# The Use of Technology in Teaching and Learning in Iraqi Kurdistan: Sulaimani Governorate as an Example

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**Abstract**

In the past fifty years, educational technology has been a subject with a rapid growth rate and increasing sophistication. The methods and efficacy of its implementation were the focus of developing its theories and research. In the past, education was unavailable in some areas of the world. Understanding how technology has aided education and its impact helps the readers appreciate how crucial technology has become in education.

This paper aims to find out the use of technology by students and teachers then collected and analyzed data from thirty teachers and students from thirty schools in the Governorate of Sulaimani to assess the effects of technology on teaching and learning in their schools. The paper used questionnaire and interview tools to collect data and used a triangulation method to analyze the data. 30 schools were chosen so as to be generalizable and representative by showing the demography of Sulaimani Province. It inquired whether technology affects the teaching and learning process and to what extent teachers and students utilized technological tools for teaching and learning. As a result of the researcher's interviews with students and teachers, the study hypothesizes that there is clear and compelling evidence that technology positively influences learning and teaching processes. Interestingly, according to the findings of this study, students are much more aware of technology usage than teachers.

**Keywords:** Education technology, teaching & learning process, tools of technology, methods

### 1. Introduction

The current century has witnessed a tremendous increase in technological advancements at all levels of schooling. Early on, media technology was integrated into the education sector as a significant factor in all disciplines. Following that, the growth of networking and computing technologies had a significant impact on education and daily life. Finally, in 1997, the concept of remote education learning led to the development of electronic platforms, from blackboards to whiteboards to smart-boards, which have been extensively used in web instructions and administrations in elementary and middle/high schools, as well as colleges and universities (Ouyang and Stanley 2014, 161-172).

In the last decade, academics had provided evidence that technology enhances literacy, influences language acquisition, provided more access to information, encourages pupils, and boosts their self-esteem. In addition, O'Hara, Susan, and Pritchard (2014) assert that technology gives students more options to grow or refresh their knowledge. According to the study(ibid.), technological effects may have both benefits and drawbacks. Still, it is a basic truth that these impacts are unavoidable in the contemporary day owing to the global development of technology and its influence on daily life. Every topic from preschool to college may use technology for guidance, development, and duties. Those without the ability to teach or apply the materials are also excluded (SALEM Press, 2014). Education is a fundamental human right that should be available to everyone irrespective of gender, race, or social status. In the past 50 years, educational technology has become a growing and increasingly developed subject in education. The focus of the development of its theories and research is oriented toward the methods and effectiveness of its implementation. This paper uses a mixed method was used like questionnaire and interview to collect and analyze data from 30 teachers and 30 students from 30 schools in Sulaimani Province to gauge the impact of technology on teaching and learning in their schools. The research aims to answer two questions: whether technology

impacts the teaching and learning process and to what extent teachers and students use technological means for teaching and learning.

Iraqi Kurdistan, including Sulaimani Governorate, has undergone various educational system changes over the years. Prior to 1991, the education system in Iraqi Kurdistan was controlled by the central government, and the curriculum was not in the Kurdish language. Since 1991, the Kurdistan Regional Government has administered the education system, and the curriculum has been changed to be in the Kurdish language. Currently, the education system in Iraqi Kurdistan is divided into four stages: kindergarten, primary school, intermediate school, and secondary school.

Research Questions:

This study attempts to address the following questions:

a. To what extent, teachers and students utilize technology in teaching and learning in Iraqi Kurdistan?

b. Does technology affect teaching and learning at Sulaimani schools?

## 2. Background

Essentially, teachers throughout the world have worked hard to improve education delivery by incorporating technology. Particularly in low-income nations, early emphasis was placed on the transmission of directed instructions via radio, recorded lessons on audiotape, and television. Following the creation of the Internet and the World Wide Web, the vision and emphasis of education technology have moved to promote communication and resource accessibility. Hence, the role of the instructor in the educational process has changed significantly as a result of the emergence of new technology. Unlike prior technologies, which largely served as a tool for instructors to continue teaching in the same manner (although supposedly more effectively), technologies such as e-mail and the Internet tend to force teachers to adopt fundamentally

alternative approaches to education. Depending on how they are implemented, these strategies emphasize the students' responsibilities to seek out knowledge and engage with people in other areas. In general, they promote more student-centered learning. In turn, this places pressure on instructors to adapt their classroom teaching strategies. This is a description of several instructional technologies used in the education industry, including online classrooms, tablets, projectors, smart boards, and the internet (Muhtadi, 2017).

Pritler (2007: 15-33) has categorized online educational materials in the following primary ways:

1. The prevalent use is in direct teaching. Classes created in one area may be broadcast by radio or television or made accessible via e-mail or the Internet for students (individually or collectively) use in other locations. This is particularly essential in nations where a significant portion of the teaching staff needs to be more qualified for the grade levels they are expected to instruct. Lessons that are well-prepared through radio, television, or the Internet may compensate for inadequate teacher preparation.

2. Alternatively, teachers may utilize web searches to locate and get access to resources for their own class planning. For instance, social studies instructors may discover maps and data sheets about the nations being studied in class.

Teachers may get curriculum and instructional manuals for their personal use over the Internet, a variant of this strategy. In science, for instance, instructors may receive instructions on how to conduct a class dissection of an ant.

3. Students may use the Internet to obtain and retrieve material for their research projects in class. In some schools, excellent students are motivated and rewarded by enabling them to use school computers for independent study. Unfortunately, this strategy is often confined to classes with adequate technology to enable individual study.

4. Some educators utilize web-based chat rooms and online communications technologies to link classes in various regions of the globe. Students in various areas may pose and respond to questions posed by students in other locations.

5. Instructors may concurrently broadcast their teachings to many classes. As a technique of delivering courses in low-enrollment topic areas, this has been frequently used in higher education. In secondary school, this enables distant pupils to engage directly with instructors at a central location.

6. In many nations, technology-based learning is employed to provide in-service teacher education. Teachers are not required to leave their classrooms in order to engage in professional development events. Common to all of these innovations is the need for instructors to acquire new information and skills, spend more time preparing lessons, and participate in various sorts of communication with students in order to successfully implement them.

7. Teachers sometimes resist not because the educational benefits of these new technologies are unclear, but because they lack sufficient incentives to undertake the increased workload because they do not understand what is expected of them or because they cannot meet the new demands imposed by the technology.

### 3. Previous Studies

A number of studies regarding the effect of technology on education were conducted, one of which is Raja and Nagaurbramani (2018). It focuses on technology's positive and negative influence in general, believed that technology transformed the area of education and focusing on the benefits and drawbacks of technology in education. Another study by Bhakta and Dutta (2016) examined the influence of information technology on all aspects of education, focusing on the significance of IT in the education sector, the impact of IT on classroom instruction, and the pros and cons of IT. Focusing on children's exposure to digital gadgets

and networked communication as the third study to be reviewed, Hajela et al. (2015) underlined the impact of technology on children's education. Their study focused on the existing state of K-12 education and the obstacles in transforming K-12 to incorporate technology. They found that technology optimizes learning for a specific student while minimizing instructors' dependence on manual monitoring and using digital methods for K-12. The final study by Sui (2002) examined the history and evolution of technology education in Hong Kong by tracking the evolution of technology in education from the 1930s and proposing the newest education policy, "Education Reform." This article aimed to determine whether Iraqi Kurdish schools in the Sulaimani Governorate made use of globally available technological resources for the learning and teaching process.

### 4. Methodology

This research uses a mixed method approach, consisting of both quantitative and qualitative data collection methods. A sample of 30 teachers and 30 students from 30 schools in Sulaimani Governorate is selected. The data collection tools used are questionnaires for both teachers and students and interviews with both groups. The questionnaires are designed to collect quantitative data on the extent of technology used for teaching and learning. The interviews were conducted to collect qualitative data on the impact of technology on teaching and learning.The reason why questionnaire and interview are used because the data collected for this paper were both qualitative and quantitative to be analyzed used triangulation method.

### 5. Results

The results of this research indicate that technology positively impacts teaching and learning. Both teachers and students reported that technology has made learning more engaging and interactive. Students, in particular, reported that they use technological means for educational

purposes more than teachers. Both groups' most commonly used specialized tools were computers and the internet. Additionally, the results showed that teachers who use technology for teaching reported that it made their teaching more effective and efficient.

In light of this study's findings and debates, the following conclusions have been reached:

Following data collection, the researcher analyzed the data, which is the representative of thirty teachers and pupils selected from thirty distinct locations in the Governorate of Sulaimani, city center as Nation (2005) elucidates that thirty respondents from a sample population provide a representative sample that may be generalized since it is dependable and applicable to comparable circumstances. It can be stated that the sample could be generalizable.

### 5.1 Analysis of Teacher Data

On the basis of the data acquired from the interviews with teachers, only a tiny proportion of instructors have utilized technology in the classroom for educational objectives. Yet, the majority of educators agree that technology plays an essential part in the learning process. A significant proportion of educators use CD and DVD players as the primary technology tool in classrooms. The great majority of instructors have voiced similar concerns about how the issue of power outages and the recent financial crisis in the Kurdish region have significantly impeded the use of technology learning tools in schools. Few instructors were aware of the current technological advancements in the education industry, and many needed to gain experience with new technologies. Students on the other side of the classroom appeared to utilize technology more than teachers. Inexplicably, the vast majority of instructors asserted that technology had a detrimental influence on health without providing any supporting evidence or studies.

Q1/How do teachers and pupils utilize technology in teaching and learning?

Regarding research question number one, some conclusions on the interview questions used with teachers can be summarized as follows:

1. Which technology resources are advantageous for teaching and learning? Why?

Educators have most frequently highlighted the following technology means: Due to the restricted capacities of teaching staff within the Ministry of Education, instructors are unable to utilize modern technologies and instead rely on CD and DVD players.

| Means used by educators | Percentage | Frequency |
|---|---|---|
| Internet | 14% | 13 |
| CD & DVD Player | 39% | 21 |
| Smart phones | 11% | 7 |
| Television | 2% | 2 |
| Data Show | 11% | 8 |
| Computers | 26% | 13 |
| Tablets | 6% | 3 |

Table-1- presents, by percentage, the technological tools utilized by educators.

- Internet is educators' second most popular technical tool, accounting for 27% of the sampled data.
- Nearly 39 % of educators have used CD/DVD players.
- Around 11% of educators have utilized Data Show for educational purposes.
- About 11% of educators have utilized smartphones for educational reasons.
- Surprisingly, computer utilization in education ranks third, with a frequency of 26%.

- 6% of respondents utilized tablets for educational purposes.

2. Have indeed you improved the learning ability of your pupils via the usage of technology?

Various educators use varied approaches to increasing student learning. In addition, most instructors concurred that they could not utilize technology to boost student learning due to time constraints in the classroom.

3. How do you manage the time consumption associated with the usage of social networking sites for educational purposes?

The vast majority of respondents said that they have yet to utilize social networking sites for educational objectives.

4. How many of you support establishing a social networking group for educational or learning purposes?

Only some educators have participated in creating an educational, social networking community.

5. What methods and technology have you used to enhance communication?

A few instructors have utilized YouTube, Google, and smartphone applications to increase communication, but most teachers solely use CD and DVD players.

6. What are a few of the technical obstacles facing education?

The vast majority of instructors cited an electrical problem in the Kurdish area, the present financial crisis, and the indifference of the ministry of education to enhance the entire school system in Kurdistan as the three greatest issues facing education.

7. Do you feel that the usage of technology positively and negatively promotes student learning?

Almost all instructors concurred that technology had both good and bad effects.

8. Are there sufficient technical resources in education?

Virtually all participants concurred that there are insufficient technical resources accessible in education, and they held the education ministry accountable for not providing sufficient resources.

9. What is your stance on the usage and encouragement of technology for learning by students?

While a big proportion of instructors are unfamiliar with modern technologies compared to pupils, they still need to provide students with a great deal of technology-related material. In contrast, only some professors were proactive in counseling pupils on how to use new technology or providing them with more knowledge on this subject.

### 5.2 Analysis of Student Data

Even with technology developments in many aspects of life, education sector authorities, instructors, and educators employ fewer electronic tools for learning than students. So, students utilize more technical resources than teachers. Surprisingly, the majority of students have utilized many technology tools for learning and amusement both in and out of the classroom. Still, their professors have yet to be introduced to such tools. A second point in the result was that most students utilize technology for an average of one to two hours per day; practically all students advocate for incorporating additional technological tools within the classroom. The table below sums up other results from the interview questions posed to students.

1. How many of the following devices have you utilized for studying in or out of the classroom?

Unlike educators, pupils tend to have greater exposure to modern technology since some students have mentioned the latest technologies they are familiar with.

| Utilized technologies by students | Percentage | Frequency |
|---|---|---|
| Speakers | 3% | 3 |
| Internet | 27% | 25 |
| Data Show | 12% | 10 |
| Smartphones | 13% | 11 |
| Television | 15% | 13 |
| Online books | 3% | 2 |
| Tablets | 19% | 17 |
| Computers | 27% | 24 |
| CD & DVD Player | 8% | 6 |

Table-2- Percentages of pupils' technological usage.

- The vast majority of respondents, representing around 27% and 19% of pupils, had used computers and tablets for educational purposes in succession.
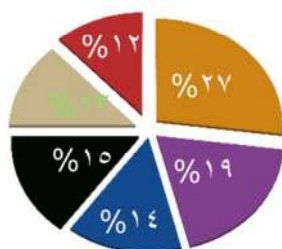
- Unlike educators, pupils have utilized CD/DVD players for educational reasons at a rate of only 8%.

2. How frequently do you utilize home technology?

Over half of the pupils spend between one and two hours using electronic devices daily.

**Chart -1- Technology means utilized by pupils**

■ Computers ■ Tablets ■ Internet ■ Television ■ Smartphones ■ Data Show



3. Do you endorse the use of technology in the classroom? If yes, how ? If not, why?

The majority of respondents supported the use of modern technology in the classroom because it increased their learning.

4. Do you use the Internet or a dictionary to determine the meaning of words? How?

Several students have stated that they have utilized dictionaries to determine the meaning of terms through Google or dictionary applications on their mobile devices.

5. Can you name the three most promising emerging technologies for the current educational environment?

According to the following pie chart, over fifty percent of students believed that computers and tablets were the most promising technology, in that order. Surprisingly, television still looks to be one of the most promising teaching mediums available today.

6. How can you improve the use of technology in education?

Few pupils utilize technology for learning beyond school; it is more of a recreational tool for them. Some use YouTube to view videos, but only some people use dictionaries to learn a foreign language.

7. How many social media networks do you participate in for educational purposes?

10% of students have participated in social professional networks for educational objectives.

As depicted in the above-mentioned chart, pupils are much more aware and advanced in utilizing technology for the puppies of learning because pupils nowadays are digital natives. A new citizen came into existence called a "netizen." The following chart elucidated the difference between teacher and pupil awareness in the process of learning.
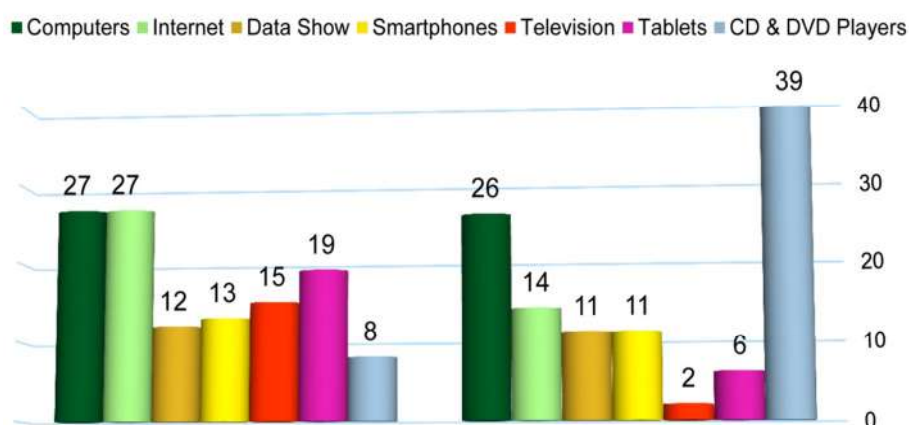


**Chart -2-Comparison of students and teachers of Technology Usage**

Q2/ Does technology affect teaching and learning?

Regarding research question number two, it turns out that technology affects the process of learning due to the fact that the new generation is more involved in technology; that is why they are far superior to their teachers in learning, as they are known as digital natives in which digital technology has become their new mother language. They become global citizens known as "netizens." But unfortunately, the teachers are lagging behind their generation and in the new era as technology is getting the upper hand in almost everything, especially in the COVID-19 pandemic.

## 6. Conclusions

In conclusion, this research found that technology has tremendous impacts both positively and negatively on both the learning and teaching processes. Teachers use less technology than of students, in particular, for the purpose of education as well. The results of this research show that it is of paramount importance of integrating technology into the education system. Therefore, policymakers, educators, and researchers should incorporate technology in the process of teaching and learning, as it emphasizes the importance of integrating technology into the education system.

Based on the findings and comments of this study, the following conclusions have been drawn:

a. Technology's effect on education is unavoidable today and may have beneficial and bad consequences.

b. As the study shows that students use more technology than teachers, therefore, a new generation came into existence aka a "digital native" in contrast with the traditional way of thinking and pedagogy by teachers

b. There is substantial and convincing evidence that technology greatly influences learning and teaching in the schools of the Sulaimani Governorate.

c. Surprisingly, according to the conclusions of this study, students employ more technology tools for educational purposes than teachers.

d. The majority of students use technology for an average of one to two hours each day, and nearly all of them think that further technological tools should be used in the classroom for educational objectives.

d. Virtually all of the school teachers asserted that technology had a detrimental influence on health without presenting any proof or studies to support their claims.

e. The administration has also been shown to be more interested in facilitating technology methods in the education sector.

f. The teaching process reveals that the instructors' involvement in utilizing technology tools could be more extensive.

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**Appendix**

1. **Interview Teacher Questions**

1. Which technology resources are advantageous for teaching and learning? Why?

2. Have indeed you improved the learning ability of your pupils via the usage of technology?

3. How do you manage the time consumption associated with the usage of social networking sites for educational purposes?

4. How many of you support establishing a social networking group for educational or learning purposes?

5. What methods and technology have you used to enhance communication?

6. What were a few of the technical obstacles facing education?

7. Do you feel that the usage of technology promotes student learning positively or negatively?

8. Are there sufficient technical resources in education?

9. What is your stance on the usage and encouragement of technology for learning by students?

**2. Interview of the Pupil Questions**

1. How many of the following devices have you utilized for studying in or out of the classroom?

2. How frequently do you utilize home technology?

3. Do you endorse the use of technology in the classroom? If yes, how so? If not, why not?

4. Do you use the Internet or a dictionary to determine the meaning of words? How?

5. Can you name the three most promising emerging technologies for the current educational environment?

6. How can you improve the use of technology in education?

7. How many social media networks do you participate in for educational purposes?

## پوخته

لەم پەنجا ساڵەی ئەم دواییانەدا تەکنەلۆجیای پەروەردەیی بە خێرایی گەشەی کردووە و ئاڵۆزتر بووە. ڕێگاکان و کاریگەری جێبەجێکردنەکانی بووە بە جێگەی سەرنجی زۆر لە تیۆریەکان و تویژینەوەکان. لە ڕابردوودا پەروەردە بۆ چەند شوێنێک بەردەست نەبوون بەڵام تێگەیشتن لەو ئاسانکاریانەی تەکنەلۆجیا کردوویەتی کاریگەری لەسەر تاک بە تاکی کۆمەڵگا کردووە بووە بە بەشێکی کاریگەر لە پڕۆسەی پەروەردە.

ئەم تویژینەوەیە داتای لە ٣٠ خوێندکار و ٣٠ مامۆستا کۆکردۆتەوە لە ٣٠ قوتابخانەی جیاواز لە پارێزگای سلێمانی بۆ هەڵسەنگاندنی کاریگەری تەکنەلۆجیا لەسەر پڕۆسەی فێرکردن و فێربوون لەم قوتابخانانە. هەوڵ دەدات بزانیٚ تەکنەلۆجیا کاریگەری لەسەر پڕۆسەی فێربوون و فێرکردن هەیە یاخود نا وە تا چی ڕادەیەک خوێندکاران و مامۆستایان تەکنەلۆجیا بەکاردەبەن لە پڕۆسەی فێربوون و فێرکردن. لە ئەنجامدا بۆمان دەرکەوت کە تەکنەلۆجیا کاریگەرێکی ئەرێنی لەسەر پڕۆسەی فێربوون و فێرکردن هەیە، ئەوەی جێگەی سەرنج بوو زۆربەی خوێندکاران زۆر زیاتر لە مامۆستاکان تەکنەلۆجیا بەکاردەهێنن لە پڕۆسەی فێربوون لەچاو مامۆستاکانیان.

**وشه سەرەکییەکان:** تەکنەلۆجیا، فێربوون و فێرکردن، کاریگەری تەکنەلۆجیا، بەکارهێنانی تەکنەلۆجیا، قوتابخانە

**الملخص**

على مدار الخمسين عامًا الماضية ، كانت تكنولوجيا التعليم موضوع نمو سريع وتطور متزايد. طريقة وكفاءة تنفيذه هي الهدف من تطوير نظريتها وأبحاثها. في الماضي ، كان التعليم غير موجود في بعض أجزاء العالم. سيساعدك فهم كيف ساعدت التكنولوجيا في التعليم وتأثيرها على فهم مدى أهمية التكنولوجيا في التعليم.

تقوم هذه المقالة بجمع وتحليل البيانات من ثلاثين معلمًا وطالبًا من ثلاثين مدرسة في محافظة السليمانية لتقييم تأثير التكنولوجيا على التدريس والتعلم في مدارسهم. يسأل عما إذا كانت التكنولوجيا تؤثر على عملية التدريس والتعلم وإلى أي مدى يستخدم المعلمون والطلاب الأدوات التكنولوجية للتعليم والتعلم. نتيجة لمقابلات الباحث مع الطلاب والمعلمين ، هناك دليل واضح ومقنع على أن التكنولوجيا تؤثر بشكل إيجابي على عمليات التعلم والتعليم. ومن المثير للاهتمام ، وفقًا لنتائج هذه الدراسة ، أن الطلاب أكثر وعيًا باستخدام التكنولوجيا من المعلمين الذين يستخدمون التكنولوجيا للأغراض التعليمية.

**الكلمات الدالة**: تكنولوجيا التعليم، التدريس والتعلم، الأغراض التعليمية، المعلمون والطلاب، تأثير التكنولوجيا