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A Comparative evaluation of the UX of WhatsApp Messenger on Iphone X and Samsung S9 Plus Mobile Platforms

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ABSTRACT

The purpose of this research was to carry out a comparative evaluation of the UX of WhatsApp Messenger on iPhone X and Samsung S9 Plus mobile platforms. Apple Inc. and Samsung are the world's major producers of smartphones and over the years, improvements have been made to the products of these companies leaving a more or less constant back and forth debate about the superiority in functionality of one company's smartphone to the other among smartphone users. This paper came from the angle of texting, which is considered the most used form of communication among users of instant messaging applications. A comparison of the UX of WhatsApp Messenger is made on the two smartphones. Users' perceptions about the UX of WhatsApp on the devices were elicited and analysed. The outcome indicated that users of Samsung S9 Plus have a better experience than users of Iphone X.

Key words: Mobile devices, smartphones, software performance, usability, user experience

1. INTRODUCTION

Companies over the years have come up and have produced different brands of mobile devices and have constantly improved on the technology used on these devices to aid better communication. Today the most used form of communication is texting. Texting has also evolved over the years to what it is now, where people can have a quick and short or even lasting back and forth real-time conversation through sending of messages; this is called instant messaging. Many Instant messaging applications have been developed which offer more features than just sending of texts, now people can send images, videos, audios, contacts, documents, locations and so on. In as much as these mobile devices and instant messaging applications have made communication so much easier and better, there are other factors that come to play, factors which include the simplicity to learn how to use these devices and applications, the ease at which they can be used, and the satisfaction derived while using them [6]. As earlier mentioned, there are companies that produce different brands of these mobile devices with different Operating systems (OS) running on them and most time, if not all the time, instant messaging applications are designed for the for specific devices or the OSs. People like applications and devices that are simple, accessible, comfortable and usable and usually go for the brand and the applications that meet these needs [6]. Today there are two most used brands of mobile devices; iPhones and Samsung S series smartphones and a single most used instant messaging application, WhatsApp Messeng er. Just as every other commodity in every market, there is always some sort of competition between products. With ease, simplicity and maximum satisfaction being the desired qualities and since instant messaging applications are designed according to specific phones and their OSs, there is a necessity to examine the user experience of these devices [6]. To this end, the most recent mobile devices or smartphones of Apple Inc. and Samsung were examined using an instant messaging application to know the level at which they meet and satisfy users' needs and impact on their experience.

The firstiPhone was designed in 2007 by Steve Jobs and iOS was the operating system that ran on the device and is still the operating system running on current Apple Inc. products like iPhone X. iMessage, an instant messaging platform peculiar to Apple Inc. products, was introduced in 2011 [10], the same year iPhone 4swas released. iMessage allows users to send texts, documents, photos, videos, contact information, and group messages over Wi-Fi, mobile phone Internet access, or other forms of Internet access to other iOS or Mac OS users, thus providing an alternative to standard SMS/MMS messaging for most users with devices running iOS [10]. A series of improved iPhones have been manufactured over the years along with enhanced versions of the iOS, to the most current, as at 2018, the time of this research, being iPhone X released in 2017 with the iOS version 11. Apple inc. sold 77.3 million iPhones in the last

quarter of 2017 [2]. Samsung, on the other hand was created by Lee Byung-chul, and developed its first mobile phone, the SH-100 in 1988. Samsung continued to release new cell phone models every year, each model being an enhancement of the former with correction of the short falls, up until 2010, when it produced the Samsung Galaxy S, the first device in the S series, which marked the beginning of Samsung's journey to being one of the world's highly ranked and demanded mobile phones. The operating system on these S series devices was and is still the Android OS [12]. In 2011, Samsung released the Samsung Galaxy S2, the model that really put Samsung on the map. It was in this same year that ChatON, an instant messaging application, was introduced by Samsung Electronics to its Samsung phones. The application, though being peculiar to Samsung Galaxy smartphones and Android, was also available on other devices if operating systems like Android, iOS, BlackBerry and Windows ran on them. The application had features which included voice/video chatting, translation, PostON, animated icon, animated message, theme customization, groupchats, SMS/MMS exchanging feature, as well as basic services such as buddy registration, chatting and multimedia sharing. Though ChatON services were discontinued, Samsung produced more S series phones with the most current product, as of the time of this research, being the Samsung Galaxy S9 Plus released 2018 with the android version 9.0.In the last quarter of 2017, Samsung sold 74.1 million units of phones [2].

In recent times, the most preferred form of communication is texting, and there are multiple applications that have been developed for sending text messages apart from the normal SMS/MMS facility that come with mobile devices. As at 2018, according to Larry [11], the most used application for texting was the WhatsApp Messenger. WhatsApp messenger is a freeware and cross-platform messaging and voice over IP (VoIP) service founded in 2009 by Brian Acton and Jan Koum and acquired by Facebook in 2014 [12]. The application allows the sending of text messages and voice calls, as well as video calls, images and other media, documents, contacts and user location. WhatsApp messenger runs from a mobile device but is also accessible from desktop computers. In August 2009, WhatsApp messenger was released for iOS, the following year, 2010, the android version was released. The application runs on operating systems like iOS, Android and Windows [12]. In 2014, WhatsApp had just 450 million monthly active users and 315 million daily active users [9]. By 2017 to 2018, the application had more than 1.5 billion users worldwide [11]; making it the most used instant messaging application in the world. From the creation of the application, it has constantly been enhanced and modified; undergoing addition and removal of features, the most recent update of this application, at the time of this research, was done in 2018 [15]. According to online ratings and statistics, Apple Inc. and Samsung are the two major vendors of smartphones in the world [5] and as expected in any market environment, there has been a level of competition between the mobile devices of these companies, from the type of hardware being used and the design of their devices, to the kind of software being used in their devices, to user interfaces and interactivity and so on [5]. Though there are various angles one can look from when trying to compare the two smartphones, this study used texting, using an instant messaging application (WhatsApp messenger), to make a comparison between the Apple Inc. iPhones and Samsung smartphones.

A comparative evaluation of the UX of WhatsApp Messenger on the Iphone X and Samsung S9 Plus mobile phones was made. No prior study has done any such assessment or has specifically compared the models of the android and Iphone smartphones addressed in this study via the use of WhatsApp Messenger. The study seeks to address whether the UX of Apple Inc, brand is better than that of Samsung brand when used on WhatsApp instant messaging or vice versa. This research is delimited to smartphones; Apple Inc., iPhones and Samsung smartphones that were produced between September 2017 and March 2018. This time span is vital to this research because it was the period the most current mobile devices for the two companies at the time of this study where produced; iPhone X and Samsung S9 Plus to be specific. The paper is also delimited to the most current version of WhatsApp messenger (2.18.380).

2. METHODOLOGY

Selection of Tools/Materials: iPhone X and Samsung S9 Plus: According to Bhasin [5], Apple Inc. iPhones and Samsung's mobile phones are the two of the world's most used brands of mobile devices as at 2018. The Operating systems (OS) that run on these devices are the iOS and Android operation systems, respectively. These operating systems have undoubtedly gained high ratings and improvements over the years. The selection of the iPhone X and Samsung S9 Plus devices was due to the fact that at the time of this study these particular smartphones were the latest products of Apple Inc. and Samsung respectively. The devices had the latest technology from the companies that produced them with the latest versions of iOS and Android running on them, thus, ideal for carrying out the comparison, considering that they have been in a market competition over the years. Table 1 shows the key specifications of both phones used that are relevant to this paper.

Table 1: Specifications of iPhone X and Samsung S9 Plus

Specifications	iPhone X	Samsung S9 Plus
OS	iOS 11	Android 9.0
PROCESSOR	2.39GHz Hexa-core	2.7GHz Octa-core
RAM	3GB	6GB
STORAGE	64GB	64GB
DISPLAY	5.80-inch (OLED)	6.2 Inches (AMOLED)
RESOLUTION	1125x2436 pixels	1440 x 2960 pixels
REAR CAMERA	Dual – 12MP + 12MP	Dual – 12MP + 12MP

FRONT CAMERA	7MP	8MP
BATTERY CAPACITY	2716 mAh	3500 mAh
DUAL SIM	NO	YES
4G/LTE	YES	YES

WhatsApp Messenger: WhatsApp messenger is the most used application amongst students [11], this is due to its simplicity of use and the number of features it offers and so it was selected to be used in this study. The version of the WhatsApp Messenger application selected for this study was v2.18.380, since it was the most current version at the time. Asides the conventional texting, group chatting, document, media and contact sharing, video and voice calling, profile updating features that this application offered, some new features like Group video and voice calling, suspicious link indicator and message forwarding restrictions (for security purposes), media visibility, status upload, predictive upload, contact, status, and notification muting were added to it in its current update [1].

Selection of Evaluators: This selection was done using the Quasi-Experimental design. This method allows for the nonrandomized selection of evaluators. The decision to use this method of selection was due to the need to choose specific evaluators who had different levels of experience in using smartphones. Ten (10) student evaluators from Veritas University, Abuja who fall within the ages 18-23 were selected for the evaluation. Lastly, protective and security measures were taken to avoid any damages or disappointments as the phones used for this study were owned by students and were quite expensive. The evaluators were chosen from among students who were at close proximity to the devices and the owners of the devices. They were separated into groups of experience levels; A-D, with 2 evaluators in each group, except group D with 4 evaluators. The experience levels as follows

Table 2: Groups of Evaluators

Group	No. of Evaluators	Experience Level
Group A	2	Current users of iPhone X and Samsung S9 Plus
Group B	2	Users of older Apple inc. and Samsung brand products
Group C	2	Users of other smartphone brands(though have used iPhones or Samsungs before)
Group D	4	Users of other smartphone brands (but havenot used iPhones or Samsungs before)

Data collection: Each evaluator was given a set of tasks to carry out on both devices. These tasks include:

i. Locate and launch WhatsApp Messenger.
ii. Search for a new contact.
iii. Send messages.
iv. Create a group chat.
v. Open and send a file through WhatsApp Messenger (i.e. Documents, Photos, Videos, Audio).
vi. Mute a contact.
vii. Update status.
viii. Change wallpaper in WhatsApp Messenger.
ix. Take a screenshot.
x. Reply a message without entering WhatsApp Messenger.

After the tasks, a questionnaire was given to the evaluators to answer and to rate the devices and their experience while using it on WhatsApp Messenger. The questionnaire consists of pairs of contrasting attributes that may apply to the product. The UEQ questionnaire [18] was adapted for the purpose of this study as shown below.

Table 3: Questionnaire to Evaluate the Device and Experience

Quality	Yes	Not Sure	No	Quality
Annoying				Enjoyable
Not understandable				Understandable
Creative				Dull
Easy to learn				difficult to learn
Valuable				Inferior
Boring				Exciting
Not interesting				Interesting
Unpredictable				Predictable
Fast				Slow
Inventive				Conventional
Obstructive				Supportive
Good				Bad
Complicated				Easy
Unlikable				Pleasing
Usual				Leading edge
Unpleasant				Pleasant
Secure				Not secure
Motivating				Demotivating
Meets expectations				Does not meet expectations
Inefficient				Efficient
Clear				Confusing
Impractical				Practical
Organized				Cluttered
Attractive				Unattractive
Friendly				Unfriendly
Conservative				Innovative

Evaluation Method: Cognitive walkthrough was utilized in the study. This method assumes that the users already know how to use the WhatsApp app on the Samsung S9 Plus and iPhone X platforms and thus allows these users/evaluators to use the app on the two devices they normal way they should have used it without support from the researchers.

3. FINDINGS

Evaluators' perceptions: after the tasks given were carried out and the questionnaire answered, the results of evaluators' perceptions were taken and are represented in the chart below:

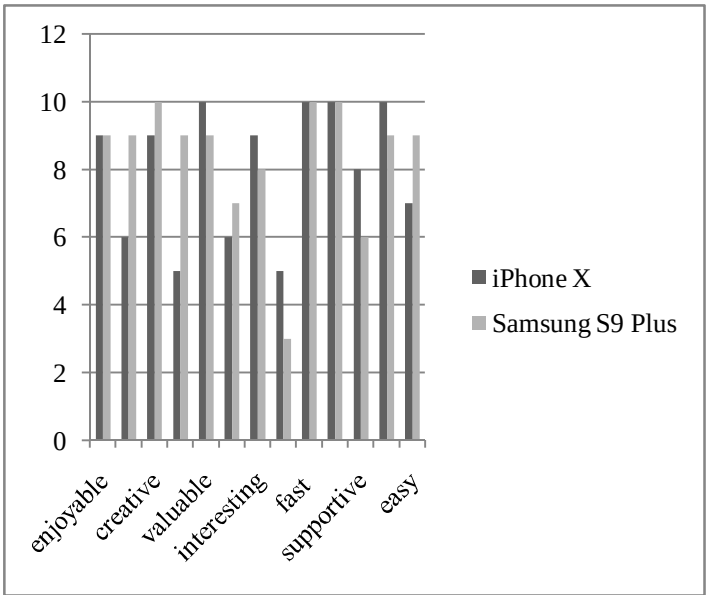

Figure 1: Distribution of Users' Perception about the two Devices on WhatsApp Part 1

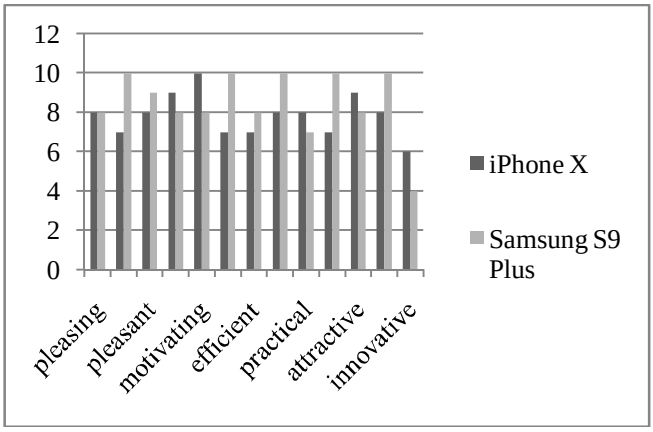

Figure 2: Distribution of Users' Perception about the two Devices on WhatsApp Part 2

While the chosen evaluators were carrying out the given tasks given to them, some issues and difficulties were encountered which include:

- Taking screenshots: while using the iPhone X, evaluators in Group D tried the normal ways they knew which did not work out and most could not figure out how to take the screenshot. Even as there was a manual way of taking the screenshots, the evaluators could not recognize it as there were no signs to identify it as compared to the Samsung S9 Plus.
- Evaluators in groups B and D commented that the icons on the iPhone X were not the usual type and so they had to take a little more time to recognize what icon was meant for what.
- Generally in all the groups apart from the software aspect, they commented that the Samsung S9 Plus was more or less too fragile and the slightest mishandling might cause some level of damage. While there were few complains, there were also some commendations like:
- Evaluators in groups A and B described the Samsung S9 Plus as the most complete device they have used. It is complete in the sense of being easy to understand, not lacking a feature or function they could think of and so on.
- Evaluators in group D commented that the interface on the iPhone X is not like all other devices they have used. This makes the phone unique and given some amount of time anybody can learn to use and be comfortable with it.
- Generally the looks of the Samsung S9 Plus was appreciated by most of the evaluators as it looks very different from its predecessors. It was also physically stronger than iPhone X.

On average, the overall perception of evaluators is that the Samsung S9 Plus is better than iPhone X excepts for some qualities (see Figs 1 and 2). Due to the updates of the WhatsApp messenger app, more tasks were given to evaluators to carry out. From the study, it is known that iPhones do not let its users transfer audio files, access details to the other media files, however, the users think the interface is interesting and unique and has a stronger exterior hardware. On the other hand, SamsungS9 Plus is physically fragile, though is more efficient and more usable. Also, for WhatsApp messenger, the interface is different on the different devices because of the OS running on them, size limits are also placed on files that are being transferred through the application and the update made to the applications offered more tasks to be given when trying to evaluate the application or the devices on which it runs [3-4][7-8][13-14][16-17]. This evaluation reveals areas to fix on both devices and on the app.s

4. CONCLUSION

From the results and findings in this paper it can be seen that both devices had most features in common, though not all were accessed the same way. Users cognitively know what steps to take to complete a task, except for new or infrequent users. Also, after analyzing the results from the questionnaire it can be clearly seen that users were generally comfortable that the device provides what they need in their day to day activity. Users tend to appreciate the device that is easier to understand and use while being in style and of which Samsung S9 Plus provided all these. Evaluators' results show that though the iPhone X has a stronger exterior and a more unique user interface as well as generally a more secure software, the Samsung S9 Plus is still easier to learn and understand for a first time user and generally more user friendly.

The study recommends and suggests the following:

i. Hardware and exterior of the Samsung smartphone should be made not only considering the slickness and design but also to withstand certain hazards or mishandling. Stronger materials should be used in the making the exterior of the device.
ii. WhatsApp should make provision for sending and uploading files greater than the set size limits. The size limits can either be increased or a charge can be applied to users who want to send or upload files greater than the size limits.
iii. There should be provision for iPhones to send audio files.
iv. Apple Inc. should provide a means of checking details of images and other media files without its users having to download a third party application.

The study however had the following limitations:

i. The comparison was done using just texting and a single application (WhatsApp Messenger).
ii. The evaluators were chosen from a particular age group of older teenagers and young adults and consisted of only students, thus not giving room for older and younger people and from other fields as well to evaluate the products based on their daily routines and needs.
iii. The purposive method of choosing the evaluators did not give much room for limiting bias.
iv. The devices used were not new (fresh out the box) and so, had undergone some hardware depreciations.

Future works will target comparing the recent products of these frontline companies (Apple Inc. and Samsung) using more than one other applications. Also, users of other age categories and other walk of life will be used, to assess their experience in the different contexts.

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