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TEACHERS' BELIEF TOWARDS THE IMPLEMENTATION OF ICT IN INTERMEDIATE SCHOOLS IN SAUDI ARABIA

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ABSTRACT

This mixed-method study sought to investigate the Arabic language teachers' belief toward the implementation of ICT in intermediate schools in Dammam city based on three variables: qualification certification, years of experience, and digital type of ICT users. Two instruments have been used for this study including questionnaire and a semi-structured interview protocol. For the quantitative approach based on given criteria, 160 respondents were selected randomly and quantitative data were analyzed descriptively. For the qualitative approach, 6 respondents were selected purposively, analyzed with a thematic analysis approach. The results show that teachers in Saudi Arabia do have positive beliefs regarding the implementation of ICT. Findings also indicate that teachers, especially from digital immigrants need guidance in implementing ICT. Thus, it is necessary to provide more training on the use of ICT to digital immigrant teachers who mostly are senior teachers.

Disciplinary: Education Sciences (ICT in Education).

1. INTRODUCTION

In the worldwide setting, ICT (Information and Communication Technology) influences almost all aspects of the life of the people today. Accordingly, most nations, perceive ICT as a doorway for growing educational standards (Noor-UL-Amin, 2013, Nikolaevich, 2019). For example, nowadays, both developed and developing nations perceive the significance of ICT tools for their economic development. Developed nations, such as the US, invests above than $10 billion yearly in the educational technology sector in public schools (Brunk, 2008), whereas Australia invests roughly AUD$8 billion (Lane, 2012). On the other hand, developing nations, for instance, India, which has executed a program to upgrade the current system of tertiary and professional education through the integrating ICT instruments to enhance the acquisition of human capital (Halewood & Kenny, 2008). In a like manner, Uganda's developmental policy concentrates heavily on ICT and the utilization of

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massive ICT instruments to act as an adequate driver and enabler to build the nation's education and economy (Ssewanyana & Busler, 2007). ICT is considered as an essential component for communication and connecting with people living in a digital society. ICT has not only changed the world we live in but also changed the manner we learn. It is universally accepted that ICT has become a modern literacy model in this century.

From the advancement of ICT, the Saudi government has invested ICT tremendously in the field of education to develop a better public school system. It was stated that in the year 2007, Saudi Arabia spent Euro 2 billion on the inclusion of modern technology in educational sectors (Ministry of Finance, 2015). Public Schools have developed changes in their curriculum and have proactively adopted the educational technology-based teaching system. The transformation project involves the training of the educators for efficient integration and application of ICT in the education system. Moreover, the Saudi Government has allocated 25% of its budget to the educational sector to implement ICT (Ministry of Finance, 2015).

Despite the huge investment in the educational sector, Saudi Arabia schools cannot compete with the sophisticated ICT- equipment schools in leading countries and the gap in the ICT field is great (Ageel, 2011). Saudi Arabia needs to upgrade the ICT equipment and to train teachers and administrators staff to integrate and implement ICT in improving learning and teaching effectively. Hence, it is clear that there is still a research gap between the availability and implementation of ICT in the educational system in Saudi Arabia. However, teachers' belief is vital in impacting their acceptance of and subsequent successful implementation of ICT in their daily practices (Huang & Liaw, 2005; Hew & Brush, 2007). The successful usage of ICT relies on sensitive decisions that teachers have to make in their everyday practice toward the implementation of ICT tools. Hew and Brush (2007) have discovered that teachers' belief as a barrier to implementing technology for instruction. Problems can appear when teachers' belief is disregard, because *"beliefs and values that teachers hold drive many of the choices they make in the classroom"* (Cuban, 2001:169). Cuban has argued that beliefs affect how and what educators decide to teach and what innovations they embrace or ignore.

Hence, it is justified to consider teachers' beliefs to get a better understanding of this issue. This research relies on two research questions:

1- What is the level of teachers' beliefs towards the implementation of ICT based on qualification certification- years of experience- a digital type of ICT uses among teachers?
2- What are teachers' beliefs towards the implementation of ICT in the classrooms?

2. TEACHERS' BELIEFS AND ICT-IMPLEMENTATION

Several research studies involving the use of ICT (Oyaid, 2009; Almadhour, 2010; Almalki & Williams, 2012), have uncovered that there is a need for an effective implementation strategy for ICT in the Saudi schools. According to Richardson (1966), he asserted that personal experiences shape teachers' beliefs. Moreover, he stated that all the facets of life influence the way people look at the world, moral views and intelligence, views about the self in the context of society and different kinds of familial, cultural and personal viewpoints. Also, their gender shapes a person's opinion, the area of residence, socio-economic and cultural upbringing and choices adopted in life; these views have an impact on the ability to teach (Richardson, 1996).

Aslan and Zhu (2016) conducted a study in Turkey aimed at examining the pre-service teachers' perceptions of factors associated with ICT-evident efficiency of technology, evident capacity to

integrate ICT, beliefs concerning ICT, concerns about utilizing ICT, external obstacles in adopting ICT, study material associated with ICT, comprehending of pedagogy and preceding expertise in the use of ICT in the setting of ICT adoption in teaching techniques to comprehend the limit of integrating ICT into teaching practices. The result showed that the apparent expertise in the incorporation of ICT, worries regarding the use of computers, apparent expertise in ICT and factors linked to the understanding of pedagogy were quite valid indicators of the teacher's capability to incorporate ICT into teaching approaches.

Chemwei et al. (2014), carried out a study in Kenya aimed to examine the association between the teacher's level of ICT integration in teaching in primary teacher training colleges and their characteristics. The findings revealed that there was a significant relationship between teachers' level of ICT integration and their age. Moreover, he also found that no relationships between teachers' level of ICT integration in teaching and gender and their level of education. Besides, teachers' years of teaching are insignificant in explaining ICT-Integration in teaching.

3. RESEARCH DESIGN

A mixed-method approach was selected to frame the research design of this study and make it more robust. It also aims at improving the quality of the final findings provides a more thorough understanding of analyses (Sydenstricker-Neto, 1997; Creswell, 2009). This approach can, therefore, extend the analysis, findings, and conclusions to better inform its results and create a stronger path towards a critical evaluation of ICT integration into the public intermediate schools in Dammam city. The rationale of combining these different approaches is to reduce the weaknesses inherent in a single method to gain a contextual understanding through a more rigorous approach (Johnson & Onwuegbuzie, 2004).

3.1 THE SAMPLE OF THE STUDY

The data was extracted quantitatively from the questionnaire which has been distributed randomly to 240 male intermediate school teachers in Dammam, a city of the east of Saudi Arabia. Only 160 teachers (66.7%) returned the questionnaires. Therefore, the sample of this study is 160. For the in-depth interview protocols, a purposive sampling technique was employed to choose 3 of the Arabic language teachers from the two public intermediate schools because these two schools are fully equipping with ICT tools in the classrooms. According to Guest, Bunce, and Johnson (2006), they suggested that the sample between 6 and 12 for interviews will be sufficient if this selected group is homogenous to understand and achieve the objectives of the research.

3.2 THE INSTRUMENTS OF THE STUDY

3.2.1 QUESTIONNAIRES

The questionnaire was adapted from Venkatesh et al (2003), to measure the level of teachers' belief. The questionnaire was divided into different constructs for easy reading and completion. A Likert scale with five levels of the possible answer for the UTAUT model (from Strongly Disagree to Strongly Agree). The design of the research questionnaire was conducted via Google Drive. The respondents were required to respond to 20 Likert Scales statements dealing with the four core constructs of their beliefs, which are, the performance expectancy determinant, the effort expectancy determinant, the social influence determinant, and the facilitating condition determinant.

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3.2.2 SEMI-STRUCTURED INTERVIEWS PROTOCOL

Six teachers of the Arabic language in the two selected intermediate schools were invited to sit in the interview. The teachers' in-depth interviews were carried out one by one to ensure the frankness and confidentiality of the recorded responses, 55 to 60 minutes were allotted to each teacher to enable him to respond to the in-depth interview questions.

3.3 DATA ANALYSIS

The quantitative data were analyzed utilizing descriptive statistics (means, standard deviation, and frequency) for the first research question. SPSS®21 was used to analyze these processes. Furthermore, the qualitative data collected through the semi-structured interviews were analyzed utilizing the thematic content analysis method (Braun & Clarke, 2006), to answer the second research question. This method aims to identify common or recurrent themes in the data and to describe the important elements of participants' accounts (Braun & Clarke, 2006). The data analysis method used includes six steps, as stated by Braun and Clarke (2006). The researcher first familiarized himself with the data by reading the interview scripts over several times. Based on this initial review, the researcher generated a list of codes that were data-driven and consistent with the interpretive approach. then considered how commonly considered codes combined to form over-arching themes. Next, a review of these themes is made to ensure that they accurately reflected the data set. Eventually, the researcher identified and named the themes, and reflected on how best to report them (Braun and Clark, 2006).

3.4 PILOT STUDY OF SURVEY

The pilot study was conducted in Dammam City in March 2017. The questionnaire was carried out among 30 teachers of the Arabic language in Primary schools in Dammam city in Saudi Arabic before distribution for data collection. In this study, a reliability analysis was run utilizing SPSS Version 21 for all the constructs of the UTAUT model. In SPSS, Cronbach's coefficient alpha is the most common test (Sekaran, 2003). According to Sekaran (2003), Cronbach's alpha value should be in the 0.7 range to be accepted and to denote appropriate internal consistency. Therefore, each variable was tested utilizing the Cronbach Coefficient Alpha value to determine the reliability. The result is summarized below.

Table 1: Reliability Test for Pilot Instrument

Variable	Number of Items	Cronbach Alpha Value
Teacher's Beliefs	20	.90

3.5 VALIDATION OF QUANTITATIVE DATA

To validate the instrument, the researcher sent the questionnaire to 3 experts who have extensive knowledge of ICT and qualified in the Arabic language. They were required to evaluate the questionnaire and provide feedback regarding the clarity, sufficiency, and simplicity of the instrument. The 3 experts recommended keeping these questions unchanged. As per the questionnaire, the draft was revised and the final survey questionnaire was approved. Furthermore, as the questionnaire was first written in the English language hence, there was a need for the questionnaire to be translated into Arabic. To this end, the researcher sent it to a reliable translation company, as it was prepared for Arabic speakers. In academic translation field, back translation has become an in-demand method. It is a beneficial methodology to translate questionnaires, surveys, and research instruments. Consequently, the translation process used in this study included the back translation step with the same translation company, they have translated Arabic back to the English

version. Finally, the researcher compared the two English versions of the questionnaire to check for any inconsistencies, mistranslations, or problems with meaning.

3.6 RELIABILITY AND VALIDITY OF INSTRUMENT FOR QUALITATIVE APPROACH

The adapted interview protocol questions were translated to Arabic version by a reliable translation company and delivered to three experts to validate the instrument, and based on their instructions, observations, as well as comments, the interview protocol questions have been improved. Then, the translated Arabic version conducted among 6 respondents from two intermediate schools in Dammam city. To provide extra quality checks and verify whether the translation covers all aspects of the original instrument, back translation in this regard has become an in-demand method in academic translation (Ozolins, 2008).

Consequently, the translation process included the back translation step in which the same translation company translated Arabic back to the English version. Finally, the researcher compared the two English versions of the questionnaire to check for any inconsistencies, mistranslations, or problems with meaning. As a result of this final step, the two versions were highly identical, which confirmed the efficiency of the translation process and the quality of the Arabic version. Furthermore, In the qualitative part of the study, a respondent validation or member check is a technique utilized by researchers to help improve the credibility, accuracy, transferability, and validity of a study (Creswell, 1994).

4. RESULTS OF ANALYSIS

4.1 RESPONDENTS' DEMOGRAPHIC CHARACTERISTICS OF QUANTITATIVE APPROACH

Table 2 shows that teachers regarding their years of experience comprised of less experienced and experienced teachers. Above than 50 per cent of the teachers ranging from 6 to 10 and 16 to 20, whereas only 1.25 per cent had been teaching for more than 40 years. In these Saudi schools, Saudi teachers are deemed highly qualified. Nearly all teachers had a university education, with 78.1 per cent had a bachelor's degree, 15.6 per cent have a master's degree, and 1.3 per cent with a PhD. Finally, the digital type of ICT Uses shows that the majority user among Arabic language teachers are digital natives with 71.9 per cent, while the digital immigrants represent 28.1 per cent.

Table 2: Background information on the respondents

Variable	Categories	Frequency	Percentage
Years of Teaching Experience	1-5	23	14.4
	6-10	41	25.6
	11-15	25	15.6
	16-20	40	25.0
	21-30	22	13.8
	31-40	7	4.4
	>40	2	1.3
Highest Teaching Qualification	Diploma	8	5.0
	Bachelor	125	78.1
	Master	25	15.6
	Doctoral	2	1.3
Digital Types of ICT Users	Native	115	71.9
	Immigrant	45	28.1
	Total	160	100.0

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4.2 LEVEL OF TEACHERS' BELIEFS TOWARD THE IMPLEMENTATION OF ICT

The first section in Table 3, shows the level of teachers' belief towards the implementation of ICT based on teaching experience. Most of the respondents are have experience 1 to 31 years. However, those with experience range 11–15 years yield higher mean (M=3.93, SD=0.53) compared to other groups of respondents. The lowest mean score is under teaching experience for more than 40 years (M=2.80, SD=1.55). Therefore, we can conclude that 94% of the respondents of the research have a high level of belief towards the implementation of ICT based on experience. The researcher found there is no linearity between years of experience with the implementation of ICT. The second section shows that most of the teaching holding bachelor's degrees following by Masters, Diploma, and Doctoral. There is linearity between the qualification and mean score. The higher the number of teachers in one group the higher the mean score. For example, bachelor's degree holders (N=125, M=3.72, SD=0.56), Masters (N=25, M=3.65, SD=0.58), Diploma (N=8, M=3.56, SD=0.78) and Doctoral (N=2, M=3.25, SD==0.85). Therefore, we can conclude that the bachelor group has higher belief towards the implementation of ICT.

Finally, it shows that the level of teachers' belief towards the implementation of ICT based on the digital type of uses. There are two groups namely native and immigrant. The total number of natives is almost 2.5 times bigger than an immigrant. This reflects in the mean score where Native (N=115, M=3.77, SD=0.52) compared to Immigrant (N=45, M=3.52, SD=0.68). Therefore, the native group has higher belief than immigrants towards the implementation of ICT.

Table 3: The level of teachers' beliefs toward the implementation of ICT

	Sections	Modifiers		N	Mean	SD
1	The level of teachers' belief toward the implementation of ICT based on teaching experience	Teaching Experience	1_5	23	3.39	0.59
			6_10	41	3.83	0.53
			11_15	25	3.93	0.53
			16-20	40	3.65	0.55
			21-30	22	3.74	0.42
			31-40	7	3.45	0.68
			>40	2	2.8	1.55
			Total	160		
2	The level of teachers' belief toward the implementation of ICT based on Academic Qualification	Qualification	Diploma	8	3.56	0.78
			Bachelor	125	3.72	0.56
			Master	25	3.65	0.58
			Doctoral	2	3.25	0.85
3	The level of teachers' belief toward the implementation of ICT based on digital types of ICT uses	Types of ICT Uses	Native	115	3.77	0.52
			Immigrant	45	3.52	0.68

4.3 DEMOGRAPHIC INFORMATION OF RESPONDENTS

Table 4 shows that the three respondents per school were interviewed from the two selected intermediate schools in this study. The information collected from the respondents were analyzed inductively and the opinions and the results of the interviews. Before going in-depth, below is the tabular demographic information of the respondents. In order to facilitate discussions analyzing 6 teachers (respondents), each teacher is assigned a letter (N) for native digital teachers and (I) for immigrants' teachers.

According to the interviewees' responses, it can be concluded that most of the participants had positive beliefs toward the implementation of ICT in the classrooms. Therefore, what teachers believe about how to implement ICT in their classroom is stronger than what they adopt in their instructions.

Table 4: Respondents of the Interview

School	Participants	Codes	Teaching Qualification	Teaching Experience	Digital Type of ICT users
School A	Teacher1	Participant 1 (N1)	PhD	12 yrs.	Native
	Teacher2	Participant 2 (I2)	Master	18 yrs.	Immigrant
	Teacher3	Participant 3 (I3)	Bachelor	20 yrs.	Immigrant
	Teacher4	Participant 4 (I4)	PhD	19 yrs.	Immigrant
School B	Teacher5	Participant 5 (N5)	Masters	10 yrs.	Native
	Teacher6	Participant 6 (N6)	Bachelor	8 yrs.	Native

5. DISCUSSION

The results of the this study show that the overall mean score value obtained for the teachers' beliefs based on the year of experience was at the value of 3.54, which explains from the perspective of the respondents that the teachers' beliefs that they adopted based on the years of experience in the ICT implementation are considered to be at the average level. It can be concluded that 94% of the respondents of the research had a high level of belief towards the implementation of ICT regarding the years of experience. Although there found there is no linearity between years of experience with the implementation of ICT. Hence, it is evident that all groups had high beliefs regardless of how long they had been in their profession. So, it is worthy to mention that years of experience does not effectively influence teachers' beliefs toward the implementation of ICT. The above findings were aligned with qualitative findings that have been emerged in the interview. All five respondent has expressed a high belief toward the implementation of ICT. The major findings from the respondents can be presented by the following statement:

"I believe the use of ICT significantly facilitate the learning process and communication." (I-3).

Furthermore, the findings show that the overall mean score value obtained for the teachers' beliefs based on the qualification certification was at the value of 3.54, which explains from the perspective of the respondents that the teachers' beliefs that they adopted based on their qualifications toward the implementation of ICT are considered to be at the average level. Additionally, the researcher also found in this study that there was linearity between the qualification and mean score, the higher the numbers of teachers in one group, the higher the mean score particularly.

Additionally, the findings show that the overall mean score value obtained for the teachers' beliefs based on the qualification certification was at the value of 3.54, which explains from the perspective of the respondents that the teachers' beliefs that they adopted based on their qualifications toward the implementation of ICT are considered to be at the average level. Additionally, the researcher also found in this study that there was linearity between the qualification and mean score, the higher the numbers of teachers in one group, the higher the mean score particularly. These results were in agreement with the findings that have been identified from the interviews, it has been demonstrated by the 5 respondents that they are aware of the benefit of these tools in enhancing the

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21-century skills in their students, except one of them who has a bachelor degree certification, when he was asked to comment on the impact of ICT tools, he said:

"I think it eliminates the sense of innovation and thinking in students." (N-6).

Finally, the findings show that the native group had higher beliefs than immigrants towards the implementation of ICT. This reflects in the mean score where Native (N=115, M=3.77, SD=0.52) compared to Immigrant (N=45, M=3.52, SD=0.68). This is completely consistent with the qualitative findings, there was no distinction between Native digital respondents and Immigrant digital respondents regarding their perception toward the implementation of ICT in their daily instructions. However, although there was a significant relationship between the dichotomy, it is notable that the difference between the two means is not very high, which demonstrates that the gap which was claimed by Prensky (2001), as a deep gap is not as he described. This can be in agreement in somewhat with the theory of Prensky, who asserted that there is a deep gap between the two generations due to their brain structure.

6. CONCLUSION

Based on the general results of this study, it can be concluded that the majority of teachers had positive beliefs toward the implementation of ICT in the classrooms regarding all the three variables (qualification certification, years of experience, and digital type of ICT use). The results also indicate that teachers, especially from digital immigrants need guidance in implementing ICT in schools. Thus, the findings of the study imply the importance of providing more training on the use of ICT to digital immigrant teachers who mostly are senior teachers on the usage of ICT. Also, the findings indicate that more involvement of teachers in the process of decision making related to educational policy is needed to reduce the gap between the actual curriculum and the planned curriculum.

7. AVAILABILITY OF DATA AND MATERIAL

Data used or generated from this study is available upon request to the corresponding author.

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