Investigating How the Sources of Online Audio Qur'an Empower Listeners

Akram Zeki, Ishaq Oyebisi Oyefolahan, Nur Azrin Abd Malek, Murni Mahmud, Nadeem Mahmood, Asadullah Shah, Adamu Abubakar

Department of Information Systems International Islamic University Malaysia Kuala Lumpur, Malaysia

{akramzeki, ishaq, murni, asadullah,adamu }@iium.edu.my, nurazrin.malek@gmail.com, nmahmood@uok.edu.pk

Abstract-Fundamental Islamic principles require that the Qur'an, in whatever format, should remain intact. The Internet is a huge source of different formats of the Our'an. Unfortunately some people are skeptical about the content of any Islamic resource on the Internet, because of the deception or misleading representation of Islam/Muslims found on many websites. However, Islamic resources on the Internet still impact many people in many ways, especially young people. This paper investigates how online audio Qur'an empowers listeners. The online audio Qur'an file can be downloaded and installed on either a mobile device or a PC, or listened to on different websites. The research was carried out through a quantitative survey of 123 respondents; both descriptive and inferential statistic analyses were used to develop and validate a new scale that measures the empowerment through Internet sources of audio Our'an. The items on the scale measured the key variables that impact people in their use of online audio Our'an. The result shows that the key attribute empowering listeners is competence.

Keywords: online-audio-Qur'an; perception; credibility

I. INTRODUCTION

Empowerment is the act of understanding and using capabilities, control and expanded horizons in order to attain greater levels of achievement and satisfaction [1]. Empowerment can be in either psychological or user related. The former is an active rather than a passive orientation toward a work role [2], and user empowerment is an integrative motivational concept of an individual's attitude to his/her work [3]. Generally, social action theory reveals that empowerment clarifies self-change [4]. This consequently enables an informed choice and enhances self-determination. The Internet is being utilized as an empowering tool [5]. Many website recitations of the Qur'an, especially by wellknown reciters, are available. It is believed that famous reciters use the art of Tajweed (proper pronunciation at a moderate speed during recitation) that empowers listeners emotionally [6]. Unfortunately some listeners are sceptical about the content of any Islamic resource on the Internet especially audio Qur'an, because of deception and misleading cases of Islamic content found on many websites. Despite the Internet's potential for easy dissemination and provision of a variety of recitations of the Qur'an, many sources are not considered credible. Furthermore, even if a source is credible, there is still some concern about the

integrity of the content of the recitation, just because it is online. The major issue here is how the sources of audio Qur'an on the Internet might empower listeners, if some people (particular Muslims) have already discredited online Islamic content. This issue puts any source of Islamic content in general and online audio Our'an in particular in a difficult position. However, it might be sufficient for a source of online audio Qur'an to provide contact information such as address, email, phone number or some credit of the content given by a trusted body. The other side of the coin is how could the sources of online audio Qur'an might empower listeners. What sort of presentation is required? Which type of website is suitable for delivering online audio Our'an? This kind of question is raised in order to measure the impact of finding audio Qur'an on an inadequate website, from an inappropriate source. Contrary to this is the situation where many people, especially the young, can be empowered in many ways.

Empowerment is measured in many areas of research. The key empowerment variables commonly used in research are listed by Thomas and Velthouse [7-8]. They include "Meaning", "Competence", "Self-determination" and "Impact". "Meaning" reflects the core value judged against values and ideals within. "Competence" entails belief in the potential to perform activities with skill. "Self-determination" is the sense of having a choice in initiating and regulating actions. Finally, "impact" reflects the degree of individual belief in the effort required to influence outcomes. This research employed these constructs in evaluating how sources of online audio Qur'an empower listeners through their presentation and content delivery. Online audio Qur'an in this present study refers to any audio Qur'an format on the Internet which can be downloaded and installed on either a mobile device or a PC or listened to directly online; previous studies have identified more than 300 from different reciters [9]. This provides an opportunity for many people to access different recitations from which they could learn the different types of Qira'at (method of recitation), especially when the reciters are well known. In the most extreme situations, recitations of the Qur'an by renowned reciters empower people emotionally. Furthermore, many people learn by following and repeating the recitation as they listen to it, which enables them to correct their mistakes.

Following this section which introduced the area of the study, sections II and III present related work on audio

Qur'an recitation and the techniques involved; Section IV describes the research methodology and section V presents the results. Section VI offers the conclusions of the study.

II. RELATED WORK

Individuals are empowered through many ways. Previous studies have shown that the Internet is a tool for empowerment [5] at personal and even global levels, and on many groups. In business, for example, the Internet plays a central role in empowering cost-efficient and multimediarich interaction opportunities by improving the overall success of new products [10]. The impact of empowerment is also seen in public health, where various strategies have been put in place to increase nurses' awareness, knowledge and skills [11]. The effects of an empowerment education programme (EEP) through the Internet have been evaluated, and the impact of games addiction and stress in middle school students observed [12].

The Internet is utilized for disseminating Islamic ideology, ethics and values, adding to the more than two billion users of the Internet as recorded by Internet World Statistics (2012); the number was still increasing at the time of writing this paper. The point here is that many Internet users nowadays rely on it for Islamic support. There is research into the impact and evaluation of Islamic content and the use of Islamic resources from many websites, especially [13] where the issues and challenges of digitizing the Qur'an are explored. Standard knowledge modelling and retrieval techniques from the Qur'an online are examined in [14]. Adhoni et al. [15] propose architecture for a cloudbased online portal for the Qur'an; its implementation showed improved Qur'an recitation skills. Because the Qur'an addresses the intellect, it requires explanation through the Tafsir (the act of explanation of the Qur'an) [16]. However, Hulusi [17] provides a strategy for decoding the Qur'an in order to give reader an opportunity to read and understand it through the lens of reality.

Increasing attention is being paid to empowerment and understanding of the construct and its underlying processes [18]. Multidimensional measures of psychological empowerment in the workplace are provided in [19]. According to the cognitive model of empowerment, task motivation is the basis for worker empowerment [8].

III. RESEARCH VARIABLES, CONCEPTUALIZATION AND HYPOTHESIS DEVELOPMENT

The variables use for this research are those previously used in evaluating empowerment by [8]. They are intended to measure the key variables that empower people in the use of online audio Qur'an. These variables are "Meaning", "Competence", "Self-determination" and "Impact". The research outcomes from these variables aim to identify how people are empowered by Internet sources of audio Qur'an. Furthermore, the hypothesis testing result will reflect the level of this research claim. This is tremendously important for evaluating online audio Qur'an.

A. Conceptualization

Conceptualization of the research construct is one of the most important aspects of the research process. This process lies within the exploratory hypothesis-testing research approach, which involves taking a construct and refining it by giving it a conceptual or theoretical definition [20-21]. Research constructs have been conceptualized following a conceptual term used for empowerment (psychological and user) in previous research [22-27] to describe a phenomenon based on the theoretical approach to empowerment. Thus a conceptual model is proposed as follows:

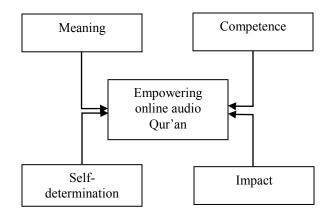


Figure 1. Conceptual Framework

The conceptual framework is intended to establish direct relationships among the variables that empower listeners to online audio Qur'an. Those for each relationship set up a hypothesis, and the development of the hypothesis uses the constructs from the conceptualization.

B. Meaning

Meaning as an attribute for empowerment reflects the value an individual places on the importance of a given task, as judged against the individual's own values and ideals [8, 22]. Furthermore, it displays the relationship between the individual's efforts and beliefs possess [23]. Meaning arises from the fact that what needs to be done is valuable and can make a difference. This could help in evaluating individuals with self-expression and creativity. As a result, they can carry out sensitive tasks because of their self-concepts. Consequently, empowered individuals derive a greater sense of meaning. Previous research has labelled "meaning" as a psychological empowerment dimension [24]; in line with this, this research proposes a hypothesis in a different context as follows:

H1: The source of the online audio Qur'an is associated with the empowerment attribute "meaning".

C. Competence

Competence as a construct in this research indicates the ability exhibited by an individual when performing an

e r

assigned task or responsibility. Individual skills and beliefs in performing a task may be different from the commonly used approach; when this is the case, it represents individual competence [25]. A research finding indicates that "feeling competent and confident with respect to valued goals is associated with enhanced intrinsic motivation and wellbeing" [26]. In line with this finding, this research formulated a hypothesis as follows:

H2: The source of the online audio Qur'an is associated with the empowerment attribute "Competence".

D. Self-determination

Self-determination is one of the important key constructs of this research, as an empowerment variable. It establishes an autonomy for an individual's sense of making decisions and having choice in initiating and regulating actions to achieve expected results [27]. Previous research proposes that "self-endorsed goals will enhance employee engagement, while heteronomous goals, even when introduced efficaciously, will not. Goals that are selected through self-determination are well-internalised and autonomous" [24]. In accordance with this finding, this research formulated a hypothesis as follows:

H3: The source of the online audio Qur'an is associated with empowerment the attribute "Self-determination".

E. Impact

Impact as a construct of this research indicates the degree to which an individual believes that he/she can influence a strategic operation yielding a positive outcome [28]. Consequently, a complicated relationship will be established when a constructive achievement is realized. This will give the individual a feeling of making a difference. Thus a sense of progression can be observed. Previous research uses the term "impact" in measuring psychological empowerment [26], and this research proposes a hypothesis in a different context as follows:

H4: The source of the online audio Qur'an is associated with the empowerment attribute "Impact".

IV. RESEARCH METHODOLOGY

This research uses a quantitative survey research methodology, as it is concerned with the subjective assessment of opinions [27]. This method will lead to capturing the experience of people and their perceptions, from simple to complex situations. Thus it will eventually attempt to understand the world from the viewpoint of the informants.

A. Study Population, Sampling and Sample Frame

The research population of interest for this study is confined to central to Malaysia and at targeted online audio Qur'an listeners. Sample frames were drawn from a wide range of respondents. Thus, the sampling technique applied is random simple sampling.

B. Instrumentation, Pilot Study and Reliabilty Test

The instrument for data collection within the research population and sample frame is questionnaires, which are easier to administer and ensure confidentiality [25]. The outlines of the questionnaire are Likert-scale agreement types with seven response ranges. The respondents are given close-ended questions and required to evaluate their agreement with the statements in the questions. The evaluation ranges from (1) strongly disagree, through (2) disagree, (3) somewhat disagree, (4) neither agree nor disagree, (5) somewhat agree, and (6) agree to (7) strongly agree. The adoption of the seven Likert-scale measure gives room for wider scope in respondents' responses. This will have a significant effect on the data analysis [29-30]. Prior to data collection, a pre-test and pilot test were carried out. The validation of the questionnaires was untaken through a reliability test using Cronbach's alpha; the calculation of the results of the test are presented in Table 1. The Cronbach's alpha gives values of 0.979, 0.949, 0.959 and 0.945 for "meaning", "self-determination", and "competence", "impact" respectively, which suggests high levels of construct reliability. Scales with alpha values above 0.90 are likely to suffer from excessive redundancy, while those with alpha less than 0.70 are likely to be unreliable [31-33]. In order to address this, some scaled items were deleted and the alpha values improved, thus new values were obtained as presented in Table 1. The final survey instrument was upgraded after these tests and prepared for data collection.

TABLE I. RELIABILITY TEST RESULT OF THE PILOT STUDY INSTRUMENTS

Variables	Number of cases	Cronbach's alpha
Meaning	3	.719
Competence	4	.809
Self-determination	5	.837
Impact	4	.882

C. Data Collection

The data collection for this research was undertaken by an online survey questionnaire published through Google Forms. Respondents were invited through emails, social networking websites and blogs. The reason for relying on the online survey style is that online audio Qur'an users are likely to be regulars on the Internet, and the retrieval of their responses is easier. When the data collected reached well over 100, the link to the online survey questionnaires was blocked. 129 responses were thus obtained, enough for the analysis. A reliability test was carried out after the final data collections, with overall Cronbach's alpha values between 0.72 and 0.89 respectively. This suggests satisfactory levels of construct reliability.

V. DATA ANALYSIS AND PRESENTATION OF RESULTS

A. Response Rate and Profile of the Respondents

The response rate and the profile of the respondents of the survey are presented in Table 2. The descriptive profile of respondents indicates that out of the 129 respondents, about 40.4% are male and 59.6% were female, indicating that there are more female respondents than men with a mean of 1.5891 and standard deviation of 0.49391. Significant differences are seen in the age profile of the respondents with the highest percentage (over 49%) found in the age group 20 to 24.

TABLE II. PROFILE OF THE RESPONDENTS

Demographic Variables	Frequency		Percent	Mean	Standard Deviation	
Age	20-24	64	49.6	1.8125	.99408	
	25-34	37	28.7			
	35-39	14	10.9			
	> 40	13	10.1			
	Total	128	99.2			
	Missing	1	.8			
Gender	Male	44	40.4	1.5891	.49391	
	Female	65	59.6			
	Total	109	100.0			
Marital Status	Married	47	36.4	1.6270	.48554	
	Single	79	61.2			
	Total	126	97.7			
	Missing	3	2.3			
	Total	129	100.0			
Educational	HighSchool	26	20.2	2.5504	.87465	
Level	Diploma	13	10.1			
	Bachelor	83	64.3			
	Masters	7	5.4			
	Total	129	100.0			

This is followed by 28.7%, 10.9% and 10.1% for the age groups 25-34, 35-39, and above 40 years old respectively. This indicates that about half the respondents are young people with a mean of 1.8125 and standard deviation of .99408. Although we have a single case of missing data, this does not affect the analysis. In terms of marital status, there are huge differences among the respondents. More than 61% of the respondents are single, with the mean of 1.6270 and standard deviation of .48554. In terms of educational level, more than 64% had Bachelor's degrees but only 7 individuals had reached the Masters level, with a mean of 2.5504 and standard deviation of .87465.

To sum up, the survey extracted data from mostly single females within the age group 20-24 and with a Bachelors degree.

B. The Respondents' Views of Online Audio Qur'an

The study examines some important views on online audio Qur'an from the respondents (see Table 3). The response rate based on the ability to understand the seven types of Qira'at shows that almost half of the respondents were unable to understand the seven types of Qira'at, and only about 4% of them claimed to have a high level of understanding. This implies that although they listen to audio Qur'an recitations they were unable to classify them under the seven types of Qira'at. The central tendency distribution of this view comes with a mean of 2.1280 and the measure of dispersion comes with a standard deviation of .82282.

In terms of respondents' ability to detect fake online audio Qur'an files, less than 2% of them found this easy, while more than 26% had a moderate level of detection and some 31% could not detect any fake online audio Qur'an. This mean for this distribution is is 1.9845 the standard deviation.80024. Similarly, the respondents' ability to detect the original online audio Qur'an files was found to be low, with more than half of them responding to the low scale (40%), or not at all (20%), and only 4% indicating high ability to detect original online audio Qur'an (mean 2.2188, standard deviation.83182). This outcome suggests that even though the respondents listen to online audio Qur'an, the majority are unable to identify fake or original online audio Our'an sources.

Previous studies indicate that more than 300 different recitations can be found on the Internet [9], and by all accounts the number is increasing. However, the ability to recognize the known reciters indicates a significant difference. About 58% of the respondents are able to recognize the voice of the reciter in online audio Qur'an with only 8% unable to do so (mean 2.5969, SD .90796). Conversely, "not able" and "low" scale measures showed about 68% of the responses with regard to detecting fake recitation. Very few respondents were able to detect a fake recitation (mean 2.0315, SD.90796).

This result shows that despite respondents being able to recognize a reciter's voice, were not be able to detect a fake recitation. Finally, a majority of the respondents were able to detect the act of Tajweed on the recitation, with 68% of high and moderate scores, a mean of 2.7734 and standard deviation of .83444. This indicates that most of the respondents are able to understand the act of Tajweed.

C. Hypotheses Testing and Analysis

The tests for the hypotheses formulated for this research were carried out by both correlation and regression analysis. The result of the correlation analysis is presented in Table IV. The values of the Pearson's correlation coefficient (r) range from r = .718 to .949.

TABLE III. ONLINE AUDIO QUR'AN RESPONSE RATE

Dimension	Frequency		Percent	Mean	Standard Deviation	
Ability to	Nil	30	23.3	2.1280	.82282	
understand	Low	54	41.9			
seven Qira'at	Moderate	36	27.9			
of Qur'an	High	5	3.9			
	Total	125	96.9			
	Missing	4	3.1			
	Total	129	100.0			
Ability to	Nil	40	31.0	1.9845	.80024	
detect fake	Low	53	41.1			
audio Qur'an	Moderate	34	26.4			
	High	2	1.6			
	Total	129	100.0			
Ability to	Nil	27	20.9	2.2188	.83182	
detect original	Low	52	40.3			
audio Qur'an	Moderate	43	33.3			
	High	6	4.7			
	Total	128	99.2			
	Missing	1	.8			
Ability to	Nil	11	8.5	2.5969	.90796	
recognize	Low	43	33.3			
recitation	Moderate	62	48.1			
	High	13	10.1			
	Total	129	100.0			
Ability to	Nil	43	33.3	2.0315	.90796	
detect fake	Low	44	34.1			
recitation	Moderate	33	25.6			
	High	7	5.4			
	Total	127	98.4			
	Missing	2	1.6			
	Total	129	100.0			
Ability to	Nil	11	8.5	2.7734	.83444	
detect the use	Low	29	22.5			
of Tajweed	Moderate	66	51.2			
	High	22	17.1			
	Total	128	99.2			
	Missing	1	.8			
	Total	129	100.0			

The highest correlation coefficient was obtained from the relationship between self-determination and empowerment

A strong positive correlation coefficient was obtained in that relationship. The remaining relationships were also found to be very positive and strong.

TABLE IV. CORRELATION ANALYSIS RESULTS

Correlations						
		Competence	Meaning	Self Determination	Impact	Empower
Competence	Pearson Correlation	1	.903**	.856**	.718**	.924**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	121	81	114	120	71
Meaning	Pearson Correlation	.903**	1	.892**	.727**	.935**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	81	85	78	84	71
Self Determination	Pearson Correlation	.856**	.892**	1	.828**	.949**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	114	78	122	121	71
Impact	Pearson Correlation	.718**	.727**	.828**	1	.827**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	120	84	121	127	71
Empower	Pearson Correlation	.924**	.935**	.949**	.827**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	71	71	71	71	71
**. Correlation is significant at the 0.01 level (2-tailed).						

To further investigate the relationships in-depth, standard multiple regression analysis was conducted. This evaluates how well a set of predictors predicted empowerment by online audio Qur'an. Thus, the linear combination of the entire variables were significantly related to empowerment at F(3,163)=1422.396, p=.000 at .05 alpha level. Based on the coefficient result, all of the independent variables are making a statistically significant contribution to empowerment. "Competence" (beta = .32, p = .00 at .05 alpha level) makes the strongest contribution. The next is "impact" (beta = .27, p = .00 at .05 alpha level), followed by "meaning" and "self-determination" (both with beta = .24, p = .00 at .05 alpha level). Thus the result of correlation and regression analysis supports all the hypothesized relationships:

VI. CONCLUSION

This research investigated how online audio Qur'an empowers listeners, according to an existing empowerment scale. The research used a quantitative survey methodology. Samples of online audio Qur'an respondents were collected. Hypotheses were formulated and tested by correlation and regression analysis. The analysis of the results indicated that the majority of respondents were single females within the age group 20-24 years and with a Bachelors degree. This shows that young single females are the largest group

acquainted with online audio Qur'an. Furthermore, the result indicates that despite most of the respondents listening to audio Qur'an recitations were unable to classify those recitations under the seven types of Qira'at, and were not able to detect fake or original online audio Qur'an files or fake recitations. Finally, of the four empowerment variables, "Competence" makes the strongest contribution to empowerment.

ACKNOWLEDGMENT

This work was funded under Foundational Research Grant Scheme (FRGS) by the Ministry of Higher Education Malaysia (Grant code: FRGS/2/2013/ICT01/UIAM/02/4).

REFERENCES

- M.A.Zimmerman J. Rappaport J. Citizen participation, perceived control, and psychological empowerment. Am J Community Psychol. 1988 Oct;16(5):725-50.
- [2] G.M. Spreitzer, W.N. Mark AK, Stephen. A dimensional analysis of the relationship between psychological empowerment and effectiveness satisfaction, and strain. J Manage. 1997;23(5):679-704.
- [3] W.J. Doll, D. Xiaodong, A.M. Glenn. User empowerment in computer-mediated work. Proceedings of ISOneWorld Conference; 2003 April 30, Las Vegas, USA.
- [4] C.K. Ewart. Social action theory for a public health psychology. Am Psychol. 1991 Sep;46(9):931-46.
- [5] A. Amichai-Hamburger, Yair, Katelyn YA McKenna, and Samuel-Azran Tal. "E-empowerment: Empowerment by the Internet." Computers in Human Behavior 24.5 (2008): 1776-1789.
- [6] M.W. Mirza, R. Muhammad, A. Muhammad, and A. M. Martinez-Enriquez. "Voice Content Matching System for Quran Readers." In Artificial Intelligence (MICAI), 2010 Ninth Mexican International Conference on, pp. 148-153. IEEE, 2010.
- [7] M.D. Fetterman, M., and Abraham Wandersman, eds. Empowerment evaluation principles in practice. Guilford Press, 2005.
- [8] K.W. Thomas, Velthouse BA. Cognitive Elements of Empowerment: an "Interpretive" Model of Intrinsic Task Motivation. ACAD MANAGE J. 1990 Oct;15(4), 666-681.
- [9] H. Tabbal, W. El Falou, and B. Monla. "Analysis and implementation of a" Quranic" verses delimitation system in audio files using speech recognition techniques." In Information and Communication Technologies, 2006. ICTTA'06. 2nd, vol. 2, pp. 2979-2984. IEEE, 2006
- [10] J. FüLler, Johann, et al. "Consumer empowerment through internetbased co-creation." Journal of Management Information Systems 26.3 (2009): 71-102
- [11] R. Falk-Rafael, Adeline R. "Empowerment as a process of evolving consciousness: a model of empowered caring." Advances in Nursing Science 24.1 (2001): 1-16
- [12] J. Aeran, and Inhyae Park. "Effects of an empowerment education program in the prevention of internet games addiction in middle school students." Journal of Korean Academy of Nursing 40.2 (2010): 255-263
- [13] K., Muhammad Khurram, and Yasser M. Alginahi. "The Holy Quran Digitization: Challenges and Concerns." Life Science Journal 10.2 (2013): 156-164.
- [14] B., Sumayya, et al. "Leveraging semantic web technologies for standardized knowledge modeling and retrieval from the Holy Qur'an and religious texts." Proceedings of the 7th International Conference on Frontiers of Information Technology. ACM, 2009.

- [15] Z.A. Adhoni, Al Hamad, H.; Siddiqi, A.A. "Cloud-based Online Portal and Mobile Friendly Application for the Holy Qur'an." Life Science Journal 10.12s (2013).
- [16] A. Engku A. Zaki Engku, et al. "Digital Quran Applications on Smart Phones and Tablets: A Study of the Foundation Programme Students." Asian Social Science 10.15 (2014): p212
- [17] H., Ahmed. Decoding The Quran: A Unique Sufi Interpretation. Ahmed Hulusi, 2013
- [18] C.A. Jay., and Rabindra N. Kanungo. "The empowerment process: Integrating theory and practice." Academy of management review 13.3 (1988): 471-482
- [19] M.G. Spreitzer. "Psychological empowerment in the workplace: Dimensions, measurement, and validation." Academy of management Journal 38.5 (1995): 1442-1465
- [20] Abubakar. A I., Teddy Mantoro, and Murni Mahmud. "Exploring end-user preferences of 3D mobile interactive navigation design." Proceedings of the 9th International Conference on Advances in Mobile Computing and Multimedia. ACM, 2011
- [21] W.L Neuman. Social research methods: qualitative and quantitative approaches (6th Ed.). Boston: Pearson, (2006)
- [22] D.R. May, R.L. Gilson, R.L., & Harter, L.M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology*, 77, 11–37.
- [23] A.P. Brief, & Nord, W.R. Meanings of Occupational Work. Lexington, MA: Lexington Books. (1990).
- [24] W.M. Stander, and Sebastiaan Rothmann. "Psychological empowerment, job insecurity and employee engagement." SA Journal of Industrial Psychology 36.1 (2010): 1-8.
- [25] M.E. Gist, Self-Efficacy: Implications for Organizational Behavior and Human Resource Management. *Academy of Management Review* 12(3): 472-485, 1987.
- [26] R.M. Ryan, & Deci, E.L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. Annual Review of Psychology, 52, 141–166.
- [27] E.L. Deci,, Connell, J. P., & Ryan, R. M. (1989). Self-determination in a work organization. *Journal of Applied Psychology*, 74, 580-590.
- [28] B.E. Ashforth, The organizationally induced helplessness syndrome: A preliminary model. *Canadian Journal of Administrative Sciences*, 7, 30-36. (1990)
- [29] Z. Ikhlas, M. Mahmud, and A. Abubakar. "Information Quality Evaluation of mobile-Government (mGovernment) Services." HCI International 2014-Posters' Extended Abstracts. Springer International Publishing, 2014. 280-285.
- [30] R. Shakirat . "Usability Evaluation of Hospital Websites in Nigeria: What Affects End Users' Preferences?." HCI International 2014-Posters' Extended Abstracts. Springer International Publishing, 2014. 430-434
- [31] A.M Zeki, A.A Ibrahim, H. Chiroma, A Ya'u Gital, Investigating the dynamics of watermark features in audio streams, IEEE Symposium on Industrial Electronics and Applications (ISIEA), 2013, 61-65
- [32] M.S. Atoum, S. Ibrahimn, G. Sulong, A. Zeki, and A. Abubakar, Exploring the Challenges of MP3 Audio Steganography. In Advanced Computer Science Applications and Technologies (ACSAT), 2013 International Conference on pp. 156-161, 2013. IEEE.
- [33] A.M. Zeki, Akram M., et al. "A robust watermark embedding in smooth areas." Research Journal of Information Technology 3.2 (2011): 123-131.