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System Usability Survey for Mobile Application for Horse Training Program

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Abstract:
In order to effectively train a horse, it is critical to adopt exercise or training programs that are based on a correct training concept, as this can assist horse riders in having a proper planned training management and therefore developing their horse's performance. Mobile phone applications are so entwined in modern culture and are continuously accessible to users as they could be beneficial as mobile coaching systems. The goal of this research is to employ mobile application software to guide horse riders in conditioning their horses to optimal performance and to emphasize the need of using appropriate and accurate equipment. The theory of app development of the app will be using ADDIE model. The process of creating this mobile app will be undergoing five different phases of Analysis, Design, Development, Implementation and Evaluation. A sample of 40 respondents had been given free access to use and try the mobile application before a System Usability Scale (SUS) test was given. Results from the five positive-preferred SUS components had obtained a range of mean from 4.30 to 4.60, which are very close to the ideal of 5.00. The range of standard deviation also shows better whereby the range are between 0.54948 to 0.91147 which are under common ideal practice which is 1.10. The results obtained show that the users were satisfied and the usability of the mobile application was good, up to 82.5% of the respondents were interested to install the mobile application, and positive feedbacks were also recorded. These results show that people are ready and willing to use the mobile application as an alternative way to an accessible horse exercise options and horse training programs in easier way.

Keywords: Equestrian; Training programs; Mobile application; System usability survey

1. Introduction

Mobile phone applications could be useful as mobile coaching systems aimed at increasing physical activity levels, since they are well intertwined in modern society and are always accessible to users. Apps have transformed the phone into a multi-functional platform for all purposes, far beyond its classic application domain. Smartphones not only used as a personal assistant but also as personal fitness coaches to facilitate individualized training and skills assessment [1]. Current mobile application can be described as basic programming programs that can be installed on an advanced operating system (OS) mobile device; these are, a smartphone and tablet. The operating system serves as an intermediary between the hardware (a device's technological equipment) and the user's particular software (application) [2]. Mobile applications are easily accessible, have a broad variety of features, such as interactive solutions and input opportunities [3].

A study was conducted by Dallinga et al. [4] to evaluate the correlation between the use of smartphones' app and improvements in physical exercise, wellness and lifestyle behavior, and the self- image of runners in short and long-

distance running event. In sport, new concepts, technologies and methods are constantly developed and introduced to try and enhance areas such as performance, analysis, skill execution, and athlete monitoring. From a performance point of view, the introduction of mobile phone technology has generally been positive for sport as most athletes are in favor of technology that can provide instant results and feedback [5].

This study implemented the use of mobile application software in guiding horse rider to condition their horse to a peak performance and importance of applying suitable and correct training regimes based on their sport demand. This study is conducted into application development study. The developed mobile application is implemented and downloaded to an Android device for test run of the user experience regarding the mobile application which then a usability test survey would be conducted. The usability test survey for Mobile Application for Horse Training Program were distributed throughout the equine industry people in Malaysia which includes horse rider, horse riding instructor, horse owner, Bachelor of Science (Equine Management) students in Universiti Teknologi Malaysia, and also public users.

2. Materials and Methods

2.1 Population and sampling

The local equine industry was sampled at random for this study. The Convenient Sampling Method was utilized to select the target respondents for this investigation. The Convenient Sampling Method was used to select the population for the survey form based on the number of equine industry people who could collaborate to complete this research.

2.2 The usability test survey

The System Usability Scale (SUS) was a widely used scale by the general public to assess a system's usability. The SUS was a basic ten-item scale designed to provide a subjective rating of usability. SUS was created in 1986 as part of the integrated office systems development program at Digital Equipment Co Ltd in Reading, United Kingdom [6].

The SUS test was a Likert scale test with forced-choice questions in which the statement was made and the respondent would choose score on a 5-point scale based on their level of agreement with the statement. Each respondent would be required to answer all of the SUS statements and comment based on their initial impression after using the mobile application.

2.3 Survey form questions

In this study, a survey form was one of the tools utilized to collect information in survey research. The survey form tool was created to collect the information needed for the investigation. The survey approach could collect quantitative data in the form of frequency or percentages [7]. The source of 44 this survey form was from Brooke's (1996) System Usability Scale Test, a quick usability survey form used to evaluate system in an industry. The System Usability Survey criteria are as follows:

1. Frequently using the mobile app.
2. The mobile app are unnecessarily complex.
3. The mobile app was easy to use.
4. The mobile app are very technical.
5. The mobile app are well-integrated.
6. There were inconsistency in the mobile app.
7. The mobile app can be quickly learned to be used.
8. The mobile app are cumbersome.
9. Confident in using the mobile app.
10. Needed to learn a lot of things before using the mobile app.

The SUS criteria were marked with a Likert scale with a 5-point scale from strongly agree, agree, neutral, disagree, and strongly disagree. Each respondent was required to answer all the SUS statements and comment based on their initial impression after using the mobile application.

2.4 Data Analysis

The System Usability Survey were examined using the descriptive approach, which were looked at the frequency, mean, and standard deviation of each statement. The findings were depicted as a bar graph to demonstrate the various distributions of the statements. To illustrate the positive-preferred SUS results and the negative-preferred SUS results, two separate graphs were used. The second section of the usability test survey was the respondent's interest in installing the mobile application as a percentage of the number of respondents. The findings were depicted in a pie chart to represent the percentage of the findings.

The final section of the usability test survey were the qualitative responses from the users or respondents, which was recorded and typed individually in a Google Form survey. Each of the findings collected from this section were studied in order to comprehend the comments and responses of the users and to use as a recommendation for the future.

Descriptive analysis method was used for the survey in this research. The descriptive statistics method were the frequency, the mean, and the standard deviation of the data collected. This descriptive analysis method was utilized to examine input from persons in the equine sector after they used the mobile application. The calculation of the frequency, the mean, and the standard deviation are using Statistical Packages for Social Sciences (SPSS).

As a result, the study focuses on determining the coding frequency. In statistical analysis, frequency was defined as the number of times an event occurred [7]. It counted the number of occurrences or appearances in the text and calculated percentages. The results were typically depicted by a pie chart or a bar chart.

3. Results

3.1 Positive-preferred SUS results

The five positive-preferred SUS components are referred to the components that are supposed to obtain a "Strongly Agree" result. These five components are questions number 1, 3, 5, 7, and 9 in the System Usability Scale Test (Figure 1). The higher the scale marked, the better the system usability of the mobile app.

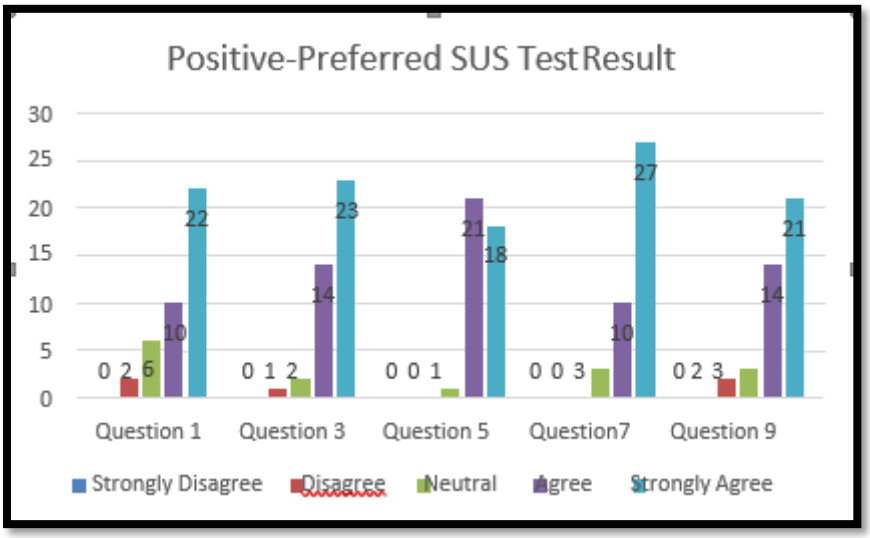

Figure 1. Frequency results for positive-preferred SUS components

The first component of positive-preferred SUS components is question number one stating that "I think that I would like to use this mobile app frequently". The mean for this question is 4.30 with the standard deviation of 0.91147. This positive result supports the willingness of the user to use this mobile app in the future.

The second component of positive-preferred SUS components are question number three stating that "I think that I would like to use this mobile app frequently". The mean for this question is 4.475 with the standard deviation 0.71567. The positive result from this question supports that the users preferred to use this mobile app.

The third component of positive-preferred SUS components are question number five which states that "I found various functions in this mobile app were well integrated". The mean for this question is 4.425 with the standard deviation of 0.54948. As most users voted for Agree and Disagree, this shows that the design and functions of the mobile app are well-developed and functioning well.

The fourth component of positive-preferred SUS components are question number seven stating that "I would imagine that most of the people will learn to use this mobile app very quickly". The mean for this question is 4.60 with the standard deviation of 0.63246. The results showed that the mobile app are convenience to use ranging from the public user, students, and also equine industry player itself.

The fifth component of positive-preferred SUS components are question number nine stating that "I felt very confident using the mobile app". The mean for this question is 4.35 with the standard deviation of 0.83359. The positive results recorded from this question shows that the users are confident to use the mobile app as an alternative companion in training horses. The mean and standard deviation for positive-preferred SUS components are available in Figure 2.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
1. I think that I would like to use the mobile app frequently.	40	2.00	5.00	4.3000	.91147
3. I thought the mobile app was easy to use.	40	2.00	5.00	4.4750	.71567
5. I found various functions in this mobile app were well integrated.	40	3.00	5.00	4.4250	.54948
7. I would imagine that most people would learn to use this mobile app very quickly.	40	3.00	5.00	4.6000	.63246
9. I felt very confident using the mobile app.	40	2.00	5.00	4.3500	.83359
Valid N (listwise)	40				

Figure 2. Mean and standard deviation for positive-preferred SUS components

3.2 Negative-preferred SUS results

The five negative-preferred SUS components are referred to the components that are supposed to obtain a Strongly Disagree result. These five components are question number 2, 4, 6, 8, and 10 in the System Usability Scale Test (Figure 3). The lower the scale given referred to a better usability of the mobile app.

The first component of negative-preferred SUS components is question number two "I found the mobile app unnecessarily complex". Mean for this question is 2.1250 with standard deviation of 1.18078. The negative voted result shows that the users think that the app are not complex and easy to use.

The second component of negative-preferred SUS components are question number four which says, "I think I would need the support of a technical person to be able to use this mobile app". Mean for this question is 2.5750 with standard deviation 1.39390. The results showed that more than 50% of the respondents voted "Strongly Disagree", and "Disagree" to this question which means that they are confident to use this mobile app without needed technical person to help.

The third component of negative-preferred SUS components are question number six stating that "I thought there were too much inconsistency in this mobile app". Mean for this question is 2.425 with the

standard deviation 1.31826. Most of the respondents voted on Disagree and Strongly Disagree means that the development of the app is well-developed and functioning constantly well with no problems of loading or crash while using the mobile app.

The fourth component of negative-preferred SUS components are question number eight which says, 'I found the mobile app very cumbersome (difficult/complicated) to use". Mean for this question is 2.05 with the standard deviation of 1.17561. The negative result from this question supports that the mobile app are convenience to use by public generally and equine people specifically.

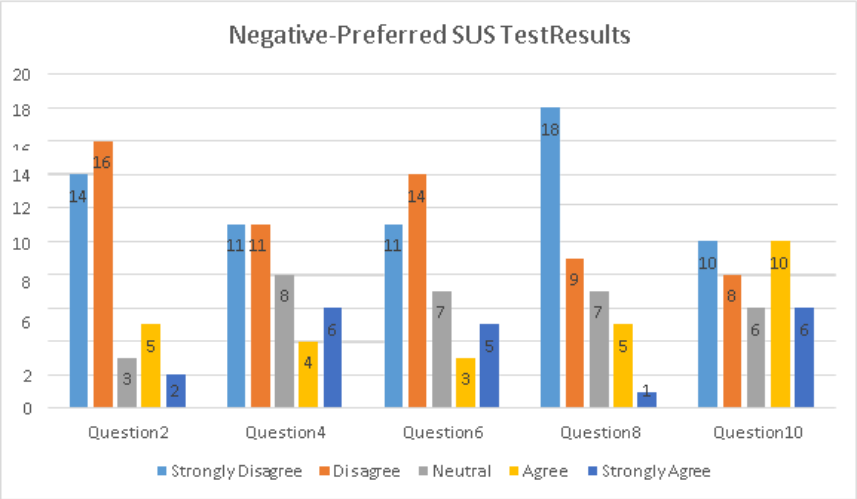

Figure 3. Frequency results for negative-preferred SUS components

The fifth component of negative-preferred SUS components are question number ten which says, "I needed to learn a lot of things before I could get going with this mobile app". Mean for this question is 2.85 with standard deviation 1.44204. The result from this question shows that there are balance votes on Strongly Disagree and Agree, which means there are some users are very confident in using this mobile app by themselves without any briefing, while there are some users think they require extra knowledge before they can fully utilize the content of this mobile app. The mean and standard deviation for negative-preferred SUS components is available in Figure 4.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
2. I found the mobile app unnecessarily complex.	40	1.00	5.00	2.1250	1.18078
4. I think that I would need the support of a technical person to be able to use this mobile app.	40	1.00	5.00	2.5750	1.39390
6. I thought there were too much inconsistency in this mobile app.	40	1.00	5.00	2.4250	1.31826
8. I found the mobile app very cumbersome (difficult/complicated) to use.	40	1.00	5.00	2.0500	1.17561
10. I need to learn a lot of things before I could get going with this mobile app.	40	1.00	5.00	2.8500	1.44204
Valid N (listwise)	40				

Figure 4. Mean and standard deviation for negative-preferred SUS components

3.3 Installation interest results

Positive results had been achieved as most of the respondents answered "Yes" as they are willing to

install the mobile app if it is published (Figure 5). Percentage of 82.5% or total of 33 people among the respondents are mixed from Equine Management students, equine industry player, and public users who are willing to install the mobile app if it is published. 10% of the respondents which were three from equine industry and one public user states that they "Maybe" install the mobile app, meanwhile the remaining 7.5% or three public users answered "No" to install the mobile app.

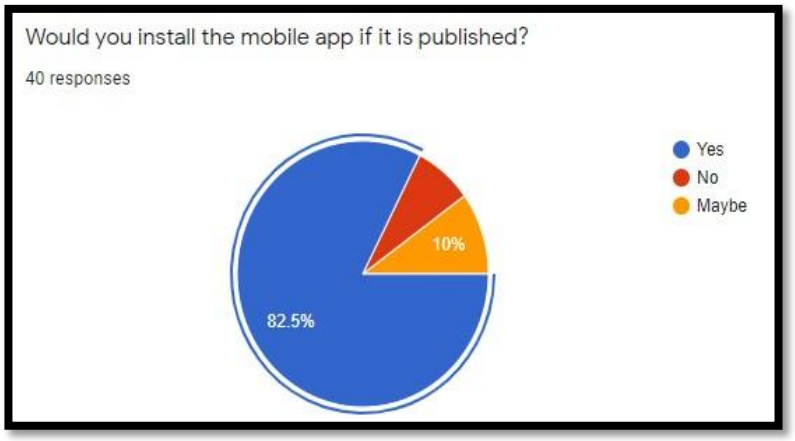

Figure 5. Result obtained from users' interest in installing the mobile app

4. Discussion

The overall result obtained from the System Usability Scale Test had shown a good usability of the Mobile Application for Horse Training Program. Results in both components of positive-preferred and negative-preferred showed towards a positive usability result with the comparable trend as the supposed ideal results.

Results from the five positive-preferred SUS components had obtained a range of mean from 4.30 to 4.60, which are very close to the ideal of 5.00. The range of standard deviation also shows better whereby the range are between 0.54948 to 0.91147 which are under common ideal practice which is 1.10. On the other hand, results for the five negative-preferred SUS components had obtained a range of mean of 2.05 to 2.85 and range of standard deviation of which are less ideal towards 1.10. Meanwhile, the standard deviation range of 1.17561 to 1.44204 are close to ideal but a little bit higher than common practice of 1.10. Comparing both results obtained from the positive-preferred and negative-preferred components had shown a difference in the distribution of the mean and its standard deviation. Overall, the results means that the distribution of the scale is actually very broad as users have various opinion regarding the mobile app.

The most ideal results obtained in this SUS test is question number seven from the positive- preferred SUS components which states that "I would imagine that most people would learn to use this mobile app very quickly". This question obtained a result with the mean of 4.60 which is the closest to the ideal of 5.0 and have a standard deviation of 0.63246 which are low and near to the ideal practice of 1.10.

Meanwhile for the installation interest results, it is very important in term of development of the Mobile Application for Horse Training Program especially for the Bachelor of Science (Equine Management) students in Universiti Teknologi Malaysia and equine industry people in Malaysia as they are the main target users for this mobile app. Among the 82.5% of the result shows in interest of installing the mobile app, the Equine Management students and most equine industry player are keen about the mobile app. This proves that this mobile app is potential and have a high usability function among them.

5. Conclusion

In conclusion, the development of Mobile Application for Horse Training Program is a successful study. This mobile app developments are proven to be beneficial to certain group of people which were the Equine Management students and equine industry player itself. The testing and result obtained in this research project also shows that the local equine industry player and Equine Management students are expecting this mobile

app to be fully developed and published as they are willing to install and use this mobile app.

Upon completion of the development of this mobile app, the equine industry player and Equine Management students are provided with horse exercises information in a simple and convenient manner. In the long run, this mobile app can be used to provide list of horse exercises routine to be done and increase the competency of people who train horse with a more goal-oriented exercise and training.

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