.54	.901
Valid N (listwise)	321				

(Source: Author's own work)

On fourth measure safety, includes 3 questions as "Feeling safe while on the bus travel", "Feeling safe while waiting for the bus at bus stop", and "UniMAP bus completed with safety equipment". The average response to three questions is 1.2% strongly disagreed, 6.4% disagree, 31.3% chose moderately 43.2% agree and 17.9% strongly agreed. According to descriptive statistics the mean is 3.81, 3.75 and 3.54 are likewise more than 3 (moderately). The standard deviations are 0.833, 0.880 and 0.901. This reveals that majority of students think that UniMAP bus service is safe to use. They feel comfortable not just on the bus but also when waiting at bus stops.

5.2.5 Facilities

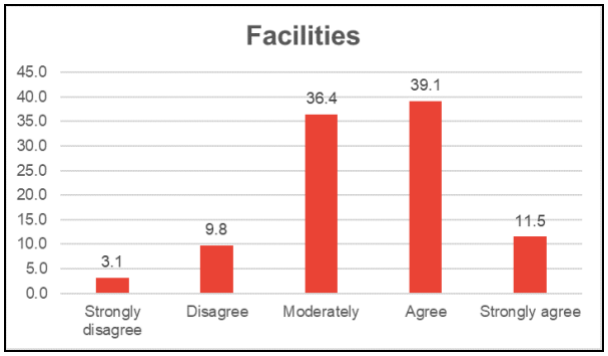

Figure 7 Level of Agreement on Facilities Provided
(Source: Author's own work)

Table 6 SPSS Descriptive Analysis of Facilities Provided

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
e. Facilities [Bus facilities are in good conditions to use. (exm : seat, air-Cond, window screen).]	321	1	5	3.44	.917
e. Facilities [Bus stops facilities are good enough to use.]	321	1	5	3.41	.945
e. Facilities [Would you encourage your friends to use UniMAP bus facilities?]	321	1	5	3.54	.921
Valid N (listwise)	321				

(Source: Author's own work)

On fifth part safety, includes 3 questions as “Bus facilities are in good conditions to use. “Bus stops facilities are good enough to use.”, and “Would you encourage your friends to use UniMAP bus facilities”. The average response to three questions is 3.1% strongly disagreed, 9.8% disagreed, 36.4% chose moderately 39.1% agreed and 11.5% strongly agreed. Most of the students choose moderately and agree. According to descriptive statistics, 3.44, 3.41 and 3.54 are all more than 3 (moderately). The standard deviations are 0.917, 0.945 and 0.921. This reveals that the UniMAP provides good enough facilities and in using conditions.

5.2.6 Management Responsiveness

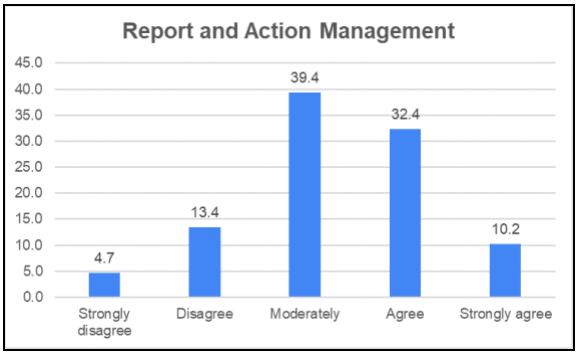

Figure 8 Level of Agreement on Management Responsiveness
(Source: Author’s own work)

Table 7 SPSS Descriptive Analysis of Management Responsiveness

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
f. Report and Action Management [Easy to access make report on any problems regarding bus service.]	321	1	5	3.30	.960
f. Report and Action Management [Easy to communicate or reach responsible person.]	321	1	5	3.44	.963
f. Report and Action Management [Management taking quick action.]	321	1	5	3.17	1.005
Valid N (listwise)	321				

(Source: Author’s own work)

On last measure management responsiveness, contains 3 questions as “Easy to access make report on any problems regarding bus service”, “Easy to communicate or reach responsible person” and “Management taking quick action”. The average response to three questions is 4.7% strongly disagreed, 13.4% disagreed, 39.4% chose moderately 32.4% agreed and 10.2% strongly agreed. The majority of students are selected moderately. According to descriptive statistics, the mean is 3.30, 3.44 and 3.17 are also means which are larger than 3 (moderately). The standard deviations are 0.960, 0.963 and 1.005. The data shows students are low satisfied or moderately on management responsiveness. It may be because students experience difficulties making reports if any problems occur or disappointment with management responses of action duration.

5.3 ANOVA Statistics

Table 8 One-Way ANOVA Analysis (SPSS)

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
a. Punctuality [is the bus is late arriving]	Between Groups	24.535	1	24.535	17.320	<.001
	Within Groups	451.895	319	1.417		
	Total	476.430	320			
b. Cleanliness [Is the every UniMAP buses are clean and odor free travel?]	Between Groups	8.876	1	8.876	13.453	<.001
	Within Groups	210.458	319	.660		
	Total	219.333	320			
c. Driver/Supervisor's Behavior [The drivers are friendly and polite to the students.]	Between Groups	6.186	1	6.186	10.004	.002
	Within Groups	197.235	319	.618		
	Total	203.421	320			
c. Driver/Supervisor's Behavior [The bus drivers are well attired.]	Between Groups	7.817	1	7.817	12.281	<.001
	Within Groups	203.031	319	.636		
	Total	210.847	320			
c. Driver/Supervisor's Behavior [UniMAP bus drivers are following traffic rules.]	Between Groups	1.392	1	1.392	2.473	.117
	Within Groups	179.580	319	.563		
	Total	180.972	320			
d. Safety [Feeling safe while on the bus travel]	Between Groups	5.639	1	5.639	8.313	.004
	Within Groups	216.386	319	.678		
	Total	222.025	320			
d. Safety [Feeling safe while waiting for the bus at bus stop.]	Between Groups	18.118	1	18.118	25.190	<.001
	Within Groups	229.440	319	.719		
	Total	247.558	320			
d. Safety [UniMAP bus completed with safety equipment (exm: fire extinguisher, stocked first aid kit, and reflective warning devices)]	Between Groups	10.495	1	10.495	13.431	<.001
	Within Groups	249.269	319	.781		
	Total	259.763	320			
e. Facilities [Bus facilities are in good conditions to use. (exm : seat, air-Cond, window screen).]	Between Groups	12.913	1	12.913	16.089	<.001
	Within Groups	256.027	319	.803		
	Total	268.941	320			
e. Facilities [Bus stops facilities are good enough to use.]	Between Groups	18.836	1	18.836	22.530	<.001
	Within Groups	266.703	319	.836		
	Total	285.539	320			
e. Facilities [Would you encourage your friends to use UniMAP bus facilities?]	Between Groups	33.074	1	33.074	44.217	<.001
	Within Groups	238.608	319	.748		
	Total	271.682	320			
f. Report and Action Management [Easy to access make report on any problems regarding bus service.]	Between Groups	37.177	1	37.177	46.019	<.001
	Within Groups	257.708	319	.808		
	Total	294.885	320			
f. Report and Action Management [Easy to communicate or reach responsible person.]	Between Groups	27.766	1	27.766	32.905	<.001
	Within Groups	269.175	319	.844		
	Total	296.941	320			
f. Report and Action Management [Management taking quick action.]	Between Groups	43.311	1	43.311	49.413	<.001
	Within Groups	279.605	319	.877		
	Total	322.916	320			

(Source: Author's own work)

Conducting a One-Way ANOVA analysis in SPSS to examine the level of satisfaction with UniMAP bus services involves assessing multiple dependent variables with independent variable of "satisfaction with the current UniMAP bus service" question by "yes" (satisfied) or "no" (not satisfied). These include Punctuality, Cleanliness, Driver/Supervisor's behavior, Safety and Facilities. Management responsiveness is also considered. Overall satisfaction with current UniMAP bus services serves as independent variable. The 14 questions associated with these dependent variables provide independent variable of student satisfaction.

In the analysis, the null hypothesis posits no significant differences among the group means for satisfaction levels. The alternative hypothesis suggests that at least one group's mean differs significantly from others. The alpha value or significance level is set at 0.05. This means that a p-value less than 0.05 will lead to rejecting the null hypothesis. It indicates that there is sufficient evidence to conclude significant differences among group means. Conversely a p-value greater than 0.05 means failing to reject the null hypothesis. This suggests insufficient evidence to assert significant differences in group means.

The results of the ANOVA show that all values are significant with p-values below 0.05, for 13 out of 14 questions. This implies there is enough evidence to conclude that at least one of the groups' means for these 13 aspects of satisfaction deviates significantly from others.

However, the question concerning whether "UniMAP bus drivers are following traffic rules" did not yield a significant p-value. This indicates insufficient evidence to assert that the satisfaction levels on traffic rule adherence differ significantly among groups.

It's important to understand that a non-significant result (p-value greater than 0.05) does not confirm that the null hypothesis is true. It merely indicates that there is not enough evidence to reject it. This is based on the sample data. This underscores the difference between "failing to reject the null hypothesis" and "accepting the null hypothesis." The former reflects the data's insufficiency in showing significant differences. The latter would be an incorrect inference implying proof of no difference.

5.4 Respondents' Experienced Problems in Using the UniMAP Bus

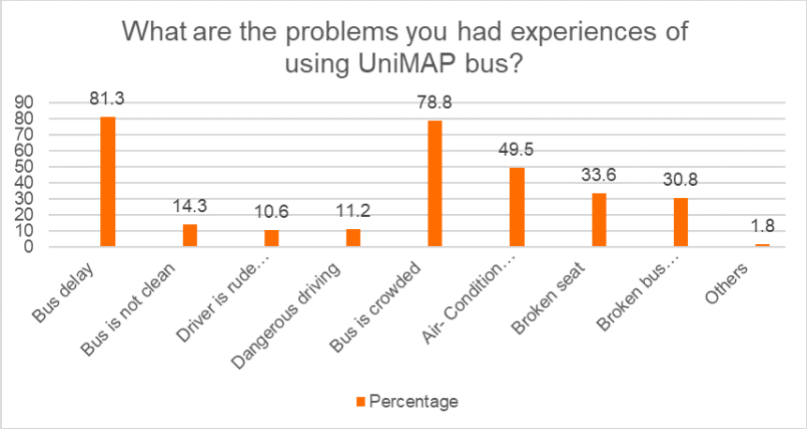

Figure 9 Problems Encountered in Using the UniMAP Bus
(Source: Author's own work)

FKTA students reveal that they are experiencing problems with current UniMAP bus service such as 81.3% of bus delay, 14.3% bus is not clean,10.6% driver is rude behavior, 11.2% dangerous driving, 78.8% bus is crowded., 49.5% air- condition problem, 33.6% broken seat, 30.8% broken bus holding handles and 1.8% other problems. Students mostly had issues with bus delays, bus crashes, air conditioning, broken seats and holding handles. On other problems students are not satisfied with bus stop facilities. Students generally complained about bus delays, crowding, air conditioning, damaged seats, and clutching handles. On other issues, students are dissatisfied with bus stop facilities.

5.5 Expected Improvements Influencing Respondents' Choice of the UniMAP Bus

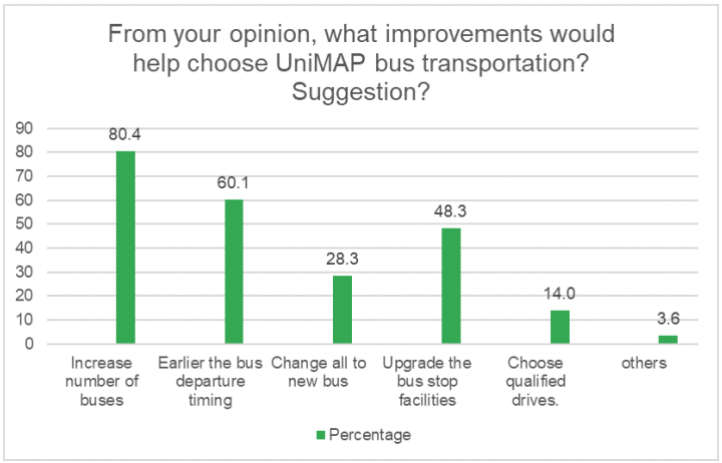

Figure 10 Students Suggestions
(Source: Author's own work)

FKTA students have some suggestions for improving the current UniMAP bus service. 80.4% increased number of buses, 60.1% Earlier the bus departure timing, 28.3% Change all to new bus, 48.3% Upgrade the bus stop facilities, 14% Choose qualified drivers and 3.6% gave other suggestions. Other recommendations from students include installing fans and sunshades at bus stops as well as creating a

suitable roof path to bus stops. Increase the number of trips to Kangar town on Friday and weekend nights and repair broken bus seats and holding handles.

5.6 Interview Analysis

Table 9 One-Way ANOVA Analysis (SPSS)

Category	Details	Analysis
Rental Buses	- Total: 43 rental buses	The distribution of buses reflects the varying demands of different campuses. Wang Ulu has the highest number due to more campuses.
	- Pauh Putera: 3 buses, 4 shuttle buses, 3 for outside trips	Pauh Putera's allocation seems limited given the outside trip requirements.
	- Wang Ulu: 15 buses	Adequate to cover the number of campuses.
	- Original spec: 40-seat coach bus, <10 years old	Ensures the buses are relatively modern and can accommodate a significant number of passengers.
	- Old buses used as standby	Provides a contingency plan for emergencies.
	- Shuttle buses may be used off-campus if necessary	Flexibility in shuttle bus usage can mitigate bus shortages.
Funding	- Ministry of Higher Education	Centralized funding supports the sustainability of bus services.
	- Student fees	Supplementary funding from students ensures continued operation.
	- GPS tracking devices installed	Enhances accountability and accurate billing.
	- Claims process: Ir-SAF submits claims, P3P reviews and authorizes payments	Structured process ensures proper allocation of resources and accountability.
Maintenance	- Ir-SAF covers maintenance and puspakom costs, painting based on UniMAP requirements	Comprehensive maintenance coverage ensures bus reliability and adherence to safety standards.
	- Ir-SAF covers tolls and driver's accommodation during tour visits	Additional costs are managed to ensure smooth operations during special trips.
Tender Process	- Open tender by the treasurer's department, contract lasts up to 3 years	Competitive tendering process ensures fair selection and quality service.
	- Tender preparation takes 1 year due to detailed nature	Thorough preparation indicates careful planning and selection criteria.
Issues & Reports	- Complaints about delayed buses and insufficient buses	Indicates significant areas for improvement in service reliability and capacity.
	- Students can contact hostel supervisors or use P3P/UniMAP portal for complaints	Multiple channels for complaints provide flexibility but may require better integration and responsiveness.
	- Difficulty in creating schedules to fit student class times and outside trip bookings	Scheduling complexity requires more dynamic solutions to better match student needs.
	- Financial constraints limit the number of buses available	Funding limitations highlight the need for efficient resource allocation and possibly additional funding sources.
	- Students report complaints with detailed information (date, time, route, bus number)	Structured reporting ensures actionable data but may need better follow-up processes.
	- Issues with student behavior in calls to P3P staff	Indicates a need for improved communication and possibly student engagement or education on the challenges faced.
	- Cmart or Kangar trips minimized to weekends, introduction of three new routes by Ir-SAF	Adjustments to services provide additional convenience but may require better communication to manage expectations.

(Source: Author's own work)

■6.0 CONCLUSION

The study aimed to evaluate the satisfaction levels of FKTA students with UniMAP bus services, focusing on punctuality, safety, cleanliness, driver behavior, condition of facilities, and ease of communication and management actions. The analysis revealed a mixed level of satisfaction among students. While students are partly satisfied with the bus timetable, frequent delays in pick-ups and drop-offs cause frustration and disruption. Integrated bus schedules and routes essentially focus more on these three regions and attempt to include them within the scope of the service that is intended to be provided by integrated buses. On the positive side, students are highly satisfied with the safety measures, driver behavior, and the general facilities provided, which are crucial for a safe and comfortable journey. Similarly, at Universiti Teknologi MARA, a study on students' satisfaction with campus bus service revealed most of the students are satisfied. However, satisfaction with the reporting system and management action is only partly fulfilled due to communication gaps between students and management. This indicates a need for improved communication and more responsive management practices. The exploration of UniMAP transportation management through interviews identified several strengths, such as efforts to meet student expectations within the allocated funds. However, weaknesses were also noted, particularly the limited financial resources. Key areas for improvement include enhancing fleet maintenance, implementing real-time tracking systems, and integrating mobile apps for better user accessibility and communication.

The third objective identified common problems faced by students, such as delays and bus crowding during peak hours, and the condition of bus facilities. Student suggestions for improvement include increasing the number of buses, replacing old buses, recruiting professional drivers, enhancing facilities, and adjusting timetables. While financial constraints limit the feasibility of some suggestions, improvements in driver skills, attitude, and minor facility upgrades can be achieved within current budgets. Focusing more on enhancing comfort-related aspects of bus services like ventilation, cleanliness of buses, and providing amenities may improve the bus service. To resolve the bus delay, drop off to the classes. The departure needs to be earlier than the departure and also have to be considered the students walking distance from bus stop to their classrooms, peak hours of traffic and the in between traffic lights. The Student Development and Transport Unit at UniMAP has extensive experience in managing bus services across various campuses. However, the constant changes in student distribution and numbers complicate their efforts. Decisions related to transportation that impact finances require top management approval to ensure alignment with available funds and institutional priorities. Balancing student needs with financial limitations is essential for effective and efficient management of UniMAP bus services. It's important to prioritize customer pleasure above service quality metrics, as the latter alone will not lead to increased loyalty of the user (Basir et al., 2015). Overall, addressing these findings comprehensively could significantly enhance the satisfaction levels and operational efficiency of UniMAP bus services, ensuring a more positive experience for FKTA students.

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Conflicts of Interest

The authors declare that there are no conflicts of interest related to the authorship or publication of this paper.

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