

CASE STUDY OF THE IMPACT OF USING TECHNOLOGY IN SAUDI ARABIA PRIMARY SCHOOL IN SUPPORT OF TEACHING AND LEARNING WITH REGARD TO THE ENGLISH CURRICULUM

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Abstract: This paper reports on an experimental case study that aimed to explore the impact of the use of technologies in the teaching of English in a primary school in Saudi Arabia. In this study, the researcher applied various technologies such as an iPad, a computer, and a projector when teaching English language to the groups of Primary children. These groups comprised of three different classes, while the traditional method of teaching, lecture style input was applied to control groups also made up of three age matched classes in the same school. The aim of using an experimental research approach was to determine the effectiveness of the technology when the teacher applied them in their English classes in a Saudi setting, and the effectiveness of using such technology in terms of the students' achievements particularly when technology is not traditionally used to support teaching in this context. The analysis included both qualitative and quantitative. The results drawn from this study demonstrates evidence that the different technological devices do support English language learning in some students.

Keywords: Primary School, English Curriculum, Case Study, Saudi Arabia

Literature Review

According to Riasati, Allahyar and Tan (2012), technology helps to increase student motivation such as when fun and games are brought into the classroom. Furthermore, it is proposed that the students' experience of new technologies in the learning environment can improve their engagement and motivation with regard to performing tasks. The authors also note that when used in the classroom as a tool for learning, technology encourages collaboration and communication during the performance of learning activities. For example, using technology such as an iPad, computer and projector, enables students to gather information and interact with resources such as songs, videos, presentations and images. According to Riasati, Allahyar and Tan (2012), another major advantage of using technology in the classroom is that it helps lower learners' anxiety levels, increase learner autonomy and encourage the development of particular language skills.

Moreover, Almutairi (2008) suggests that, as far as teaching English in Saudi classrooms is concerned the traditional method of teaching is that of lecture style, students only sit and listen to what the teachers says, while the teacher spends a lot of time explaining basic things to the students. While this technique makes it easier for the learners to achieve grammatical proficiency, it does not sufficiently implement new teaching techniques such as using technology in the classroom to support the teaching process. It could also be proposed that this lecture style approach does not enable students to practice their skills as effectively and does not support full mastery of the language. The research highlighted some of the problems with learning English in Saudi schools such as the large numbers of students in the class, limited English lessons, and the poor availability of technology in the classroom. As a result of this research, a number of recommendations are made in order to improve future practice and prevent these problems. In this paper, the researcher will present a case study of the impact of using technology in a Saudi primary school to support teaching and learning with regard to the English curriculum.

Learning English Technology to support types of Technology

A number of different technologies can be used in order to support learning in classroom, the focus for this study is on a number of readily available devices that could be applied in the classroom in Saudi Arabia, these include the computer and iPads. The computer and iPad applied by the researcher in teaching two different classes in the sampled school each fall within the umbrella of a computing device or a computer technology (Pearson Education, 2002). A computing device in this regard is an electronic device controlled by a processor and that can accept many software programmes for performing different functions (Emory University, 2017). A projector in itself is not a computing device but rather is an electronic device that is used to display images from a computer, film or images as noted by National Council For Teacher Education (2016).

The use of tablets or iPads and other devices such as mobile phones, and smartphones in teaching and learning has remained a subject of great controversy (Chartrand, 2016). For example: mobile devices have also been associated

with hardware and software failures and smaller screens which make reading of content and input of text difficult (Chartrand, 2016). However, there is a view that such technologies bring a wealth of creative options to the learning environment and, therefore, enhance the learning experience (Chartrand, 2016; Pellowe et al., 2014).

Many educational experts have noted the importance of computers and related technology in education (Simmons & Markwell 2001; Saba 2009). On their part, Simmons and Markwell (2001) note that technology can enhance education and is becoming more and more essential to learning. Saba (2009) is quick to note that mounting evidence indicates that technology helps improve student achievement both in terms of overall performance and in core subject areas. In addition, computers and mobile devices allow access to resources such as the Internet and YouTube, which may present new and exciting learning opportunities especially for students (Chartrand, 2016). Chartrand (2016) goes further to note that language teachers have found mobile devices useful in accessing online content, music and videos, all of which support the learning of new languages. Moreover, Saba (2009) notes that computers do not only have a potential impact on quantitative assessment performance in subjects but also leads to qualitative improvements compared to traditional teaching and learning methods. Studies also indicate that students with special needs and those who are low achievers tend to improve even more than high achievers and average students when they learn using computers as opposed to when they learn using traditional instructional methods (Saba, 2009).

On the other hand, projectors have been used to display images, notes and book content to the entire class and also to display course material to engage learners in games, songs, videos, presentations, simulations and quizzes among other activities (Klopfer et al. 2009). In both cases, the projectors have replaced or complemented whiteboards in the classroom, reducing the need for teachers and students to write notes on whiteboards (National Centre for Technology in Education, 2008). Also, Harrison (2008) notes that projectors when used to display presentations and electronic books enable the teacher to present well organised notes and make it easier for students to take better notes as they have the ability to discern the most useful information that the teacher displays to them. At the same time, the projector allows the easy and convenient display of previous information whenever there is need to revisit important content. One other main advantage of projectors is that they can be used to display information to an entire class rather than having to display information to each student individually such as through individual computers as noted by the National Centre for Technology in Education (2008). Furthermore, projects enable better use of time as the teacher does not necessarily need to write on the board and erase it when it is full. Instead, a simple click of the mouse leads to the display of new information, which effectively frees time for the teacher who would otherwise have to write and rewrite information (National Centre for Technology in Education, 2008).

Another benefit of using a projector in education relates to its capacity to reach students with multiple approaches. In this regard, learners enjoy seeing, hearing and interacting with technology as opposed to simply listening to the teacher or reading a textbook (Harrison 2008; National Centre for Technology in Education 2008). Learners can also take part in interactive and real time activities, which can help to promote the development of critical thinking skills. The projector can be used as a tool to effectively display or illustrate events or concepts in a way that may not be possible using the whiteboard according to the National Centre for Technology in Education (2008). National Centre for Technology in Education (2008) notes that when a projector is used in teaching and learning, the teacher and students can still maintain eye contact and can benefit from verbal and non-verbal communication as well.

The aim of this study is to explore the impact of technologies such as the iPad, computer and projector in support language learning in a primary school in Saudi Arabia. One of the research questions was: What is the impact of technology on student achievement and on making good progress in the English language?

The researcher used the assessment process to measure the learning outcomes. The assessment process was completed by the main English teacher. In the section below, the researcher explains the assessment methods, experimental design, and the experimental results to answer the research question.

Participants

This research focused on applying a single case study for understanding how technology enhances the English language learning in Saudi Arabian primary schools. In Saudi primary schools English lessons are started from grade four. These English language classes comprise grades four (A&B), five (A&B) and six (A&B) where students of ages 10, 11, and 12, in that order are enrolled. Each grade has two classes with a minimum of 30 students each. These grades have two teachers of English who teach English twice a week for each class in a 45 minutes long session. In this part of the study, the researcher applied various technologies such as an iPad for grade four B, a computer for grade five B, and a projector for grade six B when teaching English language to the

experimental groups. These comprised three different classes, while the traditional method of teaching was applied to control groups made up of three different classes: grade four A, grade five A, and grade six A. The researcher then used the assessment process to measure the learning outcomes. The assessment scale in this experiment is as follows: Excellent, Very Good, Good and Fail and was consistent with the form typically used in the school. The assessment process was completed by the main English teacher. The aim of using an experimental research approach was to determine the effectiveness of the technology when the teacher applied them in their teaching in English classes, and the effectiveness of using technology in terms of the students' achievements.

Methodology

Experimental Design

It is a challenge to conduct true experimental research within real life scenarios since it is difficult to derive perfectly aligned groups in relation to multiple variables including aspects of age, gender, income or work grade (Gray, 2004). In the current researcher's experiment, pupils were randomly assigned to either an experimental or a control group. In the current research, the researcher also explored the fluency in the language in terms of the ability of the students to read, write, comprehend, and speak English through assessment as accessed. In this assessment, the researcher follow the English curriculum but made change to the presentation aids. This approach enabled the researcher to explore if and how technology can be employed to support English language learning. The use of an experimental research design could be considered in the context of the wider research around the use of technological aids in the classroom. Associated technological aids are utilised towards evaluating 'treatment groups' in the context of action research. Such processes entail a significant degree of cooperation amongst both researchers and participants, which emphasises bringing around noticeable changes within the overall organisation (Gray, 2004). The emphasis of the initiative is to bring about changes within the attitudes and perspectives of participants within the field so that the data could be compiled in the context of both qualitative and quantitative methodologies (Gray, 2004).

The experimental group was provided with treatment – the introduction of iPads, computers, and projectors – while the control group experienced teaching in the normal way. The current study draws upon multiple methodologies to ensure the overall credibility and integrity of the study conducted.

Assessment Method

In the researcher's current experiment, pupils were randomly assigned to either an experimental group receiving intervention, or a control group receiving normal tuition. All of these groups are age matched. Learner assessments are some of the most important drivers of student learning, for example, computerised tests. Assessments aim to measure achievement of learning outcomes, and grading or classifying student achievement as noted by Winston-Salem State University (2016). In this study, the assessment method applied was exam testing. The assessment scale in this experiment is as follows: excellent, very good, good and fail. The results of the study revealed that learners in lower grades tended to show a dislike for taking exams possibly because of their inexperience and lack of confidence in using English language. However, experts note that written exams as an assessment method is advantageous in that it is economical and is a valuable source of information on student achievement, offers equal opportunities to learners and is less subject to plagiarism (Murphy, 2009). Also, Murphy (2009) mentioned that it is a fact that different teachers differ in their grading practices and policies which is another major limitation of exams as an assessment method.

Technology and Motivation

Qualitative Results

The qualitative results of this study have been collected by the current researcher from both controlled and experimental groups. So far, the results have demonstrated that, when the researcher used technology in the experimental groups, the students in classes who used technologies, seemed to be more motivated to learn than their counterparts in the traditional classes. This finding is consistent with several studies that indicate a relationship between technology use and learner motivation. Saba (2009) notes that technology is effective in improving attitudes towards learning. Many research studies have shown that most learners prefer to learn by using technology which subsequently leads to confidence boost and a better attitude towards education. Some experts are of the view that technology provides the opportunity for individualised learning as stated by Saba (2009). For example, when students take control of the rate at which they learn as they use technology which helps them avoid embarrassments that may come with making mistakes publicly. Another main advantage of learning using technology is that it provides immediate feedback with resultant reduction in learning time. This in effect makes learners feel more confident, develop a sense of accomplishment, and leads them also to develop a positive attitude towards learning (Erdamar & Melek 2008; Riasati, Allahyar and Tan, 2012). However, the use of different technologies in education is a subject that's has received significant attention among educational researchers.

According to Brown (2011), the use of different technologies can lead to higher levels of productivity, unprecedented flow of ideas and the avoidance of boredom. This rationale supported the researcher's use of different technologies during lessons with an aim of that specific technologies may not be rich in all aspects and therefore may need to be used together with other technologies or methods to meet the diverse needs and learning styles of learners.

Experimental Results

The results revealed that in grade 4A, 25 (58%) out of 43 students in the class in which the traditional teaching method was used scored Excellent grade in the English test. The remaining 18 (41%) students in the same class scored very good grade, with no student having a good or fail grade as evidenced by (Table 1). In grade 4B where technology was used to teach (iPad), 31 (72%) out of the 43 students in the class got excellent grade while the rest 12 (27%) of the students got very good grade as evidenced by (Table 2). No student got a good or fail grade as evidenced by (Fig. 1).

Table 1: The number of children achieving each grade when using traditional methods

Grade four A (Traditional methods)

Students	Percentage
Excellent 25	58%
Very good 18	41%
Good 0	0%
Failed 0	0%

Table 2: The number of children achieving each grade when using iPad

Grade four B (IPad)

Students	Percentage
Excellent 31	72%
Very good 12	27%
Good 0	0%
Failed 0	0%

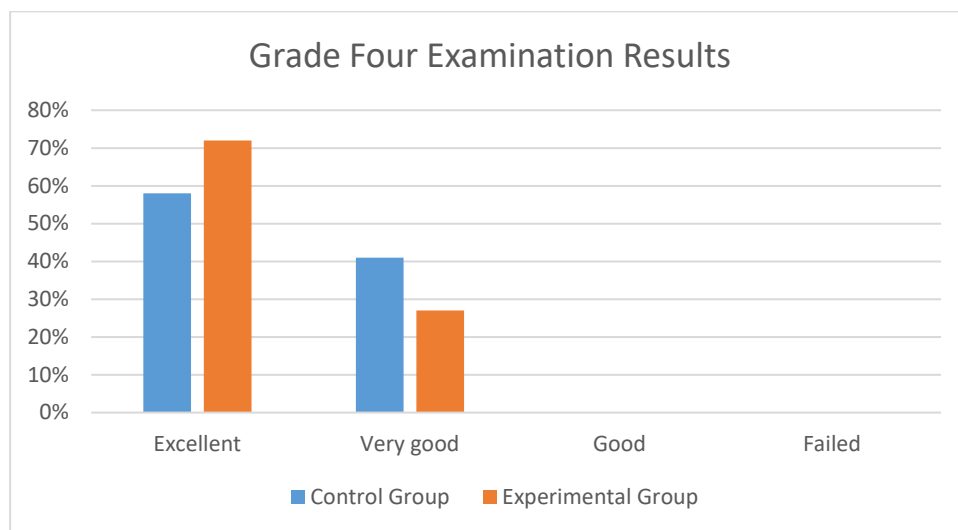


Figure 1: Summaries the test results as scored by grade 4A (the control group) and grade 4B (the experimental group) students.

The results demonstrate that these children in both the experimental and the control group were of similar ability, allowing the researcher to make comparisons easily. These results indicate that the use of an iPad appears to support learning in some children.

In grade 5A, in which the traditional method of teaching was used, 8 students out of 41 (20% of the class) obtained an excellent grade in the English test. Also, 24 students obtained a very good grade, accounting 59% of the class,

8 students were graded as good, accounting for 20% of the class while, and a student (2%) was graded Fail as evidenced by (Table 3). In grade 5B, in which technology was applied in teaching in the form of computers, 19 out of 40 students (48%) were given an excellent grade. Also, 17 students (43%) in the same class got a very good grade, and 4 got a good grade (10%) as evidenced by (Table 4). None of the students in the class was given a fail grade as evidenced by (Fig.2).

Table 3: The number of children achieving each grade when using traditional methods

Grade five A (Traditional methods)

Students	Percentage
Excellent 8	20%
Very good 24	59%
Good 8	20%
Failed 1	2%

Table 4: The number of children achieving each grade when using computer

Grade five B (Computer)

Students	Percentage
Excellent 19	48%
Very good 17	43%
Good 4	10%
Failed 0	0%

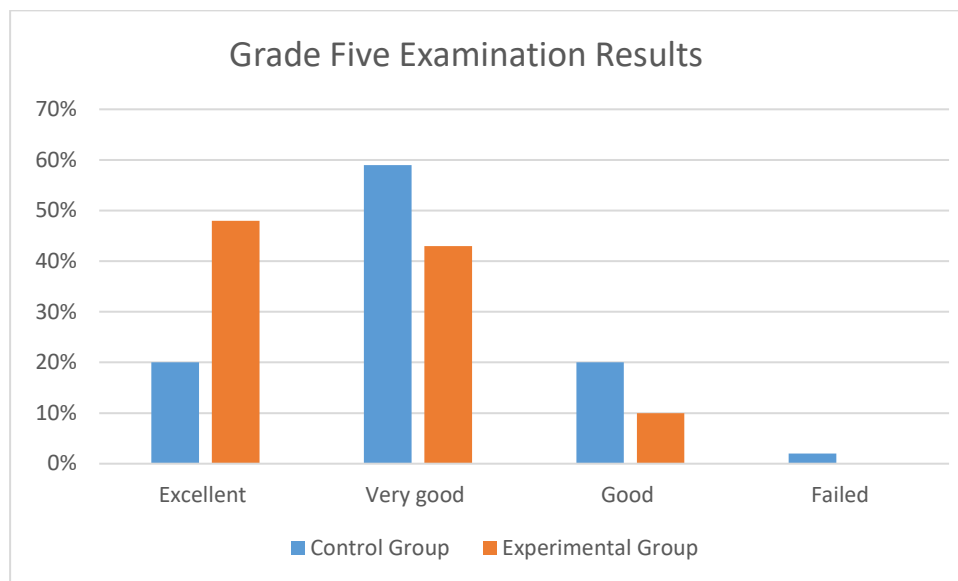


Figure 2: presents a summary of the test results for grade 5A (the control group) and grade 5B (the experimental group).

These results show that these children in the experimental and control groups were of similar ability. Consequently, it made comparisons easy. These results suggest that the use of computers appear to support learning in some children. However, it would appear that a much higher proportion passed the exam with an excellent grade when using a computer to support their learning. In addition, there were no failed students in the experimental group.

In grade 6A where the traditional method of teaching was applied, 17 (41%) out of the 41 students got excellent grade in the English test. Those who got very Good grades were 22 (54%) and good 2 students (5%) respectively. No student got a fail grade in the test as evidenced by (Table 5). On the other hand, 19 students (46%) out of 41 students in grade 6B, in which technology was applied in teaching (Projector), got excellent grade. Those who got very good grade were 22, representing (54%) of the class population as evidenced by (Table 6). None of the students in the class got good or fail grade as evidenced by (Fig.3).

Table 5: The number of children achieving each grade when using traditional methods

Grade six A (Traditional methods)

Students	Percentage
Excellent 17	41%
Very good 22	54%
Good 2	5%
Failed 0	0%

Table 6: The number of children achieving each grade when using projector

Grade six B (Projector)

Students	Percentage
Excellent 19	46%
Very good 22	54%
Good 0	0%
Failed 0	0%

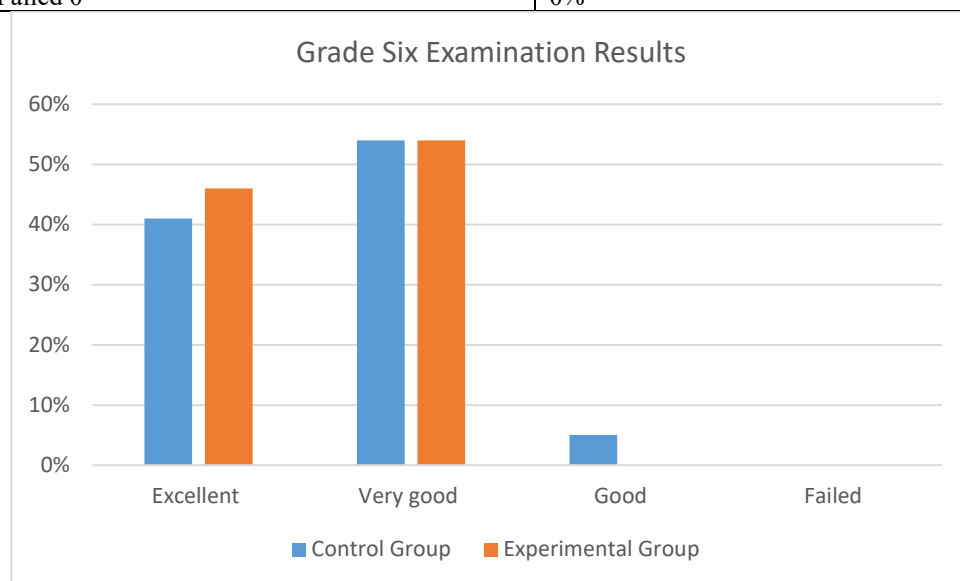


Figure 3: presents a summary of the results of the test for grade 6A (the control group) and grade 6B (the experimental group).

These results show that the children in both the experimental and control group were of similar ability. These results suggest that the use of a projector appears to support learning in some children. However, it would appear that a higher proportion of children passed the exam with an Excellent grade when using projector to support their learning and both groups more or less stayed obtained the same very good grade. Also, there were no good or fail students in this experimental group. This means that the use of the projector improved the students' achievement in the experimental group in that there were more excellent and good results.

It is evident from the test results that in each of the three grades, the experimental group showed better performance compared to the control group. On average, the experimental group had 16% higher number of students with excellent grades than the control group. The experimental groups also generally had a lower number of students with fail and good grades compared to the control groups in each grade as evidenced by (Fig.4).

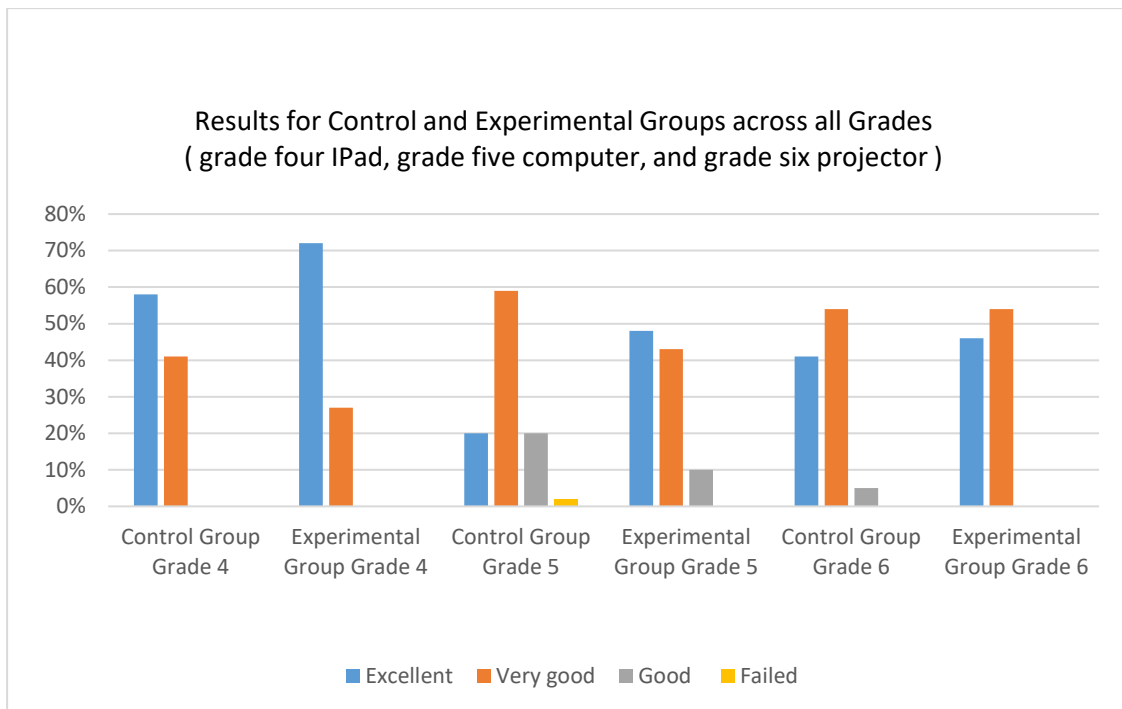


Figure 4: results for control and experimental groups across all grades

Table 4 shows the results of the assessment data across all the grades and conditions in the study. For example, the experimental groups in all grades had a higher number of students in the excellent category, and no students obtained a fail grade. It appears that in all cases, regardless of the type of technology used, its inclusion had a positive impact on learning compared to that of traditional classes which is the control groups.

The Key findings:

This paper presents the evidence from a single site case study in order to demonstrate the potential effectiveness of using technology in order to support student performance and motivation for English language learning in a primary school in Saudi Arabia. Various technologies, including a tablet (IPad), a computer and a projector were used when teaching the English language to the experimental groups. It has been discovered that the use of these devices supported learning in some students. At the same time, a much higher proportion of children passed the exam with an ‘Excellent’ grade when using the mentioned devices to support their learning. Also, Saba (2009) mentioned that technology contributed to higher levels of students’ academic achievement. One key finding from the experimental study that group work was more beneficial to individual students’ success and performance compared to working alone.

It is relevant to conclude that Saudi schools should more actively invest in technology in order to equip their teachers and students with the necessary tools and resources. The analysis outcomes have demonstrated that the use of technology such as tablets (IPad), computers, and projectors facilitates the development of students’ proficiency in the English language and add to their overall academic performance. At the same time, it is important to ensure that Saudi teachers are ready and willing to integrate technologies in the learning process and use these technologies in an effective manner (Abukhattala, 2016). So that they are able to capitalise on possible learning experience and advantages of using technology.

However, the Ministry of Education in Saudi Arabia said that the education will be transferred from the curriculum taught through the use of books, to electronic-based education, and the Ministry of Education stated that electronic-based education will cost 1.6 billion Riyals for the next three years. He said that electronic-based education will be available in 150 schools in the coming year, then 1,500 schools the year after, and it will be available to all schools in the third year. Moreover, as a result, he mentioned that this electronic-based education will be a very important event that would be available in every Saudi Arabian school by 2020 (Algamdi, 2017). As a result of the Ministry of Education’s statement, this study into the impact of technology on English language learning and teaching, will support the introduction of electronic-based education. This development to more technology-based education highlights the timeliness of this study. However, this study has positively impacted on the use of the

technology which can be used for other aspects of the curriculum in Saudi Arabia schools. This study will also supports the transfer of education from the use of books to electronic-based education by 2020.

According to Shar (2018) at the second session of the fifth Professional Development meeting held at the Ministry of Education in Saudi Arabia on 31 January 2018, Dr. Al-Juhani pointed out that electronic learning is a form of informal education, but over time the general idea of informal education will change. It will become as important as formal education, especially with regard to the increased use of distance learning and the increase around the world of the interest of people in technology. In addition, Dr. Al-Juhani explained that electronic learning is based on the use of modern technology as a means of providing an educational curriculum that differs from what is offered within the traditional classroom. It can also take an interactive form as educational programs on the Internet. Dr. Al-Juhani reviewed some statistics and figures indicating the increasing reliance on technology and the use of the Internet. He pointed out that by mid-2017, is equivalent every 10 children have six children using the Internet, many of whom participate in called electronic learning, even if they do not realise it (Shar, 2018). This research supported the impact of the use of technology in primary school in Saudi Arabia.

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