

## **Digitalization of Holy Quran (Quranic Applications): Challenges and Concerns. Special Reference with 4<sup>th</sup> Year Students of South Eastern University of Sri Lanka**

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### **ABSTRACT**

Quran is the sacred, the most authentic, and unchanged book of the God since its revelation over 14 centuries. People usually read Quran using the traditional printed version on paperback format called Mushaf. Which is the verbatim word of Allah. The recent advent of smart technologies like smart phones, digital devices and tablets has collected the daily life routines under a single touch and most of the Muslims are adopting these new tools with an exponential growth. The growth of online digital multimedia content has enabled the rapid digitization of printed manuscripts, resulting in faster and more effective dissemination of digital publications. In this paper, we highlight the challenges and concerns that Muslim community has relevant to the digitization of the Holy Quran. A survey was conducted to explore the trends and adoption of technology using digital and smart devices for reading And learning Quran in the Muslim community. In addition, it was also endeavored to identify that how Muslims feel important or mandatory to have an Islamic body to monitor and endorse the digital versions and copies of the Holy Quran available in the digital format in the market. The paper is supported by a survey results and analysis extracted from 12 questions and 36 responses, five interviews and three discussions from different faculty students of South Eastern University of Sri Lanka.

**Keywords:** Digitalization, Holy Quran, Survey, Smart devices

### **INTRODUCTION**

The Holy Quran is the book of divine guidance and direction for humanity. It is the central religious text of Islam, Which is the verbatim word of Allah. In these 21<sup>st</sup> century, new technologies are mostly used by every kind of works. Today people communicate in seconds with e-mails and other online/digital means. Information of every type is accessible over the Internet through different digital means to anyone, anywhere and anytime. The digital age has revolutionized the world of communications and transformed societies, economies, and private lives of billions of people. The Internet, mobile phones and related smart technologies have rapidly spread to all over the world.

The presence of Islam on the Internet is very impressive where Muslims have been using the Internet for everything imaginable and in all different aspects of life from spreading their religion to educating themselves about their religion and communicating with each other. According to “Internet World Statistics” the Internet usage has increased after 2000 emphasizing the fact that technology is penetrating societies very rapidly as well as it has a great impact on societies. According to the Internet World Statistics (2017), the number of Internet users as of March 31<sup>st</sup> 2017 exceeded 7 billion that means approximately 100% of the world population uses the Internet. In Asian region 4 billion people uses the Internet. That means approximately 55.2% of the world population. Noticed that there were approximately 19% of Muslims uses the internet.

Today we can see everyone who use the mobile phones without age limit. According to BBC Measuring the Information Society 2010, the number of mobile phones in 2010 exceeds the 5- billion figure where the population for the world has reached more than 7 billion in November 2011, which means that over 70% of the population on this earth are using mobile technology. ([www.bbc.co.uk](http://www.bbc.co.uk), 2012) this shows how much we are relying on technology in our daily live. ( Muhammad Khurram Khan, 2013 )

Nowadays most paper based documents are digitalized with the support of new technologies. A number of problems were noted when relying solely on those apps. Like that Quran and other hadees books are also digitalized. Now we can get it from digital format. Most Arabic countries have a history of vast recorded literature, which is not yet fully digitized. Converting data into digital format is a challenging task for information systems and development based organizations. Considering that writing is the preferred method to express ideas and share information, traditional writing has now been integrated with digital documents using certain tools, such as digital pens, digital panels, personal digital assistant (PDAs), computer hardware, and mobile phones. Most of those tools have touch sensitive screens, which assist the users in writing text on the screen as input to the device. However, today’s online Quran and Islamic books are lagging behind in terms of employing structured digital content. There are 451 religious apps. In that 209 apps are digitalization of Quran apps. Muslims have been using the Internet for online education and distance education, Quran memorization/learning, Quran teaching, online businesses, banking, socializing, politics and communication, sharing news, research works and also use to spread their religion. (Mohammed Zakariah, 2017)

There are so many Islamic websites have appeared over the Internet and also did many websites spreading false Islamic ideologies about Quran and Islam religion. Some non-Muslim people who develop and spread wrong Quranic apps to give bad direction and bad name for the Islam and Muslims. Therefore, the lack of a controlling authority to provide standards and guidelines for Muslims using the Internet lead to many problems and so is the issue with the Quran and attempts to create unauthentic and fake copies, such as the True Furqan. The use of ICT technologies combined with software

applications for propagating and teaching the Quran, in addition it. Evaluated the effectiveness of digital technologies for serving the Holy Quran.

Today almost all of our daily activity is being transferred from the traditional approach to the smart environment. Accomplished by using hand-held digital devices like smart phones, tablet PC(s) and other devices. Similarly, people are shifting to electronic or smart devices to read/recite their religious books rather than using a regular paper printed book. Millions of Muslims are also using smart devices to recite Quran and other religious material, which is easily available through websites. This inspired and motivated us to perform a general survey, which was distributed electronically around the globe in order to know the level of awareness of digital and smart devices usage among Muslims for reciting and learning the Quran in digital format.

## **PROBLEM STATEMENT**

In the light of the information revolution and the scientific challenges of the 21st century, there is a sweeping trend to use computers in all aspects of life and education is no exception. On the other hand, the world is heading towards knowledge economy and a lot of money will be invested in computer assisted Quran learning instructional mobile apps using multimedia techniques. Therefore, it is worth investigating the effectiveness of mobile apps on the performance of learners.

And the challenges when using Quran in digital devices. And also now the level of the awareness of Muslims towards the fake Quran availability in the market.

## **OBJECTIVES**

The primary objectives behind this study are;

- To know, how people use technology in learning and reciting the Quran.
- To know how much people feel reliable while reciting an online source of the holy book of Quran.
- To know whether people prefer reading an online version of the Quran or on paper format.
- To know the reasons behind not reading the holy book on a digital device
- To know the awareness of Muslims towards the fake Quran availability in the market
- To know the observation of the importance of an international Islamic monitoring body to validate and scrutinize the digital versions of the Holy Quran

## **SIGNIFICANCE OF THE STUDY**

The digitalization of Quran and using android app to learn or recite Quran is in need for more research in world wide. To the researchers best of knowledge, studies about mobile based instruction in Sri

Lanka are not so many. A few studies about the use of digitalization of Quran through mobiles apps to Srilankan learners or researchers have been conducted. This is an anticipated that this study will shed light on the benefits of using digitalized Quran through mobiles apps. This study also attempts to bridge the gap between the paper based Quran (Mushaf) and digitalized Quran apps. Thereupon the findings of the study maybe functional for different categories of people.

## **LITERATURE REVIEW**

Muhammad Khurram Khan, Yasser M. Alginahi, (2013) did a research under the heading of The Holy Quran Digitization: Challenges and Concerns. In their research they highlight the challenges and concerns Muslim community has relevant to the digitization of the Holy Quran. A survey was conducted to explore the trends and adoption of technology using digital and smart devices for reading and learning Quran in the Muslim community. In addition, it was also endeavored to identify that how Muslims fee important or mandatory to have an Islamic body to monitor and endorse the digital versions and copies of the Holy Quran available in the digital format. The paper is supported by tactful survey results and analysis extracted from 17 questions and 668 responses from different parts of the world.

Manal Elobaid, Moawia Elfaki Yahia Eldow, (2016) in their research they are describes a project focusing on developing application software for android device. The aim of the research is proliferate the learning of holy Quran using latest technology for non-Arabic speakers. And also they explain that, smart phones are becoming our center of our lives, these devices are brining immediacy and availability of the internet. That has changed and transformed the way of people access information. Therefore there is utmost need to utilize this fast growing technology in propagating the teaching of the Quran. And finally they state that they are going to develop a Quranic app called AN-Noor app. This application will fulfill the need of non- Arabic speakers and it also will replace the mistakes of other Quranic apps. And also they hope that it will be useful for everyone.

Mohammed Zakariah, Muhammad Khurram Khan, Omar Tayan, Khaled Salah (2014), did are search under the heading of Digital Quran Computing: review classification, trend and analysis. For this study they used a comprehensive and detailed survey was provided that encompasses most of the previous work and emerging issues related to Digital Quran Computing including Quran authentication, e-learning, mobile and game techniques, Natural Language Processing (NLP) standardization and voice reorganization. And also he outline open challenges and future research direction, particularly related to the security and authentication of digital Quran content. Finally he state that there should be an authorized international Quran publishing body, solely dedicated and responsible for monitoring, scrutinizing, endorsing and publishing the digital copies of the Holy Quran and related content.

## RESEARCH METHODOLOGY

Research Methodology is the most important part of a research. This is a survey type research. Here we have used primary and secondary data collections method. The target population of the study was 4<sup>th</sup> year students of Faculty Of Arts & Culture, Faculty Management & Commerce And Faculty Islamic Studies & Arabic Language Of South Eastern University Of Sri Lanka. Total population of the study was 146 of three faculties (FAC=70, FMC = 55, FIA = 21) of South Eastern University of Sri Lanka. We randomly selected 12 students of each faculties. Totally 36 students were selected to the study. Relevant data & information were collected through structured questionnaire. Finally we analyzed the data with the help of excel package. And also we used observation, interview and discussion were held regarding the android app of Qurans. And also we used internet, research articles, and statistic reports as secondary data collection method.

## DIGITAL QURAN ON MOBILE & WEB APPLICATIONS

In addition to the questionnaire (survey) discussed above, information on current available Quran mobile apps was gathered from many Internet resources. To the best knowledge of the authors the information collected reflects all what could be found from the Internet as of November 2012. The number of mobile Quran applications found was 209. There could be other apps, which were not included in the statistics. However, since there is no central body to provide this information it will be difficult to have a complete comprehensive data on all software developed for the Quran. (Muhammad Khurram Khan, Yasser M. Alginahi, the Holy Quran Digitization: Challenges and Concerns)

OS/Format	No. of Quran Apps	Apps available free	Apps for Money	
			No. of Apps	Price
Android	107	99	8	\$1.94
Apple	44	13	29	\$6.03
Black Berry	11	10	1	\$0.99- \$14.99
J2ME phone	12	12	0	\$3.99
Symbian	7	7	0	-

<b>iPad</b>	<b>8</b>	<b>8</b>	<b>0</b>	
<b>Web-based</b>	<b>7</b>	<b>7</b>	<b>1</b>	
<b>PDF</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>-</b>
<b>Windows</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>-</b>
<b>Windows – Linux, Mac</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>-</b>

*Table1: Statistics on Quran Mobile Apps*

The survey showed that there are many Quran apps in different OS and formats with about 15% of them designed in different languages other than Arabic or English. However, not all information was available about all the apps. Therefore, from the information gathered, Android OS share over 50% of the apps available followed by Apple then J2ME with less apps designed for Symbian and Windows OS. The size of the applications vary from one application to another with the highest size found to be 638MB and the smallest size of 79KB, also this information was not available for all apps. (Muhammad Khurram Khan, 2013)

Quran android is a free, open source application for android devices. Quran android provide the following features.

- Crystal clear Madani compliant images.
- Beautiful and smooth page transition effects.
- Works on android phones without Arabic support
- Support for reading on tablets and large screen phones
- Landscape mode for even larger fonts and more comfortable image viewing.
- Bookmarking and tagging of an unlimited number of pages.
- Can search your favorite translation.
- Audio recitation (with verse highlighting) for number of different reciters.
- Quran translation in many languages.(currently Arabic Thafseer, English Sahih International Translation, French, German, Indonesian, Malay, Spanish, Turkish Translation, Urdu, Tamil and Sinhala )

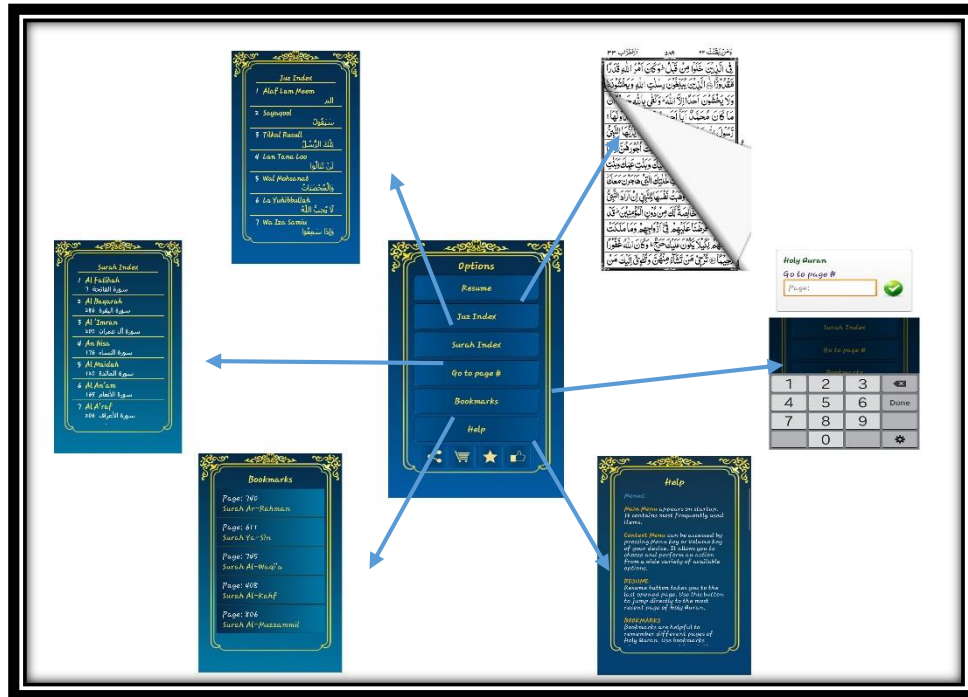


Figure1 : Sample Android Quran App.

## RESULT & DISSCUSSION

In this section, the survey results are presented and analyzed. We were selected the population is youth (4<sup>th</sup> year students of SEUSL). Because youth people are mostly used the phones. It means youths are addicted to the phone. And also nowadays mobile companies are produce the phones for younger peoples. The total number of people participated in this survey was 36. The ratio of females to Males participating in this survey was 68.6: 31.4, respectively. Therefore, this confirms with the objective of the survey to investigate educated people who are exposed to different forms of digital technology such as personal computers, smart phones, tablets, and all sorts of portable digital gadgets. The participants of the survey were Muslims students from different faculties of South Eastern University of Sri Lanka. We were given 12 questions in the questionnaire. The results of each questions are given below in tabular format.

Question 1: How often do People Recite Quran?		
Answer options	Response percent	Response Count
Daily	47.2%	17
Alternate days	22.2%	8
Un planned	19.4%	7
Prefer not to say	11.11%	4
Answered Questions		36

Table2: Statistics on how often do People Recite Quran?

<b>Question2: How people prefer to Recite the Quran?</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>On paper (Mushaf)</b>	22.2%	8
<b>On-line</b>	16.6%	6
<b>On-paper &amp; On-line Both</b>	33.3%	12
<b>By software download through mobile app store</b>	27.7%	10
<b>Answered Questions</b>		36

*Table3: Statistics on how people prefer to recite the Quran*

<b>Question3: Do you prefer reciting Quran on a Mobile device or a digital device?</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Mobile device</b>	30.5%	11
<b>Digital device</b>	19.4%	7
<b>Both</b>	36.1%	13
<b>Don't use any device</b>	13.8%	5
<b>Answered Questions</b>		36

*Table 4: Statistics on Reciting Quran from Mobile/Digital Devices*

<b>Question 4 : (Question 8) - While reciting Quran on-line or on mobile application, do you have the feelings of uncertainty if the digital version of Quran is fake, tampered or has typing mistakes</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Yes</b>	25%	9
<b>No</b>	41.6%	15
<b>Sometimes</b>	25%	9
<b>I never had any peculiar feeling</b>	8.3%	3
<b>Answered Questions</b>		36

*Table 5: Statistics on Feeling of Uncertainty when Reciting from Digital or Online Applications*



<b>Question 5: If you do not read the Quran from digital devices, What is the reason for not reciting the Quran on a digital device?</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Medical reasons</b>	13.8%	5
<b>Feel Uncomfortable</b>	47.2%	17
<b>Uncertainty, forgery might be possible due to unauthentic sources</b>	27.7%	10
<b>Other</b>	11.1%	4
<b>Answered Questions</b>		36

*Table6: Statistics on Reasons for not reciting the Quran from Digital Devices*

<b>Question 6: Do you think that Authentic Copies of Quran are Available on Digital Devices?</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Yes</b>	30.5%	11
<b>No</b>	11.1%	4
<b>Maybe</b>	33.3%	12
<b>I don't have any idea</b>	25%	9
<b>Answered Questions</b>		36

*Table7: Responses to Question “Do you think that Authentic Copies of Quran are Available on Digital Devices’*

Most people who are not sure or suspect that fake/tampered copies of the Quran exist. As expected Muslims prefer to read authentic copies of the Quran.

however if the copy is digital then some people may not prefer to read from online, mobile or digital devices due to reasons, such as the following quoted from the survey responses:

- Weak eyesight.
- Feel uncomfortable.
- The reverence feeling of reading the Quran is lost, since technology reduces the reverence of reading the Quran.
- The printed Mushaf is a respected object. Even if the digital copy is authenticated, our next generations and we are going to lose the skill and respect of dealing with the Mushaf. Also, the ease of carrying a digital copy in our pockets may encourage many people to stop memorizing the

Quran since carrying a paper Mushaf with us everywhere is not as easy as carrying a digital copy in a palm size device that we are carrying with us anywhere. Quoted reasons from the survey responses for reading the Quran from authentic digital copies (online and/or digital devices) of the Quran are:

- Portability and convenience
- Ablution is not required for recitation as it is not a Mushaf (paper copy)
  - Women during their menstrual period find it convenient to use digital devices since they are not allowed to touch the Mushaf during their periods.
  - Those who memorize the Quran by heart can detect any mistakes; however, they only prefer to read digital copies in certain occasions, such as during travel or when no paper copies are available.
  - Digital and mobile devices provide privacy in public areas where a person can read the Quran and people won't know that they are reading Quran. It can also be taken to the washroom with no problem. Mobile devices have longer battery life and are preferable over digital devices.
  - Digital copies are for quick checking/searching for Ayahs, Tafseer, etc.

<b>Question 7: Do you think that the digital copy of the Quran available on a digital device is authentic?"</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Yes</b>	50%	18
<b>No</b>	43.2%	12
<b>Why?</b>	11.1%	4
<b>Why? (please specify)</b>	5.5%	2
<b>Answered Questions</b>		36

*Table8: Responses to the Question "Do you think that the digital copy of the Quran available on a digital device is authentic?"*

<b>Question 8: Do you prefer reading a digitally signed and 100% authentic copy of the Quran on a digital device?</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Yes</b>	44.4%	16
<b>No</b>	33.3%	12
<b>Why?</b>	13.8%	5

<b>Why? (please specify)</b>	8.3%	3
<b>Answered Questions</b>		36

Table 9: Responses to the Question “Do you prefer reading a digitally signed and 100% authentic copy of the Quran on a digital device

<b>Question 9: Have you ever come across a fake/containing errors version of Quran available on-line?</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Yes</b>	47.2%	17
<b>No</b>	52.7%	19
<b>Answered Questions</b>		36

Table 10: Responses to the Question Have you ever come across a fake/containing errors version of Quran available on-line

<b>Question 10: Do you agree that it is unavoidable and necessary to have an authentic Islamic body monitoring and endorsing the digital copies of the Quran around the globe</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Yes</b>	100%	36
<b>No</b>	-	0
<b>Why?</b>	-	0
<b>Answered Questions</b>		36

Table 11: Responses to Question Do you agree that it is unavoidable and necessary to have an authentic Islamic body monitoring and endorsing the digital copies of the Quran around the globe

The results from Question 10, in which 100% of the respondents urged the need to have an international Islamic body to monitor the authenticity of the digital copies of the holy book.

<b>Question 11: do you think that more people will read Quran in digital format on mobile/smart phones than paperback book format?</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Yes</b>	41.6%	15
<b>No</b>	25%	9
<b>Maybe?</b>	33.3%	12
<b>Answered Questions</b>		36

Table 12: Responses to Question: “do you think that more people will read Quran in digital format on mobile/smart phones than paperback book format?”

<b>Question 12: Are you aware of any organization that provides authentic digital copy of the Quran?</b>		
<b>Answer options</b>	<b>Response percent</b>	<b>Response Count</b>
<b>Yes</b>	33.3%	12
<b>No</b>	61.1%	22
<b>If yes (please specify?)</b>	5.5%	2
<b>Answered Questions</b>		36

*Table 13: Responses to Question: “Are you aware of any organization that provides authentic digital copy of the Quran?”*

## **FINDINGS**

End of the study we found something related to the quranic applications that are

- It is noticed that many of the Quran applications available on CDs are incomplete, with some Surah’s missing or contain some typos. Similarly, some of the MP3 versions of the Quran available on the Internet do contain mistakes.
- There is a different feeling when reciting Al- Quran through book and a different feeling while reciting online (digital device Reading from the Mushaf is very important in not to neglect the Quran, also a digital copy of the Quran is essential since it helps to read more due to its portability and easy to carry to different places especially when traveling to non- Muslim countries; therefore, both option are very essential.
- There should be an Organization, with only one responsibility, i.e. to monitor the online Quran and Its Translations on Websites. There is a different feeling when reciting AL Quran through book and a different feeling while reciting online (digital devices).
- The Quran (Mushaf) comes as a witness for us. On the hereafter and the best thing is to make ablution and read the Quran form the Mushaf more and more for a greater reward.
- Prefer to use printed version that needs ablution before touching and gives the sense of honor and purity .but when using Quran in mobile or digital devices ablution is not required.
- Emphasis is laid on the need for monitoring other holy scriptures/content, such as Al-Hadith (Prophetic narrations), that are available in a wide variety of digital formats and accessible on Internet-enabled smart mobile phones and portable devices
- We found there are so many mistakes in digital version of Quran and also some mistakes in translations also



Figure2: wrong translation

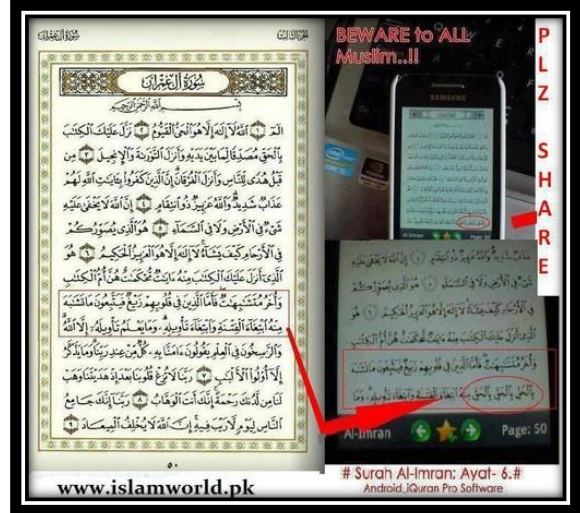


Figure3: wrong Quran verse in an app

## RECOMMENDATION

- Muslims around the globe have urged for the need to have an International Islamic Body solely dedicated and responsible for monitoring, scrutinizing and endorsing the digital copies of the Quran.
- Muslims are also emphasizing on monitoring other holy materials like Hadiths (saying of prophet), available in a wide variety of digital formats accessible on smart phones and smart devices like tablets, etc.
- Using digital Quran, its verses can be crosschecked from different sources.
- We need to develop some cookies for smart phones, which can authenticate the Quranic characters word by word according to the writing styles before reading. This can be done using imaging processing matching techniques.
- I hope there will be an authentication body for Quran applications, which does not allow any unapproved (certified) application/software to be available in the market without any approved seal or watermark.
- Muslims should have very strict check over the web on any kind of site being filled with
- Islamic information and have kind of forum or kind of list provided somewhere about the sites containing fake Islamic material info or anything like that.
- We should put more effort in awareness of using digital copies of Quran. We should make it clear for people that such copies are useful for indexing and search purposes only, but not recitation.
- Digital copies of Quran are not new, we have been using it since the early 1980s, but they were just used as a reference or index while the full text is taken from the paper Mushaf. Finally, recitation is one way of worshipping Allah and we should not expose that practice to modernization and innovation.

- There is an urgent need to have an authorized International Quran publishing body solely dedicated and responsible for monitoring, scrutinizing, endorsing and publishing the digital copies of the Holy Quran and related content.

## CONCLUSION

In conclusion, the source of information for the apps was mainly websites. Most of these websites may not be authentic and could be sponsored by groups or organizations, which may not follow Islamic rules and guidelines. The developers are mainly companies or individuals who may not have the Quranic scholars to approve these applications for distribution and no information were provided on the Certification and authentication of these digital apps. Finally, without a certifying body to regulate the development and distribution of these apps there is always that doubt in the mind of those using mobile apps if the apps on their mobiles are authentic or not.

The study was distributed through questionnaires. The survey analysis revealed that almost 80% of participants had used various technologies for assisting in Qur'an memorization recitation. The participants were evenly distributed concerning the appeal of online or portable technologies as compared with traditional methods. It also showed that participants over 50 shared the opinion that technology is more appealing to the younger generation. Finally, the analysis provided suggestions for new applications and improvements to the existing technologies in order to further enhancement. (Tayan and Alginahi, 2009).

The survey analysis and detail results have elaborated the following conclusions:

- Young generation uses smart technologies more as compared to other age groups and they are adopting to learn or recite religious literature e.g. Holy Quran in digital format.
- Almost, the majority of people among the respondents have recorded their uncertainty while reading the holy book using a digital device or online e.g. mobile apps.
- Due to the fact of past and recent incidents of forgeries, people still prefer reading Quran on a paperback format than reciting it on a mobile or digital device.
- The main reasons behind the uncertainty are the feeling of a forgery or other related issues like typos, medical reasons and other unspecified reasons, etc.
- Muslim population around the globe is almost unaware or lacks the knowledge of the fake Quran available in the market in different digital formats.

Based on these conclusions and facts, it is mandatory to have concrete preventions and measures to monitor the digital copies of not only the holy book i.e. The Quran, but to monitor each and every resources of Islamic material being published online. This includes, digital material made available on

mobile devices and smart phones, tablets and personal computers, digital devices, and online Islamic websites etc.

## REFERENCES

Applied Information Technology. 15th October 2016. Vol.92. No.1. © 2005 - 2016 JATIT & LLS. All rights reserved.PP20

"BBC Measuring the Information Society 2010" (PDF). BBC News. 2010-07-09.

<http://www.bbc.co.uk/news/10569081>

Heidi A. Campbell, Brian Altenhofen, Wendi Bellar, Kyong James Cho. There's a religious app for that! A framework for studying religious mobile applications. (2014). *Mobile Media & Communication* 2014, Vol. 2(2). PP154–172

[http://www.nationmaster.com/graph/med\\_mob\\_phomedia-mobile-phones](http://www.nationmaster.com/graph/med_mob_phomedia-mobile-phones), accessed: April 18, 2017.

Internet World Statistics, 2017, <<http://www.Internetworldstats.com/stats.htm>>, accessed on : April 18, 2017

Mohammed Zakariah, Muhammad Khurram Khan, Omar Tayan, Khaled Salah. Digital Quran Computing: Review, Classification, and Trend Analysis. (February, 2017) Review Article - *Computer Engineering and Computer Science*. Arab J Sci Eng. DOI 10.1007/s13369-017-2415-4

Maha.Alqahtani, Heba. Mohammad. Mobile Applications' Impact on Student Performance and Satisfaction. (October 2015). *TOJET: The Turkish Online Journal of Educational Technology – October 2015*, volume 14 issue 4. Copyright © the Turkish Online Journal of Educational Technology. PP102-112

Manal Elobaid, Kauser Hameed, Moawia Elfaki Yahia Eldow . Toward Designing and Modeling of Quran Learning Applications for Android Devices.( January 2014) *Life Science Journal*. January 2014. PP160-171. <https://www.researchgate.net/publication/276411702>

Muhammad Khurram Khan, Yasser M. Alginahi. The Holy Quran Digitization: Challenges and Concerns.(2013). *Life Science Journal* 2013; 10(2) <http://www.lifesciencesite.com>. PP 156- 164

Matin Saad Abdullah, Al-Sakib Khan Pathan. Learning Qur'anic Arabic through Interactive Web-Based Software: A Pragmatic Approach in Language for Specific Purpose (2013). 5th International Conference on Information and Communication Technology for the Muslim World. 978-1-4799-0136-4/13/\$31.00 ©2013 IEEE

Sepideh Teymour Pour. The Quranic Education.(2015). Technical Journal of Engineering and Applied Sciences. Available online at [www.tjeas.com](http://www.tjeas.com). ©2015 TJEAS Journal-2015-5-S/499-502. ISSN 2051-0853 ©2015 TJEAS. PP499-502

Syariah Nor Wan Shamsuddin, Nurul Fariah Abu Bakar, Mokhairi Makhtar, Mokhairi Makhtar, Wan Malini Wan Isa, Azilawati Rozaimie, Norhafizi Yusof. A Framework for Designing Mobile Quranic Memorization Tool Using Multimedia Interactive Learning Method for Children. (2016). Journal of Theoretical and Applied Information Technology.