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Factors influencing technology acceptance for ubiquitous public transportation services in tourism

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ABSTRACT

This article discusses the factors that influence public transport users and the driver's intentions towards ubiquitous features for public transport services. This study used convenience sampling for selecting tourists and a purposive sample to select bus drivers, taxi drivers, and trishaw pullers in Melaka, Malaysia, a popular tourist destination. The users' dataset contains three main results: factors influencing users' use of public transportation services, levels of user satisfaction with existing public transportation services, and elements influencing how often people choose to use the suggested ubiquitous features for public transportation services. The drivers' dataset, on the other hand, is divided into two primary sections: variables influencing drivers in delivering public transportation services and factors influencing drivers' adoption of the suggested ubiquitous features for public transportation services. The analysis included descriptive statistics on factors influencing users and drivers in using public transportation services, levels of user satisfaction with existing public transportation services, and factors influencing users' and drivers' adoption of proposed ubiquitous features for public transportation services. The findings can be used to investigate the demand for on-time delivery from public transport services.

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1. INTRODUCTION

Transport is an important part of the global economy and society [1]. The increasing demand for mobility continues to be a major challenge, and this challenge is influenced by tourist mobility in the tourism sector [2]. As traffic volumes increase, so do safety and health concerns. Transportation activities harm the environment, with carbon dioxide emissions now having a real impact on climate change. Meeting transportation challenges [3]–[5] necessitates radical solutions, emphasising the critical role of research. Transportation plays an important role in the daily lives of global citizens.

The transport industries are central to the economy, supporting competitiveness and employment. Indirectly, a successful public transportation system will decrease private vehicles and related problems, such as high accident rates, traffic congestion, and air pollution [6], while simultaneously increasing the number of people who use public transportation. Due to greenhouse gas emissions, an inefficient public transportation system will have an impact on both the economy and the environment. Because of this, lowering carbon footprints and promoting environmentally friendly public transportation, such as taxi and bus services, are essential and attainable goals.

By reducing road deaths and accidents, public transportation innovation can improve population health [7]. Public transportation systems are increasingly recognised as an important means of reviving mobility, particularly in cities where traffic congestion is a problem. Many high-income cities have placed a strong political emphasis on reducing individual car use through investments in public transportation systems. However, one critical issue associated with promoting such measures is the need to ensure that these modes of transportation meet the needs of the users and are safe.

In response, this study investigates the factors influencing user satisfaction with public transportation services in Melaka, a tourist destination. By adapting the technology acceptance model (TAM), the factors under investigation were discovered [8]. TAM is one of the most well-liked study models for the process of technology and information system adoption [8]. The findings describe the factors influencing drivers in the provision of public transportation services, user satisfaction with existing public transportation services, factors impacting users and drivers' perceptions of suggested ubiquitous features for public transportation services, as well as users' and drivers' awareness of mobile technology [9]. The respondents of interest were users and drivers of Melaka's three modes of public transportation: bus, taxi, and trishaw [10].

The paper is structured as follows: section 2 is a review of related works. Section 3 outlines the materials and procedures. In section 4, results and findings were discussed. Section 5 highlights the key conclusion and contribution of the paper.

2. LITERATURE REVIEW

This section discusses two related topics that have been reviewed. The discussion began with a comprehensive review of public transportation services, the situation of such services in Malaysia and Melaka, and mobile applications for public transportation. Every topic explains the findings of each review and their relevance to the investigation.

2.1. Public transport in Melaka and Malaysia

Currently, Malaysia's public transportation system consists of buses, monorails, express rail links, commuter rails, and taxis. Malaysia has dependable and affordable public transportation. The most crucial contribution to Malaysia's development as a developing nation is public transportation. Public transportation usage in Malaysia still has difficulties and needs to be significantly improved in terms of accessibility, linkage, connectivity, reliability, timing and service availability. The government is aware of a number of difficulties that must be taken into account in order to greatly improve Malaysia's public transportation system [11]. The most recent issue facing Melaka's public transportation system is the dissatisfaction of its users. By examining how well it appears to users, the level of service quality in public transportation services can be determined. Research by Jais and Marzuki [12] discovered that the community's low level of use of public transportation is the primary issue with Melaka's public transportation system. According to previous research, the populace of Melaka is dissatisfied with the regularity of public transit, especially public buses [13]. Similarly, there is no schedule for the arrival and departure of buses at the bus terminal. It is difficult for passengers to estimate how long they will have to wait. Passengers should be happy with the services when their waiting time is similar to the real waiting time if the correct bus arrival information is given.

2.2. Mobile application for public transport in Malaysia

With the launch of Uber's services in Kuala Lumpur in the early months of 2013, smartphone applications for public transportation services were introduced in Malaysia. Uber is an e-hailing service that began operations in October 2013 [14]. Only Uber Black, a premium service, was available at the time. Hooi Ling Tan and Anthony Tan, two Malaysians who were the forerunners of Grab, introduced MyTeksi in the same city in June 2012. However, the business's launch and the publicly available taxi fleet were successful in June 2013. At that time, they typically received ten thousand bookings each day through their application, or one booking every eight seconds [15]–[17]. Since then, they have changed their name to GrabTaxi and expanded their services to additional Southeast Asian nations. They began offering GrabCar services in Malaysia and Singapore in May 2014, and they once again changed the name to Grab.

Other than Grab, there are several applications for buses and other forms of public transportation. However, the application's capabilities are strictly limited to purchasing bus tickets. To make people satisfied and wish to use public transportation services, there are gaps that need to be addressed, including various technological development capabilities for tourists [18]–[21].

3. METHOD

The seven phases of the approach employed in this study are outlined in this section:

3.1. Phase 1: identify the research goal and objectives

In this initial phase, the researchers discussed and decided on the research goal, the research objectives to be achieved, and the scope of the project. All the related decisions depend on the given duration for the survey, the allocated budget available for the survey, and the manpower allocated to conduct the survey. For this project, the researchers had only three months to complete the survey.

3.2. Phase 2: define the population and sample for the study

For the second phase, it was decided that the target population was tourists and public transportation drivers in Melaka, a tourist destination. As for the sample, the target respondents were tourists and drivers who used any type of public transportation, either bus, taxi, or trishaw for tourism purposes. This study used convenience sampling techniques in selecting the tourists and purposive sampling in selecting the bus drivers, taxi drivers, and trishaw pullers, as suggested by [22], [23].

3.3. Phase 3: decide on the type of survey method for the study

There were two different groups of target respondents in this study: drivers of, and tourists that use public transportation services. For the data collection, questionnaire forms were chosen to be used for both types of respondents [24], [25]. Researchers will approach tourists in the tourism area of Melaka and will approach public transport drivers at the public transport station.

3.4. Phase 4: design and validate the instruments for the study

During this phase, researchers designed the two sets of questionnaire forms and later sent the forms for expert validation. There are three main sections in the users' questionnaire: i) part A includes factors influencing users' use of public transportation services adopted from [10]; ii) part B includes users' understanding of green technology; and iii) part C includes factors influencing users' use of the proposed ubiquitous features for public transportation services. The user's questionnaire has a total of 29 items.

There are additionally three primary areas for the drivers' questionnaire: i) part A is comprised of factors affecting drivers' ability to provide public transportation services; ii) part B is comprised of drivers' understanding of green technology; and iii) part C is comprised of factors affecting drivers' ability to use the suggested ubiquitous features for public transportation services. Both datasets were collected using two distinct survey formats. The survey form for drivers has a total of 30 items.

Satisfaction in the questionnaire was chosen as an "affect" variable as suggested by [18], [26] and the TAM model [8], [10], [23] was used to identify factors influencing users' use of suggested ubiquitous features for public transportation services. To determine the adoption of the undeveloped technology by users in parts B and C, the researchers used the TAM model to enable them to identify the information and communication technology (ICT) qualities. TAM claims that there are two factors that influence customers' intentions to adopt innovative methods: perceived usefulness and ease of use.

Consequently, perceived ease of use and usefulness are the two primary sections of the questionnaire on ICT technology characteristics. An example of perceived utility is "a driver's profile allows consumers to choose drivers as necessary to ensure passenger safety", while an example of perceived usefulness is "can incorporate online payment methods". On a five-point likert scale, where "1" means major disagreement and "5" denotes clear consensus, respondents are requested to rate their level of agreement with the provided statements.

The instrument was put to the test to identify the variables that have an impact on drivers and passengers using public transportation, as well as variables that may persuade Malaysians to use mobile public transportation services. The instrument is highly reliable, according to a high reliability coefficient. According to the Cronbach Alpha technique, the overall instrument dependability coefficient is 0.73, which is acceptable because it is hinger than 0.6 [10].

3.5. Phase 5: distribute the survey and gather responses

Data gathering was conducted by eight research assistants in four weeks. To gather data from tourists, researchers went to tourism areas in Melaka such as Jasin Sentral, Banda Hilir, Alor Gajah, Medan Samudera, Menara Taming Sari, Dataran Pahlawan, The Stadthuys, Jonker Street and Kota A Famosa. Any tourist who agreed to participate in the survey was given a questionnaire to answer.

To gather data from drivers, researchers went to public transport stations in Melaka such as Melaka Sentral, Alor Gajah Sentral, and Jasin Sentral. There were a total of 126 public transportation users and drivers who completed the survey form, including 63 passengers (25 for taxi, 25 for bus, 13 for trishaw) and 63 drivers (25 for taxi, 25 for bus, 13 for trishaw). 72% of the participants were female and 28% were male, a distribution that was not even. In contrast, 81% of drivers were male and 19% were female.

3.6. Phase 6: analyze the collected data

During this phase, the raw data was initially cleansed to identify and correct any missing values. The datasets of users and drivers were then analysed with frequency analysis to produce descriptive statistics. The questionnaire-based quantitative research was analysed using frequencies, percentages, and average scores. The respondents were asked a number of theme-based questions including their use and satisfaction with public transportation services, their intention to use ict technology for qualitative data collection, and their familiarity with ict technology for qualitative data collection. The qualitative information was documented in written format. They were structured in a matrix and divided into thematic groupings.

3.7. Phase 7: create a report for the survey

In the final phase, the researchers wrote a report that discussed the findings after analysing both user and driver datasets. The generated report comprises descriptive analyses for seven study constructs as follows: i) factors impacting users' utilization of public transportation services; ii) user contentment with the existing public transportation services; iii) Influential factors affecting drivers providing public transportation services; iv) comprehension of green technology by drivers and passengers; v) drivers' and users' perceived utility of suggested ubiquitous features for public transportation services; vi) drivers' and users' perceived convenience in using suggested ubiquitous features for public transportation services; and vii) public awareness regarding mobile technology.

The outcomes and analyses for each of these constructs are subsequently summarized in relation to users' intentions to adopt a novel mobile application system for public transportation services. Details of the report are discussed in section 4 of this paper.

4. RESULTS AND DISCUSSION

Based on the constructs established for the instruments, this section gives the study's findings and analysis. This section discusses the following seven research constructs: i) factors influencing users' use of public transportation services; ii) user satisfaction with existing public transportation services; iii) factors influencing drivers in the provision of public transportation services; iv) drivers' and passengers' understanding of green technology; v) drivers' and users' perceived usefulness of the suggested ubiquitous features for public transportation services; vi) drivers' and users' perceived ease of use of the suggested ubiquitous features for public transportation services; and vii) public awareness towards mobile technology. The results and analysis for each construct are then concluded in relation to users' intentions to use a new mobile application system for public transportation services.

4.1. Factors influencing users' use of public transportation services

According to Venkatesh *et al*. [10], the factors influencing public transportation usage were studied. Passengers in buses, taxis, and trishaws were polled on various aspects of using public transportation. Table 1 shows the frequency and percentage of the five items of factors influencing users' usage of public transportation services by different modes of transportation. For the users' questionnaire, see dataset part A, S1–S5 [6].

Table 1. Descriptive statistics on the factors influencing users' use of public transportation services

		Bus passenger		Taxi passenger		Trishaw passenger	
		Frequency	%	Frequency	%	Frequency	%
S1: the frequency of using the services in a week	Below 3 times	21	84	24	96	12	92.3
	4 to 6 times	0	0	1	4	1	7.7
	More than 6 times	4	16	0	0	0	0.0
	Total	25	100	25	100	13	100.0
S2: the purpose of using the services	Travel to work	5	20	3	12	0	0.0
	Personal matter	18	72	20	80	11	84.6
	Others	2	8	2	8	2	15.4
	Total	25	100	25	100	13	100.0
S3: reasons to choose the public transport services	Faster	5	20	18	72	1	7.7
	More comfortable	3	12	3	12	2	15.4
	Safer	9	36	3	12	5	38.5
	Others	8	32	1	4	5	38.5
	Total	25	100	25	100	13	100.0
S4: methods in getting the public transport services	At the station	13	52	1	4	4	30.8
	At the roadside/stops	11	44	9	36	6	46.2
	Others	1	4	15	60	3	23.1
	Total	25	100	25	100	13	100
S5: the average waiting time to get a public transport service	Less than 30 minutes	13	52	21	84	13	100.0
	31 to 60 minutes	11	44	4	16	0	0.0
	More than an hour	1	4	0	0	0	0.0
	Total	25	100	25	100	13	100

The biggest percentages of passengers in a week are those who use buses less than three times per week 84.0%, taxis less than three times per week 96.0%, and trishaws less than three times per week 92.3%. 72% of consumers use buses for personal purposes, 80% use cabs, and 84% use trishaws. Personal use of bus, taxi, and trishaw services is the second highest.

4.2. User satisfaction with existing public transportation services

The users were further asked about their level of satisfaction with existing public transportation services and issues related to public transportation. In this case, users were polled on their satisfaction with Melaka's three modes of public transportation: bus, taxi, and trishaw. Table 2 summarise the mean score and standard deviation (SD) for each mode of transportation based on their perceived satisfaction variables which were adapted from the TAM [8], [10], [16]. In the users' questionnaire, refer to dataset part A, S6 [6].

The data analysis revealed that the majority of customers were pleased with the bus, taxi, and trishaw services. 48% of bus passengers, according to our statistics, experienced wait periods of more than 30 minutes. As a result, users' opinions of the service's accessibility were rated extremely low, with a mean score of 2.48 and a SD of 1.00. In addition, 48% of respondents were unsatisfied with the interior comfort of the bus (mean=3.04; SD=1.02) and 44% with the punctuality of the bus service (mean=2.64; SD=1.02). With a mean score of 2.72 (SD=1.17), the respondents rated the service for taxi passengers as generally satisfactory, although they gave a bad rating for economical pricing. This showed that, although the charges are somewhat higher, the taxi drivers have offered good services. As indicated in Table 2, affordable prices and a sense of security when riding the bus were additional factors in the use of bus services. Users of taxi services have additional benefits in that the interior comfort is acceptable and the services are prompt. Users of the trishaw service benefit from the courteousness of the drivers and the accessibility of the trishaw service.

Table 2. User satisfaction with existing public transportation services

	Bus passenger		Taxi passenger		Trishaw passenger	
	Mean	SD	Mean	SD	Mean	SD
Timely service	2.64	0.76	3.56	0.96	3.62	0.65
Prudent driving	2.96	0.89	3.52	0.82	3.77	0.73
Reasonable fares	3.40	0.87	2.72	1.17	3.31	0.95
Feel safe to use this public transport	3.08	0.86	3.32	0.80	3.62	0.87
The internal comfort of this public transport is satisfactory	3.04	1.02	3.64	0.57	3.31	0.63
I can get this public transport service easily	2.48	1.00	3.24	0.93	3.69	0.75

4.3. Factors influencing drivers in the provision of public transportation services

In this section, factors influencing drivers in providing public transportation services are discussed. There are six factors that influence the drivers of buses, taxis, and trishaws: income per day, number of passengers per day, working hours per day, fuel cost per day, trip per day, and methods for getting passengers. Table 3 (in Appendix) summarises the cross tabulation results between factors influencing drivers' performance in providing public transportation services and different modes of public transportation (drivers of buses, taxis, and trishaws). Details of the drivers' questionnaire dataset can be referred in part A, S1 to S6 [6].

4.4. Drivers' and users' perceived usefulness of the proposed ubiquitous features for public transportation services

The perceived usefulness of the proposed ubiquitous features for public transportation service applications was further analysed among public transportation drivers and users. Table 4 summarises the mean score and SD based on drivers' perceived usefulness of each item for all modes of transportation and Table 5 shows passengers' perceived usefulness for all modes of transportation. Refer to dataset part C S8 in the questionnaires for both passengers and drivers [6]. Users and drivers of public transit were polled regarding the usefulness of future mobile features based on their opinions. A very high percentage of users 92% deemed the feature "proof of payment and reimbursement" to be advantageous, with a mean score of more than 4.0 for bus, taxi, and trishaw. In addition, the majority of users regarded the statement" a trip map will be created allowing consumers to decide their travel routes" useful, with mean ratings of 4.00 (SD=1.47) and 4.23 (SD=0.43) for trishaw.

In addition, it was established that the data on driver profiles (mean=3.84; SD=0.69) and the additional information on the present traffic condition (mean=3.88; SD=0.67) were both advantageous. In addition, a substantial majority of respondents, 96%, considered that evidence of payment and reimbursement is essential for the mobile application for bus drivers (mean=4.56; SD=0.70). With a mean score of 1.96 (SD=0.98), respondents nevertheless considered that the consumer's acknowledgment was less significant. 82% of users, with a mean score of 4.08 (SD=0.64), agreed that the mobile application should offer information in both Malay

and English, according to the research. About 80% of users who replied to the study were in favour of a mobile application that was simple to use on all types of smartphones (mean=3.96; SD=0.73).

Table 4. Drivers perceived usefulness on the proposed ubiquitous features for public transportation services

Items	Bus driver		Taxi driver		Trishaw pullers	
	Min	SD	Min	SD	Min	SD
Provide travel maps to enable consumers to choose their travel routes	3.68	1.49	3.52	1.19	4	1.47
Provide drivers profiles to permit consumers to choose drivers as necessary to increase passenger's safety	3.8	1.08	3.92	1.22	3.08	1.55
Provide current traffic condition and related activities that that can affect the smooth running of the trip so that passengers can plan the trip	2.96	1.06	3.56	1.12	3.62	1.66
Provide the charge rates and payment methods to enable consumers to plan their travel expenses	4.08	0.91	3.16	1.25	3.23	1.69
Provide information about user accounts for user convenience in making satisfactory trip planning	1.96	0.98	2.92	0.7	3.31	1.44
Provide proof of payment and reimbursement method	4.56	0.71	3.8	1.08	3.62	1.45

Table 5. Passengers perceived usefulness on the proposed ubiquitous features for public transportation services

Items	Bus passenger		Taxi passenger		Trishaw passenger	
	Min	SD	Min	SD	Min	SD
Provide travel maps to enable consumers to choose their travel routes	3.96	0.68	3.96	0.61	4.23	0.44
Provide drivers profiles to permit consumers to choose drivers as necessary to increase passenger's safety	3.84	0.69	4.04	0.61	3.92	0.64
Provide current traffic condition and related activities that that can affect the smooth running of the trip so that passengers can plan the trip	3.88	0.67	3.96	0.73	3.77	0.73
Provide the charge rates and payment methods to enable consumers to plan their travel expenses	4	0.71	3.96	0.73	4.23	0.44
Provide information about user accounts for user convenience in making satisfactory trip planning	3.76	0.88	3.68	0.75	4.23	0.6
Provide proof of payment and reimbursement method	4.16	0.55	4.16	0.8	4.23	0.73

4.5. Drivers' and users' perceived ease of use of the suggested ubiquitous features for public transportation services

The respondents of this study, which are public transportation drivers and users, were also asked about their thoughts on the characteristics of a future ubiquitous green technology system. Table 6 displays the mean score and SD based on drivers' perceived ease of use of each item for all modes of transport and Table 7 shows passengers' perceived ease of use of each item for all modes of transport. Refer to dataset part C S9 in the questionnaires for both passengers and drivers [6].

Table 6. Drivers' perceived ease of use on the suggested ubiquitous features for public transport services

Items	Bus driver		Taxi driver		Trishaw pullers	
	Min	SD	Min	SD	Min	SD
Consumer can register online	2.64	1.22	2.48	1.29	3.69	1.11
The service is easily accessible using all types of smart phones	3.28	1.28	2.56	1.45	3.85	1.28
The service provide online access 24/7	1.88	0.93	4.04	0.98	3.38	1.19
The interface is consumer-friendly	3.52	1	3.04	0.79	3.77	1.09
The service is available both in malay and english language	4.24	0.52	4.36	0.57	4	1.08
The service implement online payment method	1.44	0.71	1.8	1.04	2.69	1.38

Table 7. Passengers' perceived ease of use on the suggested ubiquitous features for public transport services

Items	Bus passenger		Taxi passenger		Trishaw passenger	
	Min	SD	Min	SD	Min	SD
Consumer can register online	3.84	0.94	3.96	0.54	4.31	0.48
The service is easily accessible using all types of smart phones	3.96	0.73	4.12	0.67	4.62	0.51
The service provide online access 24/7	3.92	0.81	3.84	0.75	4.31	0.48
The interface is consumer-friendly	3.72	74	4	0.71	4.23	0.6
The service is available both in malay and english language	4.08	0.64	4.2	0.58	4.08	1.04
The service implement online payment method	3.8	0.87	3.6	0.96	4.08	0.86

Drivers and passengers on public transportation were also questioned about the characteristics of future mobile application features. With the highest mean score of 4.24 (SD=0.52), the results showed that

96% of respondents who answered questions about bus drivers agreed that the mobile application should provide information in both English and Malay. The fact that 96% of the bus drivers disagreed with the statement "can implement cashless payment" is particularly interesting.

With a mean score of 4.62 (SD=0.51), trishaw customers generally concurred that the services may be accessed using all types of smartphones, unlike other modes of transportation. The trishaw drivers concurred that the mobile solution must be bilingual (mean score 4.00; SD=1.08). According to the analysis of the open-ended questions, respondents appear to prefer the use of mobile applications as a solution for the problems with public transit. Implementing touch-and-go online payment methods, introducing mobile applications, and leveraging improved website applications are a few examples of proposals. Bus drivers who responded emphasised the value of developing mobile application systems that are in line with users' expressed needs. Drivers proposed touch-and-go technology, online payment options, and online ticketing in accordance with this.

4.6. Public awareness towards mobile technology

In the area of Melaka, respondents who use public transportation were also questioned about their familiarity with mobile technology. According to the research, a significant part of users and drivers in Melaka acknowledged the use of mobile technology, with mean scores of 3.76 (SD=0.72) for bus passengers, 3.88 (SD=0.73) for taxi passengers, and 4.08 (SD=0.76) for trishaw passengers. For bus passengers, the lowest mean score on the question “I utilise mobile technology in my everyday routine” is 3.04 (SD=0.73). 96% of respondents who were bus drivers expressed interest in mobile technology (mean=4.56; SD=0.58), and 92% said they knew Melaka utilised mobile technology (mean=4.40; SD=0.65). The item “I utilise mobile technology in my daily routine” received a lower mean score than that for bus users, with mean scores of 3.12 (SD=0.78) for bus users and 3.32 (SD=0.80) for taxi users. Table 8 provides more descriptive data about the public's knowledge of mobile technology.

Table 8. Public awareness on mobile technology

Public awareness on mobile technology	Bus				Taxi				Trishaw			
	Driver		Passenger		Driver		Passenger		Driver		Passenger	
	Min	SD	Min	SD	Min	SD	Min	SD	Min	SD	Min	SD
I understand the meaning of mobile technology	4.04	0.89	3.52	0.82	3.60	0.76	3.96	0.79	3.23	1.42	3.69	1.11
I understand the purpose of using mobile technology	3.84	0.90	3.64	0.70	3.96	1.02	4.16	0.75	3.23	1.42	3.62	1.04
I know that Melaka practices mobile tehnology	4.40	0.65	3.76	0.72	4.24	0.88	3.88	0.73	4.15	0.80	4.08	0.76
I am interested in mobile technology	4.56	0.58	3.44	1.04	4.40	0.76	4.08	0.70	4.00	1.22	4.31	0.75
I use mobile technology in my daily routine	3.12	0.78	3.04	0.73	3.84	1.07	3.32	0.80	3.23	1.24	3.38	1.12
Mobile technology improves the quality of work life	3.96	1.06	3.48	0.82	4.36	0.76	4.12	0.73	3.85	1.21	3.85	0.55

4.7. Users’ intention to use a new mobile application system for public transportation services

The three key TAM components of perceived usefulness, ease of use, and awareness were used to analyse users' and drivers' intentions to utilise mobile applications. A study was also carried out to look at a new mobile application system suggested as a result of the users' unhappiness with Melaka's public transportation system. To create and construct an application framework that is more effective, perceived usefulness, ease of use, and awareness have provided vital information.

The conclusion is that a mobile application that supports mobile technology for bus services must include information about the price and payments, proof of payment and reimbursement, a journey map, information about the current traffic situation, and driver profiles. The drivers concurred with the users that reimbursement documentation is crucial for mobile applications. Respondents thought that the consumer's acknowledgment was less significant, though.

Users and drivers emphasise the requirement for mobile applications to display information in both Malay and English for the second component's user-friendliness. Additionally, customers remarked that the mobile application was accessible from any smartphone. Even more intriguing was the disagreement between the bus drivers regarding “cashless payment”. This outcome shows that drivers have reservations about using an online payment method. According to the interview, the majority of remarks emphasised the use of mobile as a workable alternative. Bus drivers emphasise the benefits of touch-and-go, online payment options, and online ticketing.

The majority of users agree that mobile technology has been used in Melaka for the third element of the TAM model, which concerns awareness of mobile technology in all its facets, including the use of mobile

applications. Some respondents among bus drivers also suggested "using natural gas vehicles (NGV) for mobile technology" in a sustainable environment, in addition to suggesting ways of which mobile technology has been practised and can be realised, such as "using website applications", "using mobile internet applications," and "implementing mobile wallets and online payment systems". Many of the respondents do not comprehend the purpose or significance of mobile technology as it is used in Melaka, even though they appear to be aware of it.

5. CONCLUSION

This study contributes findings on the factors influencing technology acceptance for ubiquitous public transportation services in tourism. The findings can be utilised to explore the need for timely delivery of taxis, buses, and trishaws, which are popular modes of public transportation in tourist destinations such as Melaka, Malaysia. It offers information about users and public transportation drivers. Vital user and driver data collected encompass seven key elements: i) aspects influencing the choices of users utilizing public transportation services; ii) contentment of consumers regarding the currently available public transportation services; iii) factors impacting drivers engaged in delivering public transportation services; iv) familiarity of green technology among drivers and passengers; v) the perceived user-friendliness of suggested features for public transportation services, evaluated by both drivers and users; vi) general public consciousness regarding mobile technology; and vii) the inclination of users to employ the proposed mobile application for public transportation services.

However, the results and analysis for each discovery were then directed at users and drivers, with three datasets from users containing critical information that influenced the use of consumer public transportation services, the level of consumer satisfaction with existing public transportation services, and elements that influence how public transportation services are delivered. Later, two datasets for drivers were generated, each containing variables that impact drivers in delivering public transportation services as well as elements that influence drivers' receipt of any suggested features for public transportation services. It is useful for researchers and technology developers everywhere to suit the needs of users and public transportation drivers. Furthermore, these data can be utilised to identify technological elements for public transportation systems anywhere in the world that may suit the needs of the public, such as researchers, operators, drivers, and other similar users. Studies contribute to the need for the proposed mobile application framework based on the discovery and analysis of data on factors that influence passengers and drivers in using or providing buses, taxis, and trishaws, at the passenger satisfaction stage with existing public transportation services, at the passenger level and knowledge of green technology drivers, and in factors affecting the use of passengers and drivers proposed for public transportation services. The dataset will be used in future work by the researchers to determine the entity relationship diagram and the data dictionary in order to develop mobile applications for public transportation services.

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APPENDIX

Table 3. Crosstab results on the factors influencing drivers in the provision of public transportation services

Variables			Bus drivers	Taxi drivers	Trishaw pullers
S1: average income per day	Less than RM50	Count	6	4	4
		% within S1	24.0%	16.0%	30.0%
	RM51 to RM100	Count	2	21	8
		% within S1	8.0%	84.0%	61.5%
	RM101 to RM150	Count	2	0	1
		% within S1	8.0%	0.0%	7.7%
	RM151 to RM200	Count	1	0	0
		% within S1	4.0%	0.0%	0.0%
	RM201 to RM250	Count	5	0	0
		% within S1	20.0%	0.0%	0.0%
	Above RM250	Count	9	0	0
		% within S1	36.0%	0.0%	0.0%
	Total		25	25	13

Table 3. Crosstab results on the factors influencing drivers in the provision of public transportation services (continue)

Variables			Bus drivers	Taxi drivers	Trishaw pullers
S2: average number of passengers per day	Less than 5	Count	0	1	3
		% within S2	0.0%	4.0%	23.1%
	6 to 10	Count	0	16	8
		% within S2	0.0%	64.0%	61.5%
	11 to 15	Count	0	2	0
		% within S2	0.0%	8.0%	0.0%
	16 to 20	Count	0	4	1
		% within S2	0.0%	16.0%	7.7%
S2: average number of passengers per day	21 to 25	Count	4	1	0
		% within S2	16.0%	4.0%	0.0%
	More than 25	Count	21	1	1
		% within S2	84.0%	4.0%	7.7%
	Total		25	25	13
S3: average working hour per day	Less than 3 hours	Count	0	0	1
		% within S3	0.0%	0.0%	7.7%
	4 to 7 hours	Count	0	0	4
		% within S3	0.0%	0.0%	30.8%
	7 to 10 hours	Count	8	12	4
		% within S3	32.0%	48.0%	30.8%
	11 to 14 hours	Count	5	12	3
		% within S3	20.0%	48.0%	23.1%
	More than 14 hours	Count	12	1	1
		% within S3	48.0%	4.0%	7.7%
	Total		25	25	13
S4: fuel cost per day	Less than RM50	Count	0	25	13
		% within S4	0.0%	100.0%	100.0%
	RM51 to RM100	Count	0	0	0
		% within S4	0.0%	0.0%	0.0%
	RM101 to RM200	Count	12	0	0
		% within S4	48.0%	0.0%	0.0%
	RM201 to RM300	Count	13	0	0
		% within S4	52.0%	0.0%	0.0%
	RM301 to RM400	Count	0	0	0
		% within S4	0.0%	0.0%	0.0%
	Total		25	25	13
S5: average trip per day	Less than 5 km	Count	0	0	3
		% within S5	0.0%	0.0%	23.1%
	6 km to 10 km	Count	0	0	5
		% within S5	0.0%	0.0%	38.5%
	11 km to 20 km	Count	0	0	2
		% within S5	0.0%	0.0%	15.4%
	21 km to 30 km	Count	0	2	0
		% within S5	0.0%	8.0%	0.0%
	Above 30 km	Count	25	23	3
		% within S5	100.0%	92.0%	23.1%
	Total		25	25	13
S6: methods for getting passengers	From the station	Count	3	0	10
		% within S6	12.0%	0.0%	76.9%
	From the roadside/stops	Count	22	16	1
		% within S6	88.0%	64.0%	7.7%
	Phone call	Count	0	5	0
		% within S6	0.0%	20.0%	0.0%
	Operator centre	Count	0	4	2
		% within S6	0.0%	16.0%	15.4%
	Total		25	25	13

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