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USERS' SATISFACTION AND USABILITY ISSUES OF STUDENTS' ATTENDANCE SYSTEM APPLICATION: UiTM Here 1.0

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ABSTRACT

The way educators teach has changed, and so does the method of taking attendance. Due to the global pandemic situation, and the implementation of lockdown and social distancing, e-learning has taken over the regular learning process in most learning institutions. As a result, students' attendance-taking needs to be conducted electronically. As manual attendance taking and absenteeism reporting classes are no longer seen as relevant in most circumstances, many learning institutions have developed various methods to take the students' attendance effectively. In this university, the system developers have created a system application called UiTM Here 1.0, which aims to aid the process of taking the students' attendance and absence reporting online. To take the attendance, the students will scan a QR code, and the system will take note of the date and time of the students clocking in and their absenteeism, based on the students' ID. This user-friendly application is installed on the lecturers' and students' smartphones, where both parties can monitor the attendance. It can calculate the percentage of absence automatically and generate absence status immediately for each student. These records are sent automatically to the Students' Academic Affairs Department. The present study emphasizes the system's usability and the students' satisfaction when using this application and it involves six research questions, in which an adopted online survey was distributed to 320 students (randomly shared). The results can be used to improve the system and notably, positive responses and a few constructive recommendations are revealed.

Keywords: Electronic attendance taking system; QR Code, Usability; Users' Satisfaction; Application

1. Introduction

In every organisation, such as educational institutions, public or private sectors, it is crucial to manage and take attendance effectively to ensure the institutions' success, especially in achieving their goals and visions. Jacksi et al. (2018) affirm that keeping track of people within the organization such as the staff and students will maximise their performance. Educational institutions' administrators in our country and the whole world are concerned about the regularity of students' attendance as the students' overall academic performance is affected by it (Agrawal and Bansal, 2013). Moreover, Siti Hawa and Rozlina (2012) reiterate that the consequences of low attendance are serious and not just affect the absent students but also influence the community. Currently, monitoring students' attendance in class becomes a more important aspect for any learning institution. Recording and monitoring class attendance is an area of administration that can require significant amounts of time and effort in a school/university environment, as it consumes a considerable time for lecturers to get the necessary information (Patel, et al., 2012).

Since the pandemic crisis, technology has played an important role. Technological development and the internet have changed the lives of people immensely and have also brought a huge change in various fields (Nadikattu, 2020), and this includes the way teachers and lecturers take attendance during e-learning. In consequence, educational departments need to find solutions that increase the speed of attendance taking and hence, encourage the students' attendance to class and achieve better academic accomplishment. According to Soni (2020), the needs of modern learners seem to be different and an online attendance-taking system is found to be advantageous to fulfill their needs. In Universiti Teknologi MARA, the students must achieve at least 80% of attendance and those who fail to do so will be barred from attending the final exam. The students will be affected academically, and the university's reputation, quality, and key performance index will also be impacted.

Therefore, there is an urgent need for the learning institutions to develop an efficient and effective attendance-taking system to monitor students' attendance in class and to enhance their performances in their studies. Therefore, this study's primary goal is to investigate the users' satisfaction and usability issues of UiTM Here 1.0 (QR Code), in which the users are students. The application is developed based on Android and iOS platforms and it can be installed on the users' smartphones.

Over the past decade, the rapid growth of the internet has considerably changed the end-user computing environment. The studies on evaluating the users' acceptability and satisfaction of attendance taking systems are very few in comparison to studies on performance. El-Abed et al. (2010) have illustrated four aspects of biometric system evaluation which include the performance; security, data quality, and the acceptability and user satisfaction, where it measures the users' perception, feelings, and opinions regarding the system.

In relevance to this recent study, it is appropriate to review the measures of users' satisfaction with the information systems technology, especially in a web-based environment (Xiao & Dasgupta, 2002). In addition, Doll and Torkzadeh (1988) in Xiao and Dasgupta (2002) have listed five important lists of items that can be measured to obtain users' satisfaction results and they are ease of use, content, timelessness, format, and accuracy. The evaluation of the users' satisfaction aims to discover what people think and feel about using a product, to assess and perceive the quality of use, and in this study, it was UiTM Here 1.0 application. With that objective in mind, the study focuses on several research questions:

(1) How do you rate UiTM Here 1.0 in terms of its interface and features, clarity of information and instructions, and general performance?
(2) What is your general perception of UiTM Here 1.0, in terms of its success rate?
(3) What is your satisfactory rating when using UiTM Here 1.0?
(4) Which feature of UiTM Here 1.0 do you prefer most?
(5) What is the most significant issue that you face when using UiTM Here 1.0?
(6) What recommendation(s) do you give to improve UiTM Here 1.0?

2. Methods

2.1 *Development of UiTM Here 1.0*

The application is divided into two main related components. The first component is eKehadiran, which is the online web-based information system that is used by the lecturers, and the second component is UiTM Here 1.0 (Students' Attendance System Application using QR Code, specifically designed for student users. For the student users, UiTM Here 1.0 was

developed using the ionic framework, an app development platform that is often used by web developers. Both applications are connected using Json data where the data from/to between the lecturers and the students are connected, via eKehadiran and UiTM Here 1.0.

Both applications were developed within six months and for the purpose of this research. UiTM Here 1.0 app was utilized by students. The novelties of this application are:

- it enables the users (students) to use QR codes to take attendance and the lecturers can take note of the date and time of the students' absenteeism, based on the students' ID.
- it can calculate the percentage of absence automatically and generate absence status immediately for each student.
- the academic administrators and lecturers of UiTM Here can view the report of all absenteeism records daily.
- it enables the administrator to do SMS blast to the absentees to warn them of their absence status.

This application can be installed on the lecturers' and students' smartphones with the aim to monitor their attendance in classes.

2.2 *UiTM Here 1.0 Application: The Respondents*

The application was used by many lecturers from various faculties and their respective students in UiTM Sarawak, both campuses, Samarahan and Samarahan 2 before the pandemic began and during the pandemic. They were selected because they had used this application for more than one semester. The scope of this study only involved UiTM Here 1.0 users, who were the student users as they are the main stakeholders of the university. For this research, an online survey was conducted for three semesters (the middle semester of the year 2019 and the middle of the year 2021) with the objective; to gauge the student users' perspectives on the application (the student users' satisfaction and the usability issues). The questionnaires were distributed to the student users after they had gained some experience in utilizing the application so that genuine responses were collected. The online questionnaire was distributed via emails and WhatsApp, where 320 respondents were involved, and all the respondents had given their responses (100% response rate). The students were chosen at random at both campuses, where the survey involved many faculties of the university.

3. Results and Discussion

The findings are presented in the form of tables and percentages (analyzed using SPSS). The presentation of the findings is sequenced according to the sections of the questionnaire.

3.1 *Users' Mobile Operating System Background*

Table 1: Mobile Operating System Used

Answer's Choices	Number of Respondents for Each Choice	Percentage
iPhone (iOS)	65	20.50%
Android	251	79.18%
Windows mobile	1	0.32%
Total	317	100%

When asked about the Mobile Operating System that they have utilized, most of the users (79.8%) used Android while 20.5% used the iPhone system. Comparatively, there are more Android users compared to iPhone users.

3.2 *UiTM Here 1.0 Application: Interface and Features*

Table 2: The Interface and Feature of UiTM Here 1.0 Application

Answer's Choices	Number of Respondents for Each Choice	Percentage
All the time satisfied	64	20.25%
Most of the time satisfied	157	49.68%
Sometimes satisfied	89	28.16%
Not friendly	6	1.90%
Total	316	100.00%

Looking at the table above, when the users were asked to rate the interface and feature, it is indicated that 20.25% chose 'all the time satisfied' and 49.68% opted for 'most of the time satisfied'. This is considered positive as more than half agreed that the app has an acceptable and clear interface and features. On the other hand, the rest chose 'sometimes satisfied' with 28.16%, and only 1.9% opted for 'non-friendly'. Having a good and consistent interface and features for an application is essential as the users can interact effectively with the application and the shown features are relevant to the users, and in turn, these will encourage continuous usage.

Table 3: UiTM Here 1.0's Ease of Use

Answer's Choices	Number of Respondents for Each Choice	Percentage
Very easy	108	34.18%
Easy	138	43.67%
Sometimes easy	62	19.62%
Complicated	6	1.90%
Very complicated	2	0.63%
Total	316	100.00%

Table 3 indicates the user's perceptions of the app in terms of user-friendliness. Positive responses were derived from the data where 79% chose 'very easy' and 'easy' and only 1.9% opted for complicated and 0.63% chose 'very complicated'. The probable reason for this occurrence is internet connectivity which may obstruct the speed of taking attendance. This item is crucial as an app needs to be user-friendly so that users will not face difficulties when using the app and thus, will encourage them to use the app further.

Table 4: UiTM Here 1.0's Overall Success Rate

Answer's Choices	Number of respondents	Percentage
Yes	294	93.33%
No	21	6.67%
Total	315	100.00%

According to the users' perceptions of the overall success rate of UiTM Here 1.0 in Table 4, the responses are encouraging as 93.3% chose 'yes' while another 6.67% opted for 'most successful'. This result is considered positive in recording the students' attendance. The findings of Khare et al. (2015) augur well with this research's findings where their online system for recording and reporting students' attendances is indeed a needed application to ensure that the process of attendance taking will be more efficient and time-saving.

Table 5: User's Satisfactory Rating on UiTM Here 1.0

Answer's Choices	Number of Respondents for Each Choice	Percentage
Highly satisfied	60	18.99%
Satisfied	177	56.01%
Occasionally satisfied	69	21.84%
Not satisfied	8	2.53%
Highly unsatisfied	2	0.63%
Total	316	100.00%

Table 5 above indicates the users' satisfaction levels when using UiTM Here 1.0, and it is shown that 18.99% were 'highly satisfied' with the app while 56.01% chose 'satisfied'. Another 21.84% of the users opted for 'occasionally satisfied'. The findings are quite encouraging as more than half considered this app to be satisfactory to be used when taking attendance. Similarly, in another study by Rastogi and Gupta (2013), their result also reveals that the use of their attendance-taking system using mobile phones can result in a reduction of the number of hours spent in feeding the attendance details in the server database.

Table 6: Clarity of Information and Instruction

Answer's Choices	Number of Respondents for Each Choice	Percentage
Very clear	103	33%
Clear	174	55%
Sometimes clear	33	11%
Unclear	2	1%
Very unclear	2	1%
Total	314	100%

When the respondents were asked about the clarity of information and instructions (Table 6), it is found that 33% or 103 respondents chose 'very clear' while 55% or 174 respondents opted for 'clear'. This has shown that the application has given clear information and instructions as most of the respondents understood what they needed to do and were clear on the steps to be taken when using the application.

Table 7: The User's General Rating on UiTM Here 1.0

Answer's Choices	Number of Respondents for Each Choice	Percentage
Very good	68	22%
Good	160	51%
Average	76	24%
Poor	7	2%
Very poor	3	1%
Total	314	100%

When the users were asked to rate UiTM Here 1.0 (Table 7), the responses were also quite encouraging as 22% chose 'very good' and 51% opted for 'good'. Another 24% chose 'average', while 3% stated 'poor' and 'very poor' consecutively. These responses will motivate the developers to enhance and improve the application as the main players of the application (the users) have claimed that it is a good application and worth to be further developed and improved.

3.3 *The User's Most Preferred UiTM Here 1.0's Features*

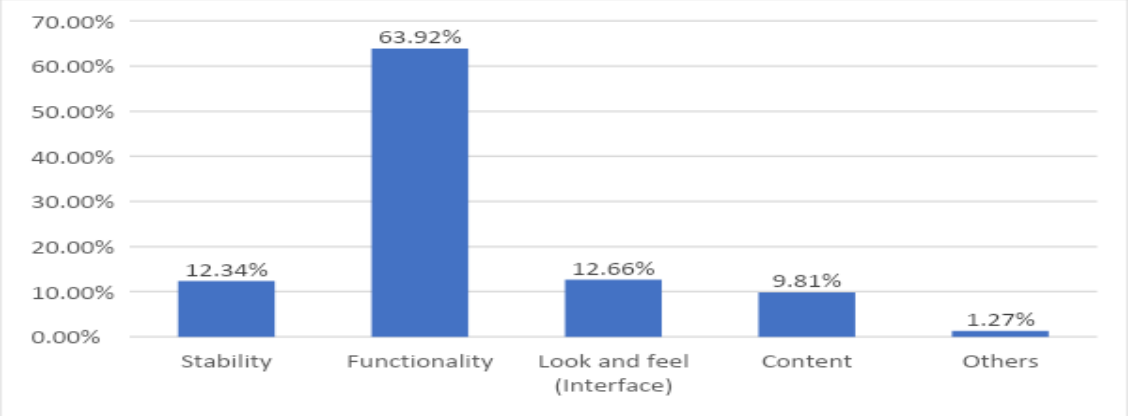

Figure 1: The Application's Most Preferred Features

Figure 1 indicates the users' most preferred features in relation to the UiTM Here 1.0 application. Apparently, the most preferred feature is its 'functionality' with 63.92% followed by 'stability' with 12.34% and 'interface' with 12.66%. Thus, it can be concluded that the users claimed this app as functional as it serves its purpose considerably well in taking their attendance. This encouraging result is similar to Rastogi and Gupta's finding (2013), where their students' attendance system of mobile application has a non-complicated interface and functions, and the system greatly helps in adapting the users to use this system.

3.4 *Issues of UiTM Here 1.0 (Most Problematic)*

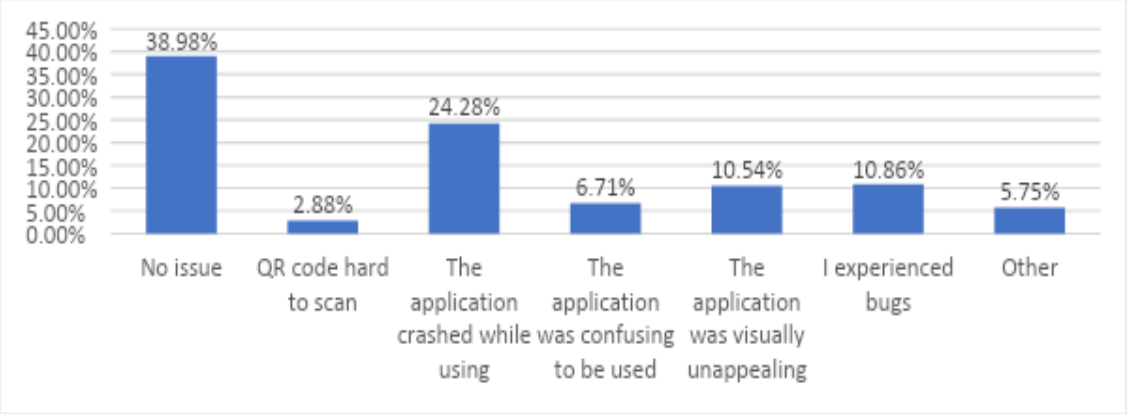

Figure 2 The Application's Issues (Most Problematic)

Figure 2 indicates the biggest issues or most problematic that the users faced when they utilized the application. Some of the issues listed are 'QR code is difficult to be scanned', 'The application crashed while using', 'The application was confusing to be used', 'The application was visually unappealing', and 'I experienced bugs. These findings are useful for developers to improve and upgrade the application. With this feedback, the developers can enhance the application so that the attendance-taking process can be more efficient and effective. Looking at the findings, 'The application crashed while using' with 24.28% or 76 users and 'I experienced bug' with 10.86% or 34 do not seem to be significant considering the total user was 122 users, which is about 38.98% of the users did not face any problems when using this application.

3.5 *Changes and Recommendations to Improve UiTM Here 1.0*

Table 8: Recommendations (Most Frequent Five)

	Top Five Recommendations
1.	The application can be used on multiple devices (not only in one)
2.	The application can be registered promptly in a new device if they previous device is damaged or faulty.
3.	Developers need to fix the bugs
4.	Developers need to stop or reduce 'lagging time'.
5.	Allow the QR code to be enlarged or zoomed

When the respondents were asked to provide their recommendations (Table 8), several suggestions were given but the most frequent recommendations being mentioned were: The application can be used on multiple devices (not only on one), The application can be registered promptly in a new device if the previous device is damaged or faulty, The developers need to fix the bugs, The developers need to stop or reduce 'lagging time' and

allow the QR code to be enlarged or zoomed. These recommendations would be beneficial for the developers to improve on the application so that it can perform to its full potential and capability.

4. Summary

Managing attendance is pertinent to all organizations, especially educational institutions. It can monitor and control the success of any organization by keeping track of students as well as the staff within the organization to maximize their performance (Jacksi et al., 2018) and to achieve the Key Performance Index of the institutions. With this system, taking attendance, and generating reports become effective as less probability of malfunctioning will occur. The general findings of this study were positive as most of the users were either satisfied or very satisfied with this application. They reviewed that this application was user-friendly, easy to use, successful, showed clear instructions and they were highly satisfied with the application. These data were encouraging with some recommendations given to improve the application. Some of the most frequent suggestions were for the developers to enable the application to be installed on multiple devices (not limited to only one device), the application can be registered immediately in a new device if the previous device does not work well, and to fix the bugs.

The development of this attendance monitoring system application will consider a few aspects such as the interface, ease of use, content, accuracy, and interactivity. For sharing purposes, UiTM Here 1.0 can be further customized to cater to the needs of other educational institutions. Besides that, this application improves the method of tracking the students' attendance and aids the lecturers to monitor their students' absenteeism.

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