

An Approach to Evaluate Software Usability of E-Communication Application

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Abstract

Educational Apps has become an important educational technology component in teaching and communication between the teachers and the students. It makes it possible for students to communicate, learn, collaborate and share ideas among each other with the aid of internet and technology development. This paper aims at exploring students' attitudes towards the use of MyU App in the Higher Institute of Administrative Service in Kuwait. Finding revealed significant difference among the student's attitudes towards MyU App with regard to their smartphone. Furthermore, results indicated that educational applications could be one of the promising pedagogical technologies to be employed in educational and communicational environment.

Keywords:

Evaluate software usability, E-communication application, communicational environment.

1. Introduction

A mobile application technology, also known as an App, is a software specially designed to run on mobile-based devices, such as a smartphone or tablet computer. Mobile applications meant to provide users with similar but limited services to those accessed on desktop PCs. Smartphone application industry is growing and App users are increasing at a great scale [1]. This is obvious with over 15 billion apps downloaded since the inception of Apple's App store [2]. Apps are being made and developed to help us in every aspect in our daily live routine.

Mobile-based educational applications goal is to facilitate the learning experience. The main benefits of using apps in Education sector is to make teaching-learning process more interesting, also to develop interest and curiosity among the learners, and help to save the teaching and learning time for the teachers and students.

Usability mobile-based educational applications is crucial to measures as it shows the general satisfaction of

users. Specifically, if these Apps are integrated within the processes of educational organizations, as these Apps may either accelerate users' knowledge or add to their experience. After deploying the App, a specific procedure needs to be followed to ensure the apps quality [3]. Usability evaluation is used as a mean to ensure quality and engage users after an initial launch of an App. This need is extended to academic management Apps to support the academic process and keep users satisfied. The intention of this study is to explore student's attitudes towards a chosen web-based communication application from the student perspective.

The paper starts with a summary of a literature review about the concept of usability and the standard usability standard tools. The literature review emphasises that the Arabic region lacks research in perceived usability and standard usability tools, and an overview specifically SUS is presented. To help advance the Arabic region in usability studies a standard usability tool is administered on MyU App. This study presents a female student perspective of usability evaluation of an academic management and communication App. It is administered using the Arabic-System Usability Scale (Arabic-SUS) tool [4]; an Arabic adaptation of the standard System Usability Scale (SUS) [5][6]. The research conducts psychometric evaluation on the perceived usability data of MyU App. Results are then presented followed by a discussion of the empirical implementation of Arabic-SUS. The results showed that students agreed that MyU App is considered an easy-to-use App, although most of its features have not been used to its full competency. The paper concludes that there is a need to promote future work in the field of App usability, and continue collecting data for the usability database, specifically on native Arabic language speakers using Arabic usability tools.

II. LITERATURE REVIEW

The user acceptance of any innovative technology is considered as an important issue which determines the success or failure before deploying that technology. The word usability refers to the methods for improving easy to use during the design process. Usability is defined by five quality components:

- 1) Learnability : Can the user easily at first time accomplish basic tasks?
- 2) Efficiency : How quickly can user perform tasks, once he has learned the design?
- 3) Memorability : When user return to the design after a time of not using it, how easily can he reestablish proficiency?
- 4) Errors : How many errors do user make, how severe are these errors, and how easily can he recover from the errors?
- 5) Satisfaction : Is the user satisfied and happy after using the design?

Usability is a multidimensional construct that is context specific, where it is defined as the effectiveness, efficiency and ease of use of a specific system in a specific context [7]. Usability evaluation results vary according to the system's environment and the participants involved in the evaluation process. Where usability measure is conducted at any point of system development [8] [9]; as it serves a specific goal at each development phase. Using standard usability tools after an initial launch of an App, developers and clients will have a prominent way to measure initial acceptance of its usability. The advantage of specifically using a standard tool is that there is common understanding of how the evaluation is to be performed, and how to interpret the results. Utilizing this process as part of system development cycle usually helps in enhancing the overall usability of the system [3].

Standard usability tools are a reliable mean to evaluate the usability of systems [10] [11]. They are developed by practitioners and scholars to measure usability with confidence. Various literature in standard usability is evident with documented processes, approaches and findings [4][9][12][13][14][15]. Many usability practitioners and scholars are adapting standard tools as part of their practice because they appreciated the reliability of their results [13]. Most standard usability tools that evaluate user perceptions are in the form of questionnaires [11]. Standard usability questionnaires use psychometric methodologies. from a certain perspective and goal informs the system developers if improvements are needed.

Standard usability questionnaires if followed correctly can be conducted and interpreted in a fast, and simple manner. The most commonly standard usability questionnaires found in literature are the System Usability Scale (SUS) [5][13], Computer System Usability Questionnaire (CSUQ) [13], Usability Metric for User Experience (UMUX) [11], Usability Metric for User Experience Light (UMUX-Light) [10], and Post-Study System Usability Questionnaire (PSSUQ) [13][14][15].

The System Usability Scale (SUS) is a standard, reliable, commonly used and psychometrically proven questionnaire tool. It consists of 10 statements and the usability score is in the range of 0–100. Its ease of administration and scoring makes it a popular choice among usability professionals. SUS, is a standard questionnaire for system usability that is psychometrically proven. It was developed in 1986, by Digital Equipment Corporation (DEC), by John Brooke. It consists of ten statements that starts with a positive statement followed by a negative one alternatively. A scale of five-point Likert scale that ranges from 1 being strongly disagree to 5 being the most strongly agree. The questionnaire is then statistically analysed to obtain the perceived usability numeric value. For this purpose, we used Arabic version of SUS to evaluate the perceived usability of an academic web-based communication App from its users who are Arabic native speakers [4]. It is also noteworthy that the literature highly recommends the use of SUS on systems, as it is considered as a global measure of system satisfaction; therefore, the authors chose to use its Arabic version in this study.

III. USE OF APPS AND SOFTWARE IN EDUCATION

There are many education Apps that provide different purposes, which make benefit for the educational process easy for the institution to keep the student informed and in touch with their teachers. Mobile-based educational applications goal is to facilitate learning. The main benefits of using apps in Education sector is to make teaching-learning process more interesting, also to develops interest and curiosity among the learners, and help to save the teaching and learning time for the teachers and students. It should save the efforts, time and resources of the educational institute. It can be used also in every educational institute subject area to check the academic performance of the learners. By using these Apps student's records can be maintained and stimulates the thinking and senses of the learners.

Several e-educational systems were adapting this technology. Google Classroom is one of the most popular virtual classrooms offered by Google for E-learning solutions with a lot of features. By using Google Apps for

Education, teacher can distribute and grade assignments through the App, as well as organize all class materials on Google Drive and reach your students to engage them in discussion or to make announcements. Another App is Remind, it allows teachers to communicate with students and their parents in real time outside of the classroom. Moreover, it allows teachers to make class announcements, initiate group chat or contact people private through the App. Another interesting App is Pocket. This application gives you away to quickly save articles, videos and other web contents pertinent to your current or future class lectures. In addition, this App lets you keep anything you save offline, while presenting your articles with an easy to view layout. This increase and improve the reading experience regardless of your device. Teacher's Assistant Pro is another application that allows teacher to keep asset of behavior records for each student in your classroom and offering a quick way for looking up and noting bad behavior and letting you email specific incidents for directly with in the App's mail interface in order to organization the classroom environment.

IV. MYU APP

Since this application was released on the 8th of April 2014, its main goal is to save teachers' time, effort and the day to day hustle and bustle of communicating with students by powering them with a free simple tool for them and their students to connect and share on the go. Moreover, it keeps students engaged, increase class productivity, enrich the teaching experience and supplement it with videos and articles from the web. MyU App offers sending parents picture of their children and answer their questions on important matters instantly. Therefore, by using this App teacher can organize his classes in one place. With this App teachers will be able to send class announcements, reminders and private messages. Share text, photos, video, voice notes and links. In addition, the App can help teachers in uploading documents in the following formats: PDF, Word, Excel, PPT. In addition, the teacher can see who viewed his message and who missed it. This App allows teachers to manage class attendance, receive reports, and chat one-on-one with his students.

MyU also offers a standard 100MB of documents upload space. An upgrade option is available to upgrade MyU to my-Prime for teacher where users will be provided with additional features. It allows 100GB of document space, the creation of 4 extra classes. With the ability to upload up to 8 images at a time, recording up-to 10-minute videos and sharing voice notes up to 2 minutes long. Students and parents can upgrade their accounts to unlock the invisible reader mode, which allows them to read chat messages without the other user finding out.

V. METHOD

Process and Tools

The process below outlines the steps and tools used, it follows procedure of developed a previous study of usability evaluation and changed accordingly.

1. An academic web-based communication application is chosen for usability evaluation.
2. A usability evaluation tool was chosen to measure the perceived usability of the application taking into consideration the goal of the study.
3. Results of usability are documented in a repository with an emphasis of the systems environment user and goal.

Participants and Setting.

MyU App is chosen as a case study to measure the usability of a mobile App in Higher Institute of Administrative Service in Kuwait within the educational community. The App is web-based Academic Management software tool that is becoming a popular management and communication App. It offers an easy paperless solution that can be used with confidence. The app Keep students engaged, increase class productivity, enrich the teaching experience and supplement and communicate with the teacher if needed. By using this app, also the teacher can organize his classes in one place, send class announcements and reminders, share text, photos, video, voice notes, and links and upload documents in the following formats: PDF, Word, Excel, PPT. Also, allow the teacher to see who viewed his message and who missed it. It offers a tool to manage attendance and receive reports and chat one-on-one with the students.

The focus of this study is exploring student's attitudes towards MyU from the student perspective. For students, MyU app fills the gap of needed communication tool between students and their teacher in Higher Institute of Administrative Service in Kuwait.

VI. RESULTS AND DISCUSSION

The Arabic-SUS questionnaire was distributed to female students through a link via MyU App message. Student users were asked to download the questionnaire link from the message. Google Forms was used to create the questionnaire and collect the responses online. The total number of students who responded was 209 students in the second semester of the academic year 2019. Reliability of 0.68 alpha Cronbach is calculated from the collected data. This score is considered a valid and reliable result, where this result is not far from reported results [16]. The Arabic-SUS score were calculated using the method developed by John Brooke (1996) and we obtained 60.75. This represents as acceptable result of usability, where SUS average benchmark is a score of ≤ 68 [5,16]. Perceived usability of the system not far from benchmark of usability.

We have noticed that item 7 in SUS that states “*I would imagine that most people would learn to use this system very quickly*”, has the highest mean, which indicates that MyU app seems acceptable, easy to learn and students would adapt to using it in minimum time. While item 2 which states “*I found the system unnecessary complex*” has the lowest mean, which gives us an indication that it is most not agreed on item between students, thus confirms that MyU App seems acceptable and easy to use.

In general, usability results found in general was acceptable. However, they are considered a below average if we take into consideration the realm of SUS application of software products. Benchmarks are vital to find where a system falls. Even though usability results are acceptable, there is a need for improvement [4,7]. Post A-SUS evaluation focus groups with students confirmed that although MyU App is easy to use but there is a need to introduce the new services and potentials that are still not known among students. Although the results showed that students agreed that MyU App is considered an easy-to-use App, most of its features have not been used to its full competency.

VII. CONCLUSION AND FURTHER STUDIES

This research shows results of a case study that measures perceived usability of a web-based Academic Management App called MyU. MyU App is chosen as a case study to measure the usability of a mobile App in Higher Institute of Administrative Service in Kuwait within the educational community. The MyU App is web-based Academic Management software tool that is becoming a popular management and communication App among educational institutes in Kuwait. An Arabic-SUS questionnaire showed an acceptable level of reliability. It captures the essence of SUS; where SUS provides a reliable

mean to measure usability. Results not only help collect data related to A-SUS, but also sheds insight to how students perceive the new MyU App and if it needs to be improved. Arabic-SUS score was found just above the acceptable average of software genre in general, which indicates that the App would benefit from further enhancements. Future studies would be beneficial if further qualitative practice is to be integrated with MyU which will provide further better understanding. Based on the result, MyU is highly recommended from the respondents. Furthermore, the collection of data over time in diverse studies will allow generalization.

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