

# The Use of Digital Technology in Saudi Arabia' Schools

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**Abstract** - *This study aimed to know the digital technology materials use and the condition. To know this, the researcher put the following questions:*

- 1. To what extent are the digital materials found in Saudi Arabia schools ?*
- 2. To what extent are these digital materials available in schools and ?*
- 3. what are the condition of the digital technology found in schools?*
- 4. Are there any significant differences between the average mean scores of teachers' responses due to the school types (government - private) and to the teacher's experience and to the major (science major - non-science major)??*

*A questionnaire consisting of (3) parts and (15) items were used. The questionnaire distributed to a random sample of (180) secondary schools teachers in some government and private schools and the usable sample was (144). The results showed that:*

- 1. The availability of digital materials in schools: (15) items got the average mean between (1.54) and (2.82) out of (3).*
- 2. The uses of digital materials in schools: (15) items got the average mean between (1.49) and (2.42) out of (3).*
- 3. The suitability of digital materials in schools: (15) items got the average mean between (1.69) and (2.56) out of (3).*
- 4. There are significant differences between the means scores of teacher's responses according to school types (Government - Private) at less than (.05) for the benefit of private schools. And There are no statically differences between the average mean of teacher's responses according to the other variables.*
- 5. Future research studies and recommendations arising from this study were made. The study includes references.*

**Key Words:** *Digital , Technology, Teachers, Education, Schools.*

## 1 - INTRODUCTION:

Inarguably, the revolution technology has brought so far in education is far below the changes that were orchestrated when it first emerged (Hardin and Ziebarth, 2000; Seltzer, 2001). For example, the emergence of the first Web browser in 1993 raised people's expectations so much that many thought that the Internet has come to change everything (Seltzer, 2001). The above does not mean that the impacts of technology have not been felt in education. The change technology has brought and is still bringing in education is revolutionary, and the momentum toward more changes is irreversible (Hardin and Ziebarth, 2000). The truth is that the real power of digital technologies is yet to be fully tapped in education. There is every reason to believe that more colossal

changes are inevitable in education going by the geometry of technology growth. While it is not possible to predict perfectly what new technologies will emerge in the next few decades, the multifaceted revolutions brought thus far by the existing technologies are sufficient clues to predict that the future revolutions will be astronomical. It is therefore reasonable to assume that the likely reforms in the years to come will be greater in magnitude than developments since the introduction of personal computer and commercialization of the Internet (Bimber, Chun, Flanagan, Liu and Patton, 2002).

Where, when, what, and even how we are learning and teaching is changing. Teachers need to consider how to engage learners with content by connecting to their current interests as well as their technological habits and dependencies. Learning with digital media is about exploring radically new approaches to instruction. The future of learning will not be determined by tools but by the re-organization of power relationships and institutional protocols. Digital media, however, can play a positive role in this process of transformation. (Becky et al., 2010)

Digital media literacy is often understood as the **ability to access, understand and participate or create content using digital media.** (Acma, 2011) Developments in digital technology have had significant effects on the way individuals interact with communications and media services. An increasingly wide range of sources of information, ways of doing business, and entertainment are now commonly made available and accessed online and/or through digital media.

For professor Brad Mehlenbacher, digital learning undergirds constructivist visions of radical change in how teachers approach learners (P237), challenging traditional power relationships and emphasizing student-centered learning.

Digital technology has the potential to transform education. Students and teachers can create content in new forms, teachers can communicate with colleagues around the world and students can access expert information immediately and from multiple sources. Digital technology engages students and makes their work more relevant by allowing them to place it in real-life contexts. Up-to-date technology is critical in today's educational environment. Students are expected to know, understand and be able to use technological equipment effectively.

## 2. PROBLEM OF THE STUDY

Today, digital media plays a key role in education ; Having the skills to use digital media materials can improve the quality of education by enhancing educational content development and increasing access to education for both teachers and students.

So the problem of the study can be formulated in the following question:

What is the condition of digital technology using in schools?

## 3. OBJECTIVES OF THE STUDY

1. Knowing the digital technology materials using in Saudi Arabia schools.
2. Knowing to what extent the digital technology materials available in schools.
3. Clarifying the condition of these digital technology in schools.
4. Knowing the differences between the Average mean scores of teachers' responses with respect to variables of the study.

## 4. STUDY QUESTIONS

- 1.To what extent are the digital materials found in Saudi Arabia schools ?
- 2.To what extent are these digital materials using in schools?
3. what are the condition of the digital technology found in schools?
4. Are there any significant differences between the average mean scores of teachers' responses due to the school types (government – private)?
5. Are there any significant differences between the average mean scores of teachers' responses due to the teacher's experience ?
6. Are there any significant differences between the average mean scores of teachers' responses attributed to the major (science major – non-science major)?

## 5. HYPOTHESES OF THE STUDY

The study hypotheses were formulated for three questions:

The second, third and fourth:

1. There are no statistically significant differences between the average mean scores of teachers' responses with regard to the school types (public – private).
- 2- There are no statistically significant differences between the average mean scores of teachers' responses with regard to the teacher's experience.

3- There are no statistically significant differences between the average mean scores of teachers' responses with regard to the major (science major – non-science major).

## 6. SIGNIFICANCE OF THE STUDY

1. Researching on issues relating to digital technology is very important today because the ability to confidently use, participate in and understand digital media and services is becoming an important prerequisite to effective participation in the digital society in general and education in particular.
2. To provide the responsible of the teacher in schools with a copy of this study.

## 7. LIMITATIONS OF THE STUDY

This study determined the following matters:

- 1- The questionnaire of the study included three parts and fifteen items about using digital technology.
- 2- Teachers in private and government secondary schools in Saudi Arabia.

## 8. PREVIOUS STUDIES

**Hardin & Ziebarth (2000)** Found that technology is affecting education in revolutionary ways, and the momentum toward these changes is irreversible. Teachers who have begun to use the Web see this change occurring, even if they only have experience with static information-gathering and display capabilities. Universities need to become leaders in applying technology to education for learning and for collaboration. Colleges of education need to become leaders in applying computational and information technology for the K-12 community, and university administrators need to begin to chart the 21st century vision of their institutions, a journey that will include information technology and collaborative learning and teaching.

An obstacle that needs to be overcome is the view many hold that computers and Internet connectivity are "tools" for learning, and thus an increased grade point average is the only measure of value for these resources. A more important perspective is for administrators and school boards to realize that the Web represents a new environment for learning and teaching and that very soon every teacher and student will need access to the information represented on the Web in order to be competitive in their work and in their lives.

**Jones (2004)** aimed to integrate technology (using Micro Worlds software on a computer) into the grades 1 and 2 mathematics curriculum. A secondary aim was to investigate whether the characteristics of creativity and features of ICT could come together in a mathematical context. The work produced by the children suggests that they were able to demonstrate the application of some characteristics of creativity with both traditional drawing media and computer-based technology. It was not anticipated that children at

this age would use all the characteristics of creativity or any advanced features of ICT. However these (mainly) six and seven year olds were quite skilled computer users, and were willing to tackle conceptually new and difficult challenges with the technology.

**Altowjry (2004)** researched the development of the educational system in Saudi Arabia by expanding its parameters to take advantage of telecommunications technologies and to incorporate the distance learning method. This research shows the merits of such a method to the concerned authorities in the Kingdom of Saudi Arabia and addresses the difficulty and the inherent resistance to applying the new method in all Saudi educational institutions. It was found that there is a positive relationship between applying the new method of distance learning and decreasing the number of students who drop out of the educational process for many reasons.

**Rismark et al. (2007)** found that affordance of constant access to LMS by mobile phones may represent new learning opportunities in higher education. Mobile wireless technologies use public stations- antennas-or Wireless Access Points (WAPs) that are connected to wired-network in a building or public area to give a way of access for web resources and communication for mobile wireless technology users.

**Al-Kindi (2009)** had clarified the state of utilizing educational technology in general education in Oman. It also attempted to shed some light on the difficulties faced in using such technology. The findings of the study were as follows:

1. Teachers were aware of the importance of the constant use of educational technology. Nevertheless, their responses to some items relating to the use of modern educational technology were discouraging, which should be taken into consideration in establishing a training program for teachers.

2. Lack of training courses for teachers, especially courses that teach them how to produce and develop their teaching materials. This has led to a greater difficulty for teachers who tried to utilize educational technology. That was the most formidable problem for them because lack of training leads to all sorts of difficulties that were observed in the present study. It can be the source of more difficulties if it is not encountered and dealt with properly.

3. The students' awareness of the importance of educational technology is increasing. Yet the researcher aspires for more than that through providing educational technology and teaching aids in schools for students to benefit from them in the educational process. They will doubtless overcome the difficulties that face them in learning their school subjects.

**Al-Fahad (2009)** has attempted to determine how mobile learning technology can be optimally used to improve student retention at Bachelor of Art and Medicine programmed at King Saud University in Saudi Arabia.

Result of this study clearly indicate that offering mobile learning could be our method for improving retention of students, by enhancing their teaching/learning. The biggest advantage of this technology is that it can be used anywhere, anytime and adopt their mobile learning systems with the aim of improving communication and enriching students' learning experiences in their open and distance learning.

**Underwood (2009)** proposed that the ICT revolution is a deep cultural revolution changing all modes and patterns of our lives and hence bound to lead to dramatic changes in education. It is characterized by its recognition of two basic facts: a. ICT has a powerful defining impact on all important aspects of our lives and hence our culture. b. The ICT revolution is a part of a group of intertwined revolutions that in the past 20 years have been transforming Western culture from a modern into a postmodern culture. (Aviram & Talmi, 2004, p.4).

Researchers have pointed to well-crafted use of technology benefiting, for example:

- increased learner effectiveness or performance gains
- increased learner efficiency
- greater learner engagement or satisfaction
- more positive student attitudes to learning.

**Gray (2011)** suggested that the use of digital media really can enhance teaching, but also poses the risk of only passively engaging the learner. No single individual or even institution in isolation could possibly 'keep up'. Only by pooling knowledge and sharing stories of what works and what doesn't can we use successfully integrate digital media into our teaching and learning.

**Wetzel (2011)** explored that bringing digital media into the classroom moves teaching beyond the textbook and makes connections to the world in which our students actually live. When presented digital media within the contexts of problem solving or project based learning situations, our students will view how the information within their textbooks actually applies to them.

Incorporating the right digital media is one the most effective means for engaging students' and helping them understand a difficult concept or improve their long-term retention of knowledge.

**Curdy & Ellam (2011)** found that students learn better and faster when they are actively engaged and participating in activities that create learning opportunities along the way. Integrating digital media with classroom technology is a great vehicle for student engagement. Incorporating media into your teaching can help to provide your students with a higher quality learning experience. For example, mix and matching traditional lecture styles with online recordings could help to explain things that could be complex if done by text or PowerPoint slides alone.

## 9. PROCEDURES OF THE STUDY

### Study Questionnaire:

To achieve the objectives of the study and answer its questions, the researcher prepared a questionnaire using the following sources:

- 1- Discussions with teachers about the digital technology materials they are using in schools.
- 2- Questionnaire consisted of three parts and fifteen items about using digital technology.

## 10. VALIDITY OF THE QUESTIONNAIRE

The questionnaire of the study was presented to five members of the faculty members at Teachers College in Riyadh. They proposed some notes.

## 11. THE RELIABILITY OF THE QUESTIONNAIRE

The reliability of the questionnaire was calculated by using Cronbach's Alpha.

The value of Alpha Cronbach's coefficient of the questionnaire as a whole .95

This means that the questionnaire is suitable for the study.

## 12. THE STUDY SOCIETY

The study consisted of secondary schools teachers in (government – private ) schools in Riyadh - Saudi Arabia.

## 13. THE STUDY SAMPLE:

The study sample consisted of (180) secondary schools teachers in some government and private schools and the usable sample was (144). Questionnaires have been distributed and collected after about two weeks of distribution. the sample has been selected randomly. In table (1, 2,3)

Table (1): School types

<u>School Types</u>	<u>Frequency</u>	<u>Percent</u>
<u>Government</u>	<u>80</u>	<u>55.6</u>
<u>Private</u>	<u>64</u>	<u>44.4</u>
<u>Total</u>	<u>144</u>	<u>100</u>

Table (2): Experience

<u>Experience</u>	<u>Frequency</u>	<u>Percent</u>
<u>1</u>	<u>37</u>	<u>25.7</u>
<u>2</u>	<u>30</u>	<u>20.8</u>
<u>3</u>	<u>31</u>	<u>21.5</u>
<u>4</u>	<u>45</u>	<u>31.3</u>
<u>Total</u>	<u>143</u>	<u>99.3</u>

Table (3): Major

<u>Major</u>	<u>Frequency</u>	<u>Percent</u>
<u>Science</u>	<u>74</u>	<u>51.4</u>
<u>Non-science</u>	<u>61</u>	<u>42.4</u>
<u>Total</u>	<u>135</u>	<u>39.8</u>

## 14. STATISTICAL TREATMENT:

The use of statistical methods as the following:

- Calculation of Cronbach's alpha
- Calculate the arithmetic average mean and the grade for each of the items in the study questionnaire for the responses of teachers according to using the digital materials in schools.
- Calculate the value of (T) to test significant differences between the average mean of teachers' responses, according to the study variables.

## 15. RESULTS OF THE STUDY AND DISCUSSION:

**The First Question:** To what extent are the digital materials found in Saudi Arabia schools ?

**The Second Question:** To what extent are these digital materials using in schools?

**The Third Question:** what are the condition of the digital technology found in schools?

To answer these three questions, the average means was used for analysis the information for each of the items in the first , second and third part. The analysis are shown in table No. (4).

Table No: (4) shows the mean scores for the responses of teachers:

No.	Items	Availability		Uses		Suitability	
		N	Mean	N	Mean	No	Mean
1	Slide Projector	142	2.39	130	2.18	127	2.24
2	Smart Board	137	2.15	123	2.02	114	2.26
3	Camera	138	2.09	126	1.87	114	2.11
4	Data Show	139	2.45	128	2.37	124	2.38
5	Over head Projector	135	2.15	126	2.29	119	2.40
6	Mobile	121	2.37	106	2.02	105	2.20
7	Computer	140	2.84	124	2.48	118	2.56
8	Internet	141	2.52	124	2.33	116	2.43
9	E-mail	140	2.46	122	2.14	112	2.30
10	Video	138	2.13	118	1.80	109	2.03
11	Movie Projector	140	1.80	115	1.67	108	1.88
12	Television	140	1.54	111	1.49	107	1.71
13	Multimedia	135	1.76	111	1.70	103	1.91
14	Virtual Classes	136	1.54	111	1.48	103	1.69
15	Digital Camera	139	1.91	117	1.83	111	1.99

The table include (3) parts (Availability – Uses – Suitability) of digital technology materials and (15) items.

**(1) Availability:** from the items 1-15, from table 4 we can see that items had valued between (1.54) and (2.82) out of (3).

by viewing the first part of table No. (4) and the average mean scores and arrange the items by the most important, we can see that 10 items of 15 got more than 2 , and the upper limit of the average mean is 3, so this indicates that most of the important digital technology materials are available in secondary schools.

**(2) Uses:** from the items 1-15, from table 4 we can see that items had valued between (1.49) and (2.42) out of (3).

by viewing the second part of table No. (4) and the average mean scores and arrange the items by the most important, we can see that 8 items of 15 got more than 2 , and the upper limit of the average mean is 3, so this indicates that teachers are aware of the importance of using digital materials in secondary schools.

**(2) Suitability:** from the items 1-15, from table 4 we can see that items had valued between (1.69) and (2.56) out of (3).

by viewing the third part of table No. (4) and the average mean scores and arrange the items by the most important, we can see that 10 items of 15 got more than 2 , and the upper limit of the average mean is 3, so this indicates that most of the digital materials which found in schools are suitable for using.

The result which showed in table (4) goes with the result of (Al-Kindi , 2009) and (Wetzel , 2011).

**The Fourth Question:** Are there any significant differences between the average mean scores of teachers' responses due to the school types (government – private)?

To answer this question the (T.test) was used and table (5) shows the results for average means, standard deviation and the (T.test) result, to determine the differences between the average mean scores of teachers' responses with regard to the (availability – uses – suitability) of digital technology materials, due to school types (government – private).

Table No (5): shows the mean scores for the responses of teachers:

	School Types	N	Mean	t	Significance
Availability	Government	79	2.0140	-4.9	.000
	Private	64	2.3507	-4.8	
Uses	Government	78	1.8950	-3.4	.002
	Private	59	2.1389	-3.2	
Suitability	Government	74	2.0911	-2.7	.007
	Private	61	2.3074	-2.7	

Test results (T.test |) to determine the differences between the average mean scores of teachers' responses with regard

to the digital technology materials due to school types (Government – Private).

The table shows that there are significant differences between the means scores of teacher’s responses according to school types (Government – Private) at less than (.05) for the benefit of private schools. The reason is that the “quality” of private school is better than that of government schools because private schools give proper attention towards their students and provide good and beneficial study materials.

**The Fifth Question:** Are there any significant differences between the average mean scores of teachers’ responses due to the teacher’s experience?

To answer this question the (ANOVA - analysis of variance) was used in order to determine the differences between the average mean scores of teachers’ responses with regard to the (availability – uses – suitability) of digital technology

materials, due to teachers’ experience, and the result showed that there are no statically differences between the average mean of teacher’s responses according to experience , with respect to the (availability – uses – suitability) of digital technology materials in schools.

**The Sixth Question:** Are there any significant differences between the average mean scores of teachers’ responses attributed to the major (science major – non-science major)?

To answer this question the (T.test) was used and table (6) shows the results for average means and the (T.test) result, to determine the differences between the average mean scores of major with regard to the (availability – uses – suitability) of digital technology materials, due to major (science major – non-science major).

Table (6): shows the mean scores for the responses of teachers:

	Major	N	Mean	t	Significance
Availability	Science Major	74	2.1415	-.667	.509
	Non-Science Major	60	2.1908	-.667	
Uses	Science Major	73	1.9956	-.121	.903
	Non-Science Major	56	2.0049	-.122	
Suitability	Science Major	71	2.1679	-.729	.472
	Non-Science Major	55	2.2290	-.722	

The table shows that there are no significant differences between the means scores of teacher’s responses with regard to the (availability – uses – suitability) of digital technology materials, according to major (science major – non-science major).

**16. THE STUDY SUMMARY AND RECOMMENDATIONS:**

This study aimed to know the digital technology materials use in Saudi Arabia schools , knowing to what extent the digital technology materials using in schools, clarifying the condition of these digital materials found in schools, and Knowing the differences between the average mean scores of teachers responses with respect to variables of the study. To know this, the researcher put the following questions:

- 1.To what extent are the digital materials found in Saudi Arabia schools ?
- 2.To what extent are these digital materials using in schools?
3. what are the condition of the digital technology found in schools?
4. Are there any significant differences between the average mean scores of teachers’ responses due to the school types (government – private)?
5. Are there any significant differences between the average mean scores of teachers’ responses due to the teacher’s experience ?
6. Are there any significant differences between the average mean scores of teachers’ responses attributed to the major

(science major – non-science major)?

To achieve the objectives of the study and answer the questions, the researcher prepared a questionnaire consisting of (3) parts and (15) items. The questionnaire distributed to a random sample of (180) secondary schools teachers in some government and private schools and the usable sample was (144). The results showed that:

1. The availability of digital materials in schools: (15) items got the average mean between (1.54) and (2.82) out of (3).
2. The uses of digital materials in schools: (15) items got the average mean between (1.49) and (2.42) out of (3).
3. The suitability of digital materials in schools: (15) items got the average mean between (1.69) and (2.56) out of (3).
4. There are significant differences between the means scores of teacher’s responses according to school types (Government – Private) at less than (.05) for the benefit of private schools.
5. There is no statically differences between the average mean of teacher’s responses according to experience , with respect to the (availability – uses – suitability) of digital technology materials in schools.
6. There are no statically differences between the average mean of teacher’s responses according to the major (Science major – Non-science major) with respect to the (availability – uses – suitability) of digital technology materials in schools.

**17. RECOMMENDATIONS:**

Based on the results of the study, the researcher recommends the following:

1. All the teachers should be involved from the earliest education levels and in-service training courses for advanced

digital competences and e-Learning should be introduced. The training should consider aspects of using ICT both as a learning tool within subject teaching and a tool used by learners for their coursework outside school settings.

2. Learn 'critical' and 'quality' use of digital tools within context. Teachers and trainers of all fields and disciplines should be confident and competent in these skills in order to encourage students to use ICT for their learning in a critical and creative way.

3. Encourage innovative learning approaches. Innovative teaching and learning approaches with ICT can be developed independent of the subject and engage them actively in the learning process, promoting discovery and experiential learning, problem solving skills.

4. It's important to do more researches on issues relating to digital media.

#### 18. PROPOSED STUDIES:

1. Conducting a study about difficulties faced teachers in using digital technology.
2. Conducting a study about student's attitude and perception toward using digital technology.

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