Exploring the Critical Challenges that Influencing Online Learning During the Covid-19 Pandemic : A Case of Public Universities in the Kurdistan Region/Iraq

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ISMAEL, Hawzhin Hama Ameen

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Submitted to

KDI School of Public Policy and Management

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List of tables

Contents

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Abstract

COVID-19 affected all the sectors all over the world, and its impact in the education sector was a negative one. In Kurdistan, the government announced the closure of schools even before the confirmation of first case of COVID-19 in the region as a way of curbing the spread of the virus. To keep the students active and ensure continued learning over time, the government required that schools embrace home-based learning where all the pedagogical processes would be done remotely. However, it is reported that students, teachers, and other stakeholders faced a lot of issues in ensuring successful implementation of online learning which formed the basis of this research. There are no empirical studies showing the challenges that public universities in the region experienced. To do this, the researcher selected 14education experts using convenient sampling technique to take part in the study. They were engaged in interviews which were semi-structured and later on focus groups where they entered into a discussion with the interview to ensure they give as much detailed information as possible. Thus, the study followed a phenomenological design where the report given in the study is a report of lived experiences of the 14 experts concerning their encounters of the challenges. The study found out 7 themes through thematic analysis which represented the major issues public universities are facing; poor internet connection, illiteracy of teachers on technological matters, resistance from students, lack of devices, poor electricity connection, lack of platforms, and lack of conducive environments.

Keywords*:* Covid-19, Online Learning, ICT, distance learning, E-learning, blended learning

List of acronyms

KRI Kurdistan region of Iraq

KRG Kurdistan Regional Government

WHO World Health Organization

WB World Bank

UNESCO United Nations Educational, Scientific and Cultural Organization

ICT Information Communication Technology

MOH Ministry of Health

MOHE Ministry of High Education

IQD Iraqi dinar (currency)

NGOs Non-Governmental Organisations

CHAPTER 1: INTRODUCTION

I.1 Background of the Study

Learning refers to the systematic acquisition of new preferences, attitudes, values, skills, behavior, knowledge, and understanding in schools and universities. For a long period, approaches such as research, assignments, videos, storytelling, training, and discussion have been used to help learners acquire knowledge and values (Altun, 2017). The learning, or education, might be achieved through self-study where an individual learns everything by themselves or with little guidance, or they could attend classes-which could be virtual or face-to-face. In Kurdistan, attending classes is more advocated especially for the K-12 students who have not yet mastered the art of self-study and need immense guidance to learn new concepts. However, universities and colleges have adopted virtual learning, more so those who are working and learning at the same time. The choice of a learning style is all dependent on the academic environment, the capacity of student's learning, and their level (Pham et al., 2019).

The whole orientation of education, both online and in-class was disrupted in the wake of the COVID-19 pandemic. The Covonavirus disease (COVID-19) has had devastating effects on all sectors of the global economy since the World Health Organization (WHO) announced it as a pandemic in March, 2020. The first case in Kurdistan was reported on 1st March, 2020. A rise in the number of confirmed cases and deaths forced the government to instill more stringent regulations across the region to ensure safety of its people. The Kurdistan Regional Government (KRG), like other governments around the world, closed all the schools as a preventive measure to stop the spread of the COVID-19. The closure affected about 1.7 million students in about 6,800 public schools (UNICEF, 2020). The number includes refugees in camps whose conditions before then were already dire.

Upon this closure, the government facilitated online learning by introducing televised education because over half of the families in the region did not have access to the internet (UNICEF, 2020). The government closed primary schools, universities, and colleges which had a massive negative impact on education because social distance was an important element in preventing the spread of the disease. Education agencies, governmental and non-governmental, local and international, tried to devise alternative approaches to settling the dilemma. However, there was no other alternative other than introduce distance learning where students were supposed to access education from home through the internet to ensure minimal to interruption to the teaching-learning process in all schools. Multiple entities took part in this transition to ensure that the students receives quality online educational materials and perform their evaluations without a glitch. While many schools were able to adapt to this situation, others had a challenge of internet access because over 54% of families in the region did not have access to internet (UNICEF, 2020). The education ministry in the region was keen on the fact that not all children could access the internet and this would lead to disparities in the teaching-learning process. A large number of families and communities in Kurdistan have no access to computers, internet connection, and smartphones. Besides, there is a culture that prevented female students from having access to the internet for learning purposes. Despite these challenges, the government still looked for ways to keep students learning through new technologies. The crisis forced organizations that were previously hesitant to accept new technologies do so to facilitate the learning process. This proved to be a difficult time for the education sectors to achieve their objectives during this trying period. The effects varied across different schools, areas, and particular courses; for instance, medical education was among the most affected.

Online education meant carrying out the pedagogical processes through the use of electronic devices that students could access such as smartphones, laptops, and computers. According to Singh & Thurman (2019), virtual education through the internet makes a platform which eases the education process by making it more flexible, creative, and student-centered. It can increase equality by making education accessible to everyone with an internet connection and is cost-effective more so for the students in remote and rural areas. Therefore, education provision especially in poor countries becomes easier with WHO identifying it as a crucial instrument to meet educational needs across the world (Colace et al., 2006). Following the closure of schools, colleges and universities implemented several creative approaches as a way of combating the crisis in the region through the use of applications and software such as Microsoft Teams, Zoom, and Google Classroom to help students take online classes. Home-based learning was accepted as the new norm across the region, helping to boost learners' confidence and certainty and to help the schools to keep in touch with the students throughout the period as everyone fought to adapt to the new conditions (Agnoletto & Queiroz, 2020).

Through this adoption and adaptation to the new pedagogical paradigms, the education sector in Kurdistan had no option than to leverage assets available to them to facilitate virtual learning as people stayed and worked from home. This was the best alternative available rather than trying to recreate schools to cater for the government's social distancing requirements. This system has both merits and demerits for all the stakeholders in the education sector. On one hand, the process has the ability to bring private meaningful learning experience to learners to connect them to home environment and maintain their local identities while using the devices at their disposal. As Perienen (2020) assert, adjustments were inevitable for both teachers, institutions and students. This is true as virtually all institutions of higher learning, especially universities, had to

redraft the extant policies so as to integrate virtual learning pedagogy as an emergency approach following the uncertainty of the situation at hand.

I.2 Problem Statement

The COVID-19 pandemic presented a demand for online education in a manner that the Kurdish institutions of higher learning cannot keep up with. In a situation that such a demand is experienced, abrupt transitioning could prove impossible, particularly in regions where the resources needed are not readily available. Teachers were not well-versed with the art of distance learning and ensuring that the syllabus is completed on time. Administrators may also need vast training on how to manage teams remotely and have all tasks completed on time. On their side, the parents and the society may not accept the instant transitioning and they may not be well-versed with guidelines to help their children cope up. Finally, resistance from students could hinder any implementations by the government to integrate virtual learning methods in place. With this difficulty that the pandemic presents in the region and beyond, and the possible impacts that could be experienced from future pandemics, it is clear that Kurdistan's ability to quickly leverage the available technology, mobilize stakeholders to devise relevant emergency mechanisms to adapt to any new norms, and offer the pertinent infrastructural adjustments will determine the continuation of learning in all schools. The impacts of COVID-19 on the education sector have been felt in all countries globally, Iraq and Kurdistan inclusive. The reason is that there was an abrupt disruption of pedagogical processes across all the learning institutions, both K-12 and institutions of higher learning alike. The most affected students are the grade 12 students who were expecting their national exams at the end of the year. Although they were allowed to attend schools normally while others were learning from home, they were psychologically affected which could greatly impact their test results in this crucial season of their life.

The disparity in home-based learning poses a huge problem to the acqu.isition of online learning programmes. The inequality is majorly presented by a difference in the socio-economic aspects of the Kurdistan community which have been a major issue for a long time. The socio-economic status of a family affected how well a student received online classes. Those living in impoverished conditions do not have the relevant resources, locking them out from accessing the learning materials shared remotely. This explains the resistance that the online learning adoption faced from parents whose students studied in public schools as their situations are already dire.

According to Ali et al. (2021), a student's or parent's choice of school in Kurdistan is majorly influenced by their socio-economic status. Therefore, those living in poor conditions have limited abilities to navigate the disrupted educational landscape in the wake of COVID-19 pandemic. There are many aspects that differentiate public and private institutions in Kurdistan including funding, infrastructure, teacher to student ratio, and the nature of students attending those schools (Qasim et al., 2021). Generally, these differences imply that public school students are more or less disadvantaged than their peers schooling in private institutions. In fact, even in areas where the opportunities for virtual learning could be available, poor infrastructure in public schools cannot allow the institutions to complete their syllabuses on time. Besides, there are no conducive ambiences for proper learning for the students in remote areas because of the poor housing structures and the fact that they cannot afford private tutors as is the case with rich families. Research is, therefore, needed in this field to ensure that governments-local and national-remain proactive rather than reactive. Some students might lose momentum of schooling should such an instance happen in the future without total preparedness. All the stakeholders need some scientific backup to use as a needs assessment for the problems experienced over the COVID-19 era to ensure a smooth transition as the schools reopen and while devising proactive measures.

The devastating impacts of the pandemic on access to education will only be left out for televised programs because as UNICEF (2020) assert, 98% of families in Kurdistan have access to a television. Adoption of all other modes of teaching such as ed-tech only worsens the already existing inequalities in the education sector. The inequalities in education access jeopardizes the earning capability of the students later in life which risks continued intergenerational poverty in the already impoverished families. Therefore, it is clear that the pandemic has only increased the educational inequalities already extant in the region. Students coming from rich families are more advantaged as they can cope up withal the challenges posed by the situation and maintain their learning process while still at home by paying virtual tutors, providing the children with quiet study rooms, and buying them the study materials needed. Therefore, resumption of schools after such a period will have the children from rich families far much ahead as compared to their peers from poor neighborhoods. Worse even, students from poor rural and urban settings started facing hunger issues during the lockdown. In a report by Relief Web (2020), it is stated that the KRG gave out IQD 14 billion to 140,000 vulnerable families in Erbil, Sulaymaniyah and Duhok in a bid to combat the food insecurity encroaching the region.

Many researchers have tried to cover the critical issues that affects successful implementation of e-learning strategies in developed, developing, and undeveloped countries. A vast number of studies have also been carried out on the challenges that came as a result of the abrupt implementation of e-learning in the wake of COVID-19. While the discussion on various aspects of online learning integration is still inconclusive, there is no research that has been conducted on the success stories in Kurdistan regarding the challenges different stakeholders experience during implementation of Information and Communications Technology (ICT) notwithstanding the potential and the promise it has in the education sector.

The only information available is on news articles and articles from other countries, especially the developed world. News are not scientific and therefore may not be used as a source of information during policy recommendation. On the other hand, the literature from the Western nations cannot be used since the technological environment and socio-economic factors in the West and Kurdistan differs immensely. Some issues experienced in Kurdistan such as unreliable power supply in remote areas, slow telecommunications infrastructural development, and low bandwidth, may not be experienced in other countries, while it might be extreme in others. Thus, a successful transition from the traditional methods of learning towards a technology-based education system needs documented scientific evidence from a research like the current one. Understanding the challenges towards a successful integration of e-learning as an emergency option. Therefore, the current paper presents the findings from a study investigating the challenges that hindered successful implementation of online learning in Kurdistan public universities when schools were massively closed during the COVID-19 era. The research included gathering of data from various officials as major stakeholders in various public universities in an interview to present their perceptions on the matter. Possible recommendations are listed at the end of the paper.

I.3 Information about Kurdistan's universities

Study system Bologna process

Number of Universities (**Public UNI 16. Private UNI 19**)

The number of teachers: **9260**. Number of students; **114,071**

Study stage in Kurdistan universities

Undergraduate studies Bachelor's degree 4 years except (engineering college 5 years and medical college 6 years).

High Diplomas studies are almost always taught course qualifications. They usually follow the same programme as a Masters degree but are assessed only by exam, without a disertation.

Masters degrees are usually awarded for one year's study and are assessed by exam and a short thesis. A thesis is a document submitted in support of candidature for a degree or professional qualification presenting the author's research and findings. Masters degrees in Kurdistan region can consist of both taught and research elements.

MPhil is a two or more years' research programme ending in a dissertation or thesis of 50,000-70,000 words. Many institutions in Kurdistan region allow successful MPhil students to convert directly to the second year of a PhD course after their first year.

Doctorates take three or more years of independent study and research. Almost all Doctorates are completed purely by research, ending in a dissertation or thesis of 70,000-100,000 words (shorter in science) (MOHE, n.d.).

I.4 Assumptions, and Limitations

I.4.1 Assumptions

Following the government requirements on social distancing as COVID-19 started to spread, Kurdistan universities largely turned online learning as a tool to enhance boosted knowledge-acquisition throughout the period. They also do so with the hope that it will be sustainable in the

long term such that they can attract more students to meet the demand in a cost-effective manner. Despite its efficiency and the fact that it bears, online is faced with many challenges, more so because the decision was made abruptly to ensure continuity of learning. To study these challenges, the following are some of the assumptions that the researcher had to make:

1. The sampled participants would be cooperative and will be able to assist wherever possible.
2. It was also assumed that the participants have vast knowledge regarding the challenges faced during e-learning implementation for all the stakeholders and not just people of their rank.
3. Access to on line learning would be low for the institutions which failed to implement online learning programs and with low bandwidth while the opposite is true for the schools which had entirely implemented these initiatives in their teaching-learning processes.

I.4.2 Limitations

A. There were some methodological limitations faced during the course of the research. The current research study uses data collected through interviews and focus groups. The method is descriptive and it is limited in the sense that the researcher have to take what the respondents say where the information received cannot be independently verified. This way, a causal relationship may not be established between the dependent and independent variables in the study. Therefore, the method cannot be employed in an investigation of the crucial relationship between the variables to establish a generalized conclusion (Yarkoni, 2019).

B. There was also a sampling limitation where the researcher could not precisely identify the schools that have successfully implemented online learning and those that have not. There

was no open access to data from the relevant government bodies that accurately reports such information.

C. There are limited prior studies relating to the current research within the Kurdistan context. Literature review forms the groundwork of any study and a lack of or inadequacy of literature could make the research lack a clear foundation. However, this limitation acted as an opportunity because the researcher can successfully feel the knowledge gap that is already extant.

D. The scope of the research is limited to Kurdistan region only. Knowledge gap exists in many areas including Iraq and other Middle Eastern nations and regions. However, due to the differences in socio-economic conditions of various regions and the fact that Kurdistan is autonomous on most of its matters including education, the researcher focused research on Kurdistan region alone.

E. The study consisted of a small sample size (14) which could make it hard to generalize for all the universities in the region. However, backing the information collected with relevant data from news sources, opinion articles, and data from other regions, credibility of the current data can be enhanced.

F. The researcher did not apply randomization during sample selection. The major benefit of randomization is that it eliminates any selection bias provided by non-random samples which are selected on the bases of convenience and other criteria. This could affect the results and the conclusions in general.

I.5 Research Objectives

1) To determine the challenges faced during implementation of online learning in Kurdistan during the COVID-19

2) To investigate what the government and schools have done to avoid challenges associated with implementation of online learning in Kurdistan.
3) To examine solutions to the challenges facing implementation of online learning in Kurdistan.

I.6 Research Questions

1. What are the challenges that were faced when implementing online education in Kurdistan during the COVID-19?

2. What has been done to avoid the challenges schools are facing during implementation of online learning in Kurdistan during the COVID-19 era?

3. What could be done to mitigate the challenges being experienced during the COVID-19 pandemic on integration of online learning?

I.6 Significance of the Study

This study will be helpful to a wide range of stakeholders within the education sector. For instance, it will help the institutions and their administrators to comprehend the difficulties being faced across the entire region. This understanding will be crucial to them so that they can mitigate the risks that come along with the adoption of e-learning. Besides, the study will also help the parents to anticipate various challenges that come with such abrupt changes in the education sector and remain as vigilant as possible. Finally, the study will contribute to the available body of literature on the implementation of ICT for education instructional purposes as well as factors to consider while implementing online learning initiatives.

CHAPTER II: LITERATURE REVIEW

II.1 Introduction

The growth of Information and Communications Technology (ICT) in the twenty first century has affected of the society, not only in Kurdistan and Iraq but also throughout the globe, including education. In the institutions of higher learning, the use of ICT facilitates distance learning which changes the whole pedagogical aspect. Online learning has been facilitated by multiple socio-economic and pedagogical factors which has forced many institutions to embrace virtual learning processes. They include having better access to information, pedagogical improvements via graphic representations, virtual experiences, and simulations, reduced cost of e-learning where the teacher can access many learners virtually, increased collaboration and cooperation between stakeholders, synchronous learning, and better ICT infrastructure (Shahzad et al., 2020). Teachers and learners alike can choose the best app that best fit their needs based on factors such as cost-effectiveness, ability to adapt to specific domains, re-usability, ability to be personalized, and time flexibility (Gustavsson et al., 2020). On the other hand, universities which are seeking to install ICT infrastructure into their learning systems face huge problems because of limited time and resources. As such, this section of research delves into past research about implementation of online learning in schools as a groundwork for the discussion of the issues identified during the interviews with the study participants. Various theories relating to the implementation will also be taken into consideration to show the need and relevance of the current study.

II.2 Online Learning System Usage

From various studies, there is no universal definition of online learning. According to Stewart et al. (2011), online learning refers to a system of learning where the students learn virtually through

the use of internet. Dhawan (2020) defines online education as the ability of the learners to use devices connected to a network, offering them the possibility to learn with any means, in any rhythm, anytime, and from anywhere. In another research, Singh & Thurman (2019) refers to online learning as the "learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. In these environments, students can be anywhere (independent) to learn and interact with instructors and other students." On the other hand, Rapantar et al. (2020) defines online learning as an internet-enabled learning which includes a collaboration between experts, content creators, a networked community of learners, management of learning experiences, and content delivery. In his research, Kundu (2018) defines online learning as the delivery of course materials via electronic methods such as CDs, television, video/audio tape, satellite broadcast, extranets, intranets, and internet. Combining these definitions, online learning can be referred to as an internet-based delivery of course content to the learners by use of internet-enabled devises such as laptops and phones.

Online learning has been accelerated by the fast internet development and globalization, making many institutions of higher learning start to focus on online learning. Mart (2017) says that institutions all over the world have been trying to deviate their spending towards infrastructural development to have distance learning in place as the next best alternative to the traditional classroom teaching method. For its implementation to succeed, online education has to be acceptable to all the stakeholders, or at least a majority of them such as students, teachers, administrators, parents, and the education ministries. In their study, Shearer et al. (2020), while examining the student's perception of and motivation towards online education, they noted that curriculum developers and policy makers should understand the students' limitless perspectives

so that they can offer student-centric instructional techniques while increasing students' satisfaction and engagement.

While the developed world has embraced online learning to a greater extent, the developing countries are yet to provide schools with relevant infrastructural development to integrate virtual learning as a supplement to face-to-face learning. The gap between access to the ICT between the rich and the poor in developing countries is quite wide (Venkatesh and Sykes, 2013). In their research, Srivastava & Shainesh (2015) found out that the set-up of the societies in these countries are grounded on compound geographical spread and socioeconomic levels where most of the people lack an access to basics such as education and healthcare, and this makes access to ICT less of a priority. This means that stopping physical learning abruptly to introduce online learning from home had a big effect on the poor. Similarly, considering gender-based differences, females are more affected than their male counterparts which according to Cutter (2017) could have placed them among the have-nots considering at home, they are required to participate in feminine gender roles such as caregiving, cleaning, and cooking. In another study,

There are four major factors that should be considered while implementing online learning and which influence its acceptance among the various stakeholders. The first factor is accessibility. According to Park, (2009), online learning accessibility refers to the level of ease with which students in an institution can receive and use the school's online learning system as an organizational factor. He says that to ensure high rates of acceptance among students, schools must ensure that internet accessibility is high enough, so the priority should be to provide students with access to computers and internet connectivity. The next factor is appropriateness which refers to the fitness of online learning to a student's needs. d'Antoni (2002) says that any e-learning strategy

that a school adopts should be best-fit to the needs of a student depending on their academic level and other needs at the moment time of its implementation. In their study of open educational resources and open content, Stewart et al. (2011) says that a comprehensive online learning for both the synchronous and asynchronous communication modes makes sure that the implemented strategy is appropriate for all learners. Synchronous teacher-learner and learner-learner communication is enhanced by chatting techniques such as message and bulletin boards. On the other hand, asynchronous communication is enhanced by the use of less time-sensitive platforms such as emails. To formulate the most appropriate strategy, a school must be able to overcome barriers related to access such as electricity, internet connectivity, and infrastructural redundancy (Laskaris et al., 2017). Thirdly, schools should consider accreditation of the adopted strategies. Different strategies are guided by the geographical location of a school; for instance, a school's country of origin determines the ease of implementation. Finally, affordability should be considered any time there is an online learning implementation which is also influenced by the specific location of a school.

With these factors in mind, researchers show that online learning implementation in institutions of higher learning should be regarded as important educational reforms. The above four factors show that effective and efficient implementation calls for huge attention and care to see success. In a study looking into the factors which lead to acceptance of ICT in classroom, Lawrence & Tar (2018) found out that successful adoption of online learning requires that teachers and school heads become part of the decision-makers. Their findings were in line with those of Baydas & Goktas (2016) and Mirzajani et al. (2016) who believe that support from senior management plays a significant role during the implementation process. Similarly, in their review, Akkara & Mallampalli (2020) stated that e-learning cannot happen in a vacuum as it needs two most

important pillars-internet connectivity and existence of the relevant infrastructure. Shehab & Khalifa (2021) carried out a study in Kurdistan to determine the challenges student nurses were facing while studying online. In interviews with 25 students and educators, the researchers found out that Kurdistan faces immense problems which requires that the region invests heavily to boost its infrastructure to allow for the successful implementation of e-learning systems as the public universities in the region relies on funding from the KRG.

Due to these issues, researchers have identified that some schools have opted for blended learning which requires less capital for implementation (Rassul & Wali, 2020; Shabila et al., 2021). Blended learning means Albiladi & Alshareef (2019) state that students and educators both find blended learning to be better than pure online learning or the traditional brick-and-motor learning. Nonetheless, universities in Kurdistan are doing the best they can to implement online learning.

II.3 Online Learning Challenges

The online learning that most countries implemented was supposed to serve all students equally. When it comes to technology, Orlando and Attard (2015) stated that “teaching with technology is not a one size fits all approach as it depends on the types of technology in use at the time and also the curriculum content being taught” (p. 119). This means that the incorporation of technology provides additional factors for consideration in terms of teaching pedagogy and

construction of learning experiences. Despite this, it is "often taken for granted that technologies can 'enhance learning' (Kirkwood & Price, 2014, p. 6) with the prevailing assumption becoming that technological incorporation, learning enhancement, and student engagement are mutually and inextricably linked. However, in creating individually tailored differentiated instruction for each learner within and across each cohort, additional workload pressures on those seeking to engage with the online environment can be created as teaching staff seek to respond, often reactively, to the individual learning and engagements needs of each cohort.

The problems with a "one size fits all" approach are particularly highlighted in collaborative learning tasks (group work) where individual differences between and across cohorts can be highlighted. This may be because the generalised pedagogical assumptions associated with collaborative learning tasks are often applied to the online environment where there may be less focus on the delivery and more attention to the task/content (Graham & Misanchuk, 2004). Therefore, the assumption that students will both know and be able to work in groups regardless of mode prevails through a seemingly universal one-size-fits-all application. In addition to the typical challenges that students can experience in group activities regardless of mode, the online environment presents added challenges for the external or isolated learner particularly through considerations around their engagement, access, community, and support. In reflecting on a lecturer's perspective for facilitating learning online, this paper offers strategies for those preparing to teach in an online environment focused around pedagogical strategies for supporting learners through the development and facilitation of group presentation collaborative learning activities. Based on several years of experience, the following insights are provided to encourage those with uncertainty or inexperience in facilitating an online learning environment a starting point so that they can understand and support their learners.

The learning process has already been disrupted and there are possibilities that the overall school performance across the region will also be greatly impacted for a considerable period. The impact on the academic performance stems from the massive and abrupt closure of schools. From the definition of learning provided above, it is clear that schools not only equip students with academic knowledge but also with values needed outside the school. An abrupt closure of schools means denial of all skills and knowledge that schools offer besides what can be offered virtually. The impact is also disproportionally felt more among students from poor backgrounds.

The new pedagogical techniques adopted were critiqued by various entities who believed that it was impossible to integrate online learning in Kurdish schools with the income inequality facing the region. Most of the parents whose children attend public schools were opposed to the government's move to promote online learning (Barznjy, 2020). Teachers, parents, students, and other stakeholders believed that the education in Kurdistan is not technology-based which meant a slow integration and acceptance of virtual learning. However, the resistance was not all because of the low technology implementation. For instance, virtual learning requires that a teacher keeps in touch with the students while monitoring their educational progress which proved to be difficult because of minimal training that the teachers have. Barznjy (2020) believes that such moves are only possible for private schools which could access international tutors to follow and guide the students through the process. However, the pedagogical processes in public schools was at stake. Despite the challenges, the government went ahead to normalize virtual learning and push for remote learning in most schools across the region. Over the months that the lockdown was still on, teachers continued to apply both synchronous and asynchronous learning and in no time, some schools coped with the educational requirements. These institutions provided learning materials as was done by the University of Kurdistan through the use of electronic resources with an array of

learning materials made available remotely. Though with immense critics, the initiatives were praised by many stakeholders in the education sector since home-based learning and virtual schooling concepts were highly accepted later on.

Throughout this period, the education ministry in the region implemented various policies which were meant to ensure that learning continues without much disruption. The most widely accepted and obvious approach was to use educational programs which are broadcasted through radio and television as well as free-to-access online platforms such as YouTube. The government also launched a learning platform referred to as "Ewana" which was supposed to help students have access to relevant recordings (UNICEF, 2020). To ensure that every student could access the platform, the government encouraged the major communications firms to offer the service for free to students. Nonetheless, while the government was still adopting these and other measures to ensure that no learner was left behind in classroom maters, the fact remains that access to these services is dappled and that many students could not benefit from the privileges offered, in rural and urban areas alike.

Both the economic and social costs were experienced in the whole region, but disproportionately, with marginalized learners experiencing the most devastating impacts. This was particularly the case for the female students from the marginalized communities and refugee camps such as Makhmour as well as those with disabilities. This was not unique to Kurdistan but throughout the whole world where marginalized students were noted to be affected disproportionately in many countries-developed, undeveloped, and developing (Mehall, 2020). Leaning through the mediation of education technology, therefore remains unreachable for many children leaving in disadvantaged neighborhoods because of the issues with connectivity. In addition to the issue of internet connection, the country also faces a huge issue with electricity

especially in rural villages. The COVID-19 pandemic led to a reduction in the production of electricity by 700 megawatts (Faidhi, 2020). Besides, many rural children have no access to electronic devices which further exacerbates the matter. Further, the families with access to the electronic devices required for virtual learning, parents had concerns about privacy of the children while at the same time worrying that children using internet unsupervised could use it for other purposes other than learning (Yusuf & Jihan, 2020). While most governments pushed for free internet access, this could not be fully implemented and sometimes, even when children had access to devices and electricity, because of high prices of internet connectivity. This was a major issue especially for the K-12 students who have to compete with their privileged peers during tests. Sheridan et al. (2020) stated another issue that faced children in rural areas-the issue of parental illiteracy where they could not help their children adapt to the new technologies. In such instances, the children could not be motivated to keep on learning and attend classes because some may not see the value of it. It is not possible to completely replace radio learning with face-to-face learning, but the two can be used as supplements to each other.

Furthermore, another problem is that some colleges in the region use a learning management system (LMS). "A Learning Management System (LMS) is a computer program that manages, documents, tracks, reports, and distributes e-learning education courses and training programs." (Ellis, 2009). Therefore, this examination attempts to introduce the crux of the challenges and factors that influence the implementation of online learning systems during the COVID-19 pandemic in public universities. Because conducting such research will benefit the education sector, the government may want to improve the online learning process, and make universities work hard to solve problems and pay more attention to developing technology in all colleges.

Besides, other co-curricular activities such as sporting activities across the region were halted following the massive closure of institutions. These activities are essential components of the holistic learning process. According to Gergen & Davis (2012), extra-curricular actviities help learners in exploring, creating experiment, adapting, learning, communicating, socializing, and learning problem-solving skills. Besides, they help students to be able to put what they learn into action through role plays while at the same time interacting with the environment and other people. With the closure of schools, the children had to adapt to the new requirements of social distancing which curtailed physical interaction between teachers and peers. Therefore, the dilemma remains how prepared the students and teachers in Kurdistan to adapt to such conditions, the changes in the traditional paradigm which should be observed before implementing the new changes, how administrators can help to properly transition into virtual learning, how educators can make students feel comfortable with the changes with teachers and peers who are kicking off their expedition towards the virtual world.

Several other researchers have investigated the same issue in other parts of the world. For example, a study by Almaiah et al. (2020) noted that the major issues in the education sector during the COVID-19 pandemic are technical issues with the e-learning system, lack of financial support, and management issues. Additionally, Adarkwah (2021) identified major issues as lack of electricity, lack of prior knowledge for the users, difficulty of using learning tools, and lack of internet access. In another study carried out in Ghana, Aboagye et al. (2021) identified learner intentions, generic skills, lecture issues, academic issues, social issues, and accessibility issues as the major challenges. Malaysia was also facing issues such as lack of attendance from the students, internet connection issues, poor platforms, lack of essential online learning tools, and less focus from the student (Noraini & Ahmad, 2021). These studies show that student issues are more

rampant than those associated with the educators, schools, or the government. In a systematic review, Rasheed (2020) also identified issues related to students such as a feeling of isolation, technological illiteracy, complexity of digital technologies, and insufficient platforms. In addition, Jorden et al. (2021) did a quantitative study with 2116 undergraduates and identified issues such as low quality learning materials, lack of internet connectivity, and lack of knowledge from instructors. In another research carried out by CeUL (2021) in Stockholm University with 400 educators and 6000 students, the researchers found out that the major issues included health-related issues, ergonomic issues, and lack of physical contact between peers. In another study in Qatar, Haris & Al-Maadeed (2021) the issues identified were weak internet Connection, technical issues, lack of face-to-face interaction with the instructor, mental stress, and connectivity problems.

Nonetheless, there has been success stories which should be used as case studies to deal with the challenges facing the stakeholders. Korea is one of success stories that other nations can learn from. The state's Ministry of Education (MoE) vastly expanded the ICT infrastructure by a great deal. According to data by World Bank (2020), the country was able to allocate $250 million to be used in research, buy health equipment for the students and teachers, and support online learning platforms. Besides, the MOE introduced Education Broadcasting System (EBS) for online learning and video provided by the Korea Education & Research Information Service (KERIS) where learners could access textbooks and other learning materials (MoE, 2020). Additionally, the ministry created Wedorang and e-Hakseupteo cyber learning services as the major platforms to facilitate online learning. Figure 1 below shows the rate of materials that teachers created in the platform since its introduction. The MOE was also able to prevent inequalities caused by socioeconomic backgrounds in the country by supporting teachers and students from low-income

areas. Finally, the School On platform was created to support teachers and have them exchange information (KMOE, 2020)

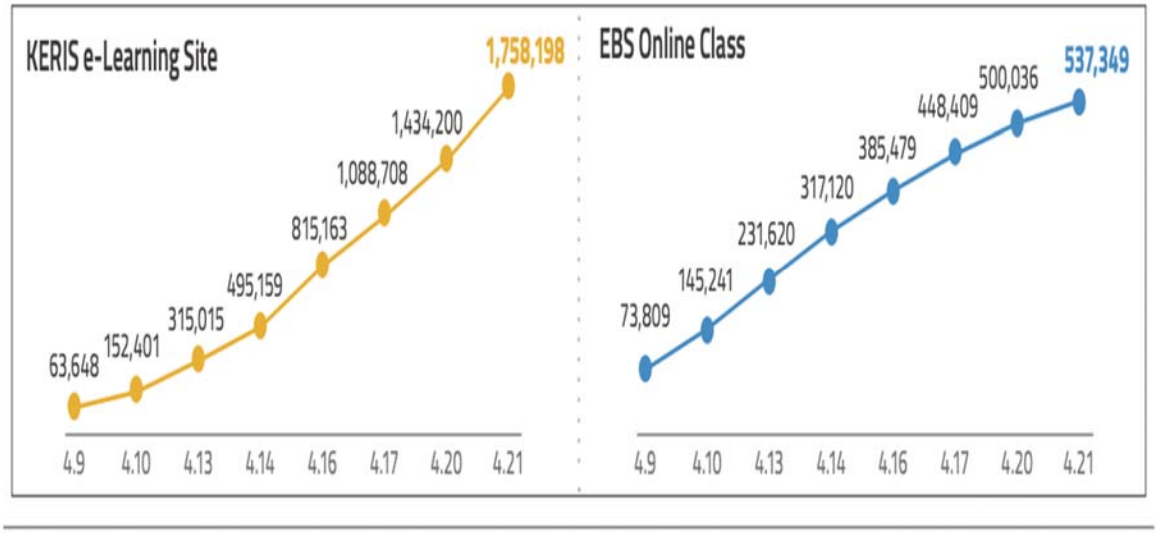

Figure 2. The rate of materials developed by teachers in both platforms

Another success case was Finalnd. The education sector in the country is so advanced that the impact of COVID-19 on the educations sector was negligible, with over 94% of students accessing electronic devices that could support home-based learning. However, online learning was improved in the event of COVID-19 where the students were independently supposed to use Moodle, Google Classrooms, Ville, Teams, O365 Skype, and Zoom. Pupils were required to use Studentaplus and Sopimuspro Helmi Wilm platforms while students in higher learning institutions

were required to use Adobe Connect, Zoom, and Moodle. Services offered to disabled students include teaching, care, dining, and other services at home to students with complex disabilities. Also, immigrants and other marginalized groups were also included in the plan (WB, 2020).

II.4 Theories Relating to Online Learning Implementation

II.4.1 Classical Liberal Theory of Equal Opportunities

This is one of the theories which guided the current study. According to Von Mises (2012), liberalism is an aspect in which equality and individual liberty are considered as the most importance objectives by emphasizing on the opportunity equality and individual rights. Liberal theories brace provision of basic rights for everyone while seeking to avoid favoritism or unfairness. Therefore, the classical liberal theory of equal opportunities holds that an individual matters the most and that in any society, an individual must be allowed to live the best life in their own unique way. As such, it is clear that the society must take deliberate procedures to ensure all individuals are receiving equal opportunities in any societal realm. In the current study, this theory will be used to elucidate the need for providing learners with equal opportunities despite them coming from different socioeconomic backgrounds. The pandemic has widened the economic inequality in the region which could limit access to education.

II.4.2 The equivalency theory

The equivalence theory holds that for distance learning to be considered a success, it must provide learning experiences for every student, either locally or distant. The model states that distance learning is not the same as physical learning, but the two approaches are equivalent (Lapsley et al., 2008). This means that the term equivalency should not be confused to mean equal, but it is a situation in which learning experiences that students receive are considered to give them similar experiences for similar outcomes. However, the main emphasis of the theory is not to

expect that every student to be taught or learn in a similar manner (Garratt-Reed et al., 2016). There are three major aspects of the theory: 1. Distant and local students essentially are in different environments; 2. Digital technology is used synchronously and asynchronously; 3. Learning experiences have anything happening with or to learners to boost learning. This theory will be useful in this study because it explains how physical and virtual education are different and how the difference matters.

II.4.3 Connectivism

According to Goldie, J. G. S. (2016), connectivism is to a certain degree a new theory of learning suggesting that learners need to combine general manner, theories, and thoughts in a useful manner. The theory emphasizes that technology is a key part of learning process and that persistent connectedness provide people with opportunities to make choices about their learning. The theory states that some of the digital technology features such as web browsers and search engines form significant tools that help in online learning implementation. As such, education, being an important aspect of people's lives, is a subject of technology. As Strong & Hutchins (2009) state, learning only happens within the ever-changing networks and only happens after information sources and specialized nodes are connected and that it can occur in non-human appliances. In online education, learning happens when various stakeholders interact; an example is the interaction of students and teachers**.** For this reason is why this theory was selected.

II.4.4 Technology Acceptance Model (TAM)

Researchers have agreed to the fact that the technology acceptance model (TAM) has been the most influential of all the theories explaining the acceptance of digital transformation. The theory illustrates and describes how people in different societal realms come to accept and widely use a given technology. The actual use of a system is the result where people use the technology. People

are forced by behavioral intention (BI) as a factor to embrace technology. But, BI is affected by attitude which is the general impression of the technology. One of the factors that influence acceptance is Perceived Usefulness which has to do with how the users view the technology in question. To accept a given technology, a user must perceive it as useful in their lives, and in this case, the general education. Another factor that users consider is the ease-of-use which is defined as "the degree to which a person believes that using a particular system would be free from effort" (Al-Maroof & Al-Emran, 2018). The hindrances are removed out of the way only if the user thinks that the technology in question is easy to use. This theory will be useful for the current study in explaining why there could have been a resistance during the initial stages of implementation of online learning in Kurdistan.

CHAPTER III: METHODOLOGY

III.1 Introduction

This section of the report presents the research methods that the researcher employed in the study. An effective and efficient research method is necessary for the success of a study considering the fact that research has to go beyond gathering of information. Goddard & Melville (2004) states that in any study, the researcher is obligated with either creation of new questions t be answered-through policy implementation or research development-or answering the existing questions to fill a knowledge gap. Therefore, it is crucial to select a sound methodology for any research. The methods involves gathering and distilling of data via a succinct methodological procedure, then arranging the data to derive meaning.

It is imperative that a researcher selects selects research methods that will help them in answering the research questions in place to collect the relevant data because the data will be important in addressing the research problem in question (Baker (2000). As such, this section will outline the procedures taken to complete the research and fill the knowledge gap. The first section will be the research design which explains the overall strategy used for the research. Following it is the target population which is the entire group from which a sample was taken. A sampling procedure will then be presented to show how the researcher arrived at the study sample. Presented after sampling technique is the data collection section which shows how information was obtained from the selected sample. The data collected needed to be analyzed and the section that follows is data analysis section to show how the data was analyzed. Finally, the chapter closes with a presentation of ethical concerns with the research study.

III.2 Design

Before the investigator starts on the process of collecting information from the participants of the study, the first thing that one is supposed to do is determine the overall approach that one is going to take for the success of the study. This involves identifying the relevant instruments and procedures for the study while outlining the whole study framework systematically and in a fashionable manner. Research design can, therefore, be said to be the techniques and framework of the research methods that the investigator selects to complete the project (Creswell & Creswell, 2017). According to Blanche et al (2008), a design refers to "plans that guide the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure" and that it "serves as a bridge between research questions and the execution or implementation of the research" (p. 34).

For the current study, the researcher chose to conduct a qualitative research based on the interviews done to assess the feeling of the respondents concerning the issues online education has faced since the start of the pandemic. In a qualitative research design, the researcher establishes answers to the why's and how's of the phenomena under investigation, something that the quantitative design cannot accomplish (Flick, 2018). As such, rather than being objective, qualitative research is an objective design where the findings are presented in a written format as opposed to the numerical presentation in quantitative design. Therefore, the 14 selected officials were engaged in interviews and focus groups to discuss the challenges facing online learning in the region. The major reason why this design was selected was because of its ability to spark creativity and ensure that the participants are engaging with the researcher as much as possible. With creativity as the driving force, the researcher obtains immense amount of data which could otherwise not be possible with other designs.

The qualitative approach selected for this study was phenomenological research design. In its basic meaning, phenomenology can be regarded as "that which appears," meaning a view of things as they are. It refers to the study of consciousness structures as presented from the first person perspective. It tends to be subjective in nature, which means that it creates conditions for consciousness and the content of an individual's emotions, perceptions, and experiences. Using this design, thus, enables a researcher to seek a systematic reflection in determining basic structures and properties of experience. The researcher carried out interviews and focus groups in a bid to identify the lived experiences of major stakeholders in the education sector on challenges that they, together with other stakeholders not included in the study, encountered as the instructional methods in institutions of higher learning were taken online. Their perceptions, emotions, and experiences were then to be used to come up with major themes and derive meaning from them. It was all meant to make conclusions from the view of the people who have experienced the phenomena which in this case is the virtual learning; it was all about illustration of these challenges from the experiences of these stakeholders' perspectives.

III.3 Target Population

Target population in any research refers to the whole set of units for which the research information is to be used for making the final conclusions. It defines the units which the investigator intends to make generalizations on from the findings of the group of individual units from which the researcher selects a sample. His is the second step of any research after the researcher establishes the research objectives. The definition of a target population should be as specific and precise as possible because it acts as a check for the eligibility of the entire research. Asiamah et al. (2017) states that the temporal and geographic features of a target population should be outlined, in addition to the types of units which the researcher intends to include. Sometimes,

the target population in a study is limited to exclude those members whose access is impossible or difficult to avoid inconveniencing the researcher. According to Draugalis (2009), the researcher needs to understand the target population to determine the to-go-to sampling procedure and also to inform the sample size.

The target population may be finite or infinite, meaning that respectively, it is easy to determine the total number of the units in a group or it is impossible to determine the total number of the units in the targeted group (Taherdoost, 2018). The current study involves the study of all the public universities in Kurdistan which forms a finite population. The target population is all the education experts in Kurdistan region from whom the researcher selected a study sample. The selection of participants for the interview was based on the decision of the supervisor of the study, which required participants to be experts and higher education officials. The reason for choosing officials is to know the crux of implementing online learning in public universities. The research seeks to collect and identify the main challenges and factors of the online learning process. For this purpose, we began to select academics and higher education experts, and after receiving approval for the interview, the process commenced.

Using a finite population size is beneficial in the sense that it provides the researcher with the freedom and ability to compose a sample size. When the population targeted is known, it is easy for the researcher to choose one of the methods used in calculating the desired sample size to come up with a working sample (Faugeir & Sargeant, 2008). Thus, it is possible for the researcher to generalize the results on the entire population with the assumption that the selected sample is a representation of the entire population. The findings, therefore, becomes more reliable.

III.4 Sampling Technique

Since the researcher could not work with the entire population of the individuals, it was necessary to select part of the group to work with, and this is referred to as the sampling process. In Touvila's (2020) article at Investopedia, sampling process has to do with predetermining the number of units selected from the entire population. Therefore, a sample is defined as a subset of the entire targeted group representing the needed population characteristics (Acharya, 2013). It could either be selected using probability sampling or non-probability sampling.

The current research used non-probability sampling approach to select the working sample. In non-probability sampling, the researcher decides who ought to be included to take part in the study according to their relevance to help in answering the research questions. Rather than using randomization to select the sample, the researcher's judgment determines how many people are to be included using well-laid inclusion and exclusion criteria. The sampling approach used for the current research was convenience type of non-probability sampling. Here, the researcher draws a sample from a group of people who are easy to contact or reach. The alternative was to use randomization in one of the probability sampling techniques. Probability sampling is the process of sample selection where all the units in a population have equal chances of being selected to form a working sample (Field et al, 2006). Mostly, this form of sampling is used in quantitative research where large samples are needed and where the researcher wants a sample which properly represents the entire population. The reason for choosing non-probability sampling and not randomization is because some of the education experts have busy schedules and it would take a long time to book an appointment with them. Due to the time constraint of the research, convenience sampling was the best alternative for th current research. The researcher chooses groups based on their capacity to produce categories (variables) and category attributes and

connects them with their qualities. All of the participants in this study were directly involved in the decision or implementation of policy. Due to the possibility of bias using non-probability sampling, probability methods are usually preferred; however, in instances where randomization proves hard to go for, convenient sampling is the best alternative. This is why the researcher choose this method. Participants included top general managers at the MHE, school district directors, college presidents, educational officers, teaching staff, university professors, and others.

III.5 Data Collection

Data collection refers to the process that a researcher uses to systematically and fashionably gather and measure data on the specific variables in question to enable him/her fill the knowledge gap and evaluate the outcomes. A researcher has an array of data collection approaches at their disposal during the planning stage. The selection of a data collection method is determined by the type of data that the researcher wants to use; that is, is the data experimental or observational, qualitative or quantitative (Bar-llan, 2001). The current study, as earlier stated, is phenomenological, meaning that the researcher is studying things as they are. The study involved collecting information from the sample about the challenges they have identified during their use of online learning. While doing data analysis, the researcher filtered out all the data that was unnecessary to analyze the data that matters to the current research.

The data collected for this research is primary data. Andrei (2008) describes primary data as the first hand information which the investigator gathers by themselves. This is unlike secondary data that the researcher collects data from other sources such as articles, government publications, websites, books, internal records, and so on. In other words, secondary data is derived from third party sources. For the current one, data from other publications was used in literature review

section of the paper to support the results of the primary study. The primary data was collected using interviews and focus group discussions.

The researcher selected 14 officials who had enough knowledge in the education sector to participate in the study. The sample was 85.7% male and the rest were females. One of them is a deputy of MOHE, 3 are KRG advisers for high education and information technology, 4 general directors and directors MOHE, 5 presidencies in public Universities for the province. Looking at their education attainments, 7.1% of them were Bachelor's holders, 21.4% Master's holders, and the remaining 71.4 % were PhD holders. The oldest was 66 years old and the youngest was 36. The researcher adopted a qualitative approach to allow for deeper and broader understanding of the topic in question.

The researcher chose to use semi-structured interviews to collect data from the participants. One advantage of this method is that the researcher formulates questions prior to the meeting so that the conversation can be smooth and have direction to avoid loss of focus. Besides, participants could respond to the open-ended questions in their best possible way to give in-depth data. To equally get answers from the participants, the researcher asked same questions for all of the participants. Lindlof (1995) argues that, "by asking the same questions of all participants in roughly the same order, the researcher minimizes interviewer effects and achieves greater efficiency of information gathering" (p. 172). The duration of the interviews was between 15 and 30 minutes with the discussions including Google Meets, physical meetings, and phone calls.

After the researcher was done with the interviews, focus groups were also held afterwards where the sample was split into two groups to hold the discussions. Each group was made of 7 people and the discussions were held for one for each group. Focus group discussions are an extension of the interviews to give the participants a chance to share things that they might have

felt uncomfortable to share with the researcher during the interviews. Also, it gives them a chance to comment on the points of other members and thus gives the responses more weight and makes it easy for the researcher to analyze the data collected. The discussions were recorded using an audio recorder and later transcribed for easy analysis together with the data collected from the individual interviews.

III.6 Data Analysis

All the information that the researcher gathered from interviews was recorded and then transcribed later on. Thus, the initial stage involved examining the transcripts as they were collected from the field. The responses that were not in English were translated while transcribing. This was a major issue for the study as some errors could occur during the translation since the meaning of the original message could be distorted. There could also be an instance of mistranslation when deriving the comments from focus groups and interviews. However, everything was double-checked to ensure that there were no inconsistences between the translated message and the recorded message.

The qualitative data that the researcher obtained from the interviews and focus groups was analyzed by the use of thematic analysis using Nvivo application. The major purpose why this process was applied was to make sure that all the important aspects of the data collected were captured so that all the research questions may be answered completely. It helps the researcher in the generation of findings and insights for the study (Terry et al., 2017). There are five steps that need to be undertaken to complete the process of thematic analysis; getting familiar with the information, coding, identifying themes, naming and defining themes, and getting the report on paper (Almaiah et al., 2020). The creation of themes is a crucial process where important and recurring points are derived from the transcribed texts in relation to the research objectives. During

the process, the investigator categorized the data into three elements using the software. The initial process started with descriptive coding and then phrases, words, and sentences gotten from the transcribed information were obtained as guided by Morse & Richards (Watts et al., 2017). These elements were labeled by use of the appropriate words which relates to challenges of online learning. Codes are referred to as "nodes, for reference to code text," representing a collection of references about a particular theme, category, and areas of interest (Almaiah, 2018). After that, the researcher classified several sub-themes for each of the themes, depending on the topic of study.

The interviewer had the entire process of interviewing and focus discussions recorded with the permission from the respondents with guaranteed confidentiality. The researcher collected this information using recording button on any of software used in the data collection. Usually after an interview is completed, most researchers tend to have debriefing sessions with each of the interviewees to recap what they have presented and to have them make remarks on any information that they may not have discussed during the interviews. However, for the current study, the researcher chose to proceed with a focus group which could help in getting more information than debriefing. The material used for the analysis is the transcription made from the discussions during interviews and focus group discussions together. There were also some notes that the researcher took during interviews. The transcriptions were checked for three times to make sure that it matches with the recordings to avoid analyzing the wrong data which could lead to flawed findings.

III.7 Ethical Considerations

In any study, qualitative or quantitative, it is good to consider all the ethical issues that might emerge especially when dealing with human participants. The researcher was closely involved with the participants during the interviews and focus group discussions. Therefore, it was

necessary to give them an assurance that the study had no impact on their personal lives whatsoever. The following are some of the ethical issues identified throughout the course of the study:

1. One of the major ethical issues apparent in this research is confidentiality. None of the information that the researcher records will be accessed by a third party for whatever purpose. Rather, the researcher is to make sure that the information is stored safely so that it does not fall in the wrong hands and then destroyed after the approval of thesis because this is its primary purpose.

2. Anonymity

The researcher was supposed to ensure that the participants remained as anonymous as possible throughout the study. However, this is usually not possible during face-to-face interviews since the researcher is already seeing the participant. However, the respondents were assigned pseudonyms to make sure that only the researcher knows who participated and what their contributions were. They were also supposed to refrain from using their colleagues' real names during focus group meetings.

3. Informed consent

The respondents were given full information at the beginning of the study about the research. Before taking part, they were taken through the research topic and research questions to ensure that they understood what they were participating in. They were required to fill a consent form before embarking on any other process.

4. The study was free of any harm, psychological or physical.
5. The participants had the right to answer the questions partly. They could either answer fully or partly as they pleased. However, they were encouraged to answer all the questions as none of

them was found to cause any emotional harm. They were also required to withdraw any time and at any stage of the project without any questions from the researcher.

6. Cultural competence-

The researcher ensured cultural competence was honored to the best of their knowledge. Most importantly, use of multiple languages-including local languages-was allowed and then the interviewer would translate later on as part of the analysis.

Table 1. Interviewees' Personal Information

N Officials	Gen	Age		Position	experience
1	M	60	OFCL1	Deputy Of Ministry Of High Education	24
2	M	40	OFCL2	Senior Advisor For Prime Minister	17
3	M	55	OFCI3	Prime Minister's Adviser For Information And Technology	13
4	M	47	OFCL4	Prime Minister's Adviser For Students' Affaires	23
5	M	47	OFCL5	General Director Of The Management And Finance (MOHE)	2
6	M	47	OFCL6	General Director Of Education Planning And Follow-Up (MOHE)	25
7	M	37	OFCL7	Director Of Quality Assurance And Accreditors (MOHE)	14
8	M	36	OFCL8	Director Of Information Technology (MOHE)	11
9	F	44	OFCL9	Supervising The E-Learning Process Salahuddin UNI	20
10	M	66	OFCL10	President Of Erbil Medical UNI	26
11	F	38	OFCL11	Sulaymaniyah UNI	16
12	M	56	OFCL12	Vice President For Scientific Affairs Duhok UNI	19
13	M	42	OFCL13	Vice President For Student Affairs Erbil Polytechnical UNI	17
14	M	53	OFCL14	Vice President For Scientific Affairs Halabja UNI	31

CHAPTER IV: RESULTS AND ANALYSIS

The following were the themes identified:

1- Poor internet

All the interviewees agreed that poor or lack of internet connection is a huge challenge for the implementation of online education in public universities in Kurdistan during the coronavirus pandemic. One thing that seemed to disturb participants the most was poor quality of the internet lines even in big cities. Besides, students could not afford the high prices that some companies set.

> *We believe that the lack of the Internet and the poor quality of the Internet is one of the main problems, especially in our country. The Internet exists but is not divided equally everywhere. Internet is somewhat good in the cities, but in the countryside, the internet line is very bad or doesn't have, leading to the lack of online education in the villages. On the other hand, some students have not been able to have internet access due to poor financial conditions (OFCL3 et al., 2021).*

Poor quality internet, or a lack of it thereof, has immense negative impact on the implementation of online learning during the coronavirus pandemic. The most affected were those living in the rural areas which are remote where signals are weak and thus participating in class work was hard. Online sessions, therefore, were faced with interruptions because of the poor internet. Other families could not buy internet facilities because of lack of funds. One participant said:

> *Of course, the lack of the Internet was a significant obstacle. Therefore, the online process didn't run very well, "Of the 65 students in my online class, only 45 students were present, while others were unable to participate because of the lack of internet"* (OFCL8, September 21, 2021).

This finding is similar to many others obtained from other studies in Iraq and beyond. For instance, Amin (2021) carried out a research to determine the impact of educational policy change in Iraqi Kurdistan area during the COVID-19 pandemic. In the school where the study was being carried out, the researcher noted that the subscription rates at the initial stages of the lockdown were low with many students failing to attend classes due to lack of proper internet connection. However, access saw dramatic increase in assistance from technical and service teams. Similarly, Kibuku (2020) found out that internet connectivity was a major concern among the Kenyan universities in a bid to implement e-learning in colleges and universities. Budur (2020) also carried out a research study to determine tools relevant for the acquisition of e-learning during lockdown among private universities in Sulaymaniyah. The results of his study identified internet as a major tool that facilitates online learning. These studies show that with poor internet connectivity, online learning is impossible and it is the basis of virtual education. As OFCL8 stated during the interview, "*Indeed, the Internet is not good for Kurdistan and Iraq. The cables haven't reached everywhere. And the bandwidth that has been reached is not sufficient. This has had a huge impact on online studies."* Therefore, it is clear that students suffering from poor internet connection generally have less time in class than the one allocated for the information on the internet as it facilitates processes such as scanning, searching, browsing, among others.

Connectivity can determine how well the various stakeholders accept the integration of online learning in the pedagogical processes. According to the connectivism theory, internet technologies such as social networks, online discussion forums, wikis, search engines, and web browsers form new platforms of learning that transform the traditional brick-and-motor education (Downes, 2019). The theory holds that ICT have enabled individuals to learn and share knowledge in any part of the world through the World Wide Web in a manner which could not be possible within

the age of information. The main reason is that learning does not happen in an individual; rather, there has to be a connection where the actual learning happens outside the individual selves. This form of network creation is enabled by having a proper access to internet facilities. With many students in the region lacking a connection to the internet, it means that their ability to learn new things is limited and thus implementing online education would be a great hindrance to the continuation of teaching-learning processes. One o fthe participants stated that;

> *"According to our expert, 40% were unable to continue because of the lack of internet and poor financial conditions, but 60% of students had the Internet, so we didn't run the online process, but we put courses and instructions in the data drive so that students could download whenever they had the Internet" (OFCL9, personal interview, September 13, 2021).*

From the definition of online learning as an internet-based learning (Rapantar et al., 2020; Dhawan, 2020; Singh & Thurman, 2019; Stewart et al., 2011), it means that a lack of a strong and/or stable connection to the internet is a major stumbling block with regard to online education.

2- Lack of technological devices

The issue of lack of technologies among the Kurdish residents was unanimously agreed among the participants. They all believed that it was among the main hindrances of online learning.

> *Of course, each of us needs a suitable device to carry out our work online. In general, students had devices, especially smartphones, but to what extent did they have excellent quality to online education. Yes, some students and teachers did not have technology devices for different reasons, including some students who were unable to buy technology devices because of poverty. Literary college students also don't work for computers, so*

some of the college's students did not have the suitable technology tools. These reasons had an impact on the online process (OFCL4 et al., 2021).

Because of the impact of the pandemic on the economic status in the region, the average income of most of the families plummeted which have made family life become more challenging with the decline of individual incomes. There was a decline in global and regional GDP, loss of employment for hundreds of people and families, and salary cuts for the people who still retained their jobs. This could explain another reason why people could not afford the required technologies.

"*Some of the students allegedly had problems with the lack of a smartphone or a modern laptop. However, we have helped some universities in some places. But we can't provide tools for all students as a ministry, yes, we had this problem"* OFCL5, personal interview, September 22, 2021).

The interviewees also unanimously agreed that some of the learners were not concerned about school and just saw it as a holiday. One of them said, *"There are some students who can buy technology devices, but they don't" (OFCL2, personal interview, September 15, 2021).*

It is known that to access most of the learning systems using a laptop or computer is easier than using a smartphone. While about 98% of the students in Kurdistan possess cell phones, only 45% of them have laptops (RUDAW Media, 2020).

"Around 55% of students did not have laptops, while 10% did not even have smartphones. Moreover, around 10% of academic staff did not have laptops and 12%did not have smartphones, and many students could not participate effectively to the lack of technology devices" (OFCL10, email interview, September 22, 2021).

“We had some cases at the University of Sulaymaniyah, where four students studied on one laptop” OFCL11, phone call interview, October 06 2021.

Many researchers agree to the fact that a lack of technological devices is a major hindrance to the implementation of online learning. While most of the families in the region have no access internet, many have smartphones, but about half have no laptops. A research by Sadik (2018) showed that many academics working in Kurdish universities think that the region have inadequacy of devices in schools in addition to the poor internet connection. Therefore, both the teachers and students cannot communicate effectively outside the traditional classroom due to the lack of relevant devices which are meant to facilitate distance learning. IN another study, Ahmad et al. (2018) carried out a research on Sulaimani University and found out that a shortage of electronic devices in the school is one of the major issues that affect effective learning in the school setting. Besides, the researchers state that the student's usage of electronic devices is only limited to a bit of information sharing processes and more on social media communication. Thus, while the participants in the current study identified that majority of the students have access to smartphones, it is clear that those who do have them do not use it them for educational purposes.

Like the present study, many researchers have agreed to the fact that digital divide between the rich and the poor is a major challenge in developing regions. In their research, Srivastava & Shainesh (2015) found out that the set-up of the societies in these countries are grounded on compound geographical spread and socioeconomic levels where most of the people lack an access to basics such as education and healthcare, and this makes access to ICT less of a priority. In another study, Eltahir (2019) found out that the gap between the rich and the poor is so huge in Sudan, hindering proper implementation of ICT in schools. With the gap having been widened by the COVID-19 pandemic, the gap remains a major issue within the region. As Barznjy (2020) notes, the impact of COVID-19 was felt disproportionately with the poor being more affected than the rich. According to the equivalency theory, the appropriateness of distance learning lies on its

ability to offer equivalence in education access for all the learners, both locally and distant in a way that the expectations of equal educational experiences for equivalence in outcomes is upheld (Simonson, 1999). Therefore, countries with disproportional resource distribution between the haves and the have-nots have problems integrating online learning, as Kurdistan does due to the economic struggled during the pandemic.

3- Electricity

The respondents agreed that electricity was one of the main obstacles that the students and educators were facing during the implementation of online learning process in Kurdistan. One of them said:

> *"Electricity was one of the most significant barriers to online study. Because national electricity is terrible, even with special generators, there is no electricity for 24 hours, especially in towns and villages, electricity was very bad and caused the online process to fail" (OFCL2 et al., 2021).*

Inadequacy of electricity in Kurdistan and Iraq in general has been a persistent problem for a long period. People experience much power outages especially during summer. Generally, electricity connection is better in the region's larger cities than the small towns and villages, making it hard for the schools located in remote places to adopt online learning strategies.

Other researchers have also found out that electricity is a major issue that could hinder the effectiveness of e-learning programs. In a study that Dhawan (2020) carried out to investigate

factors affecting adoption of online learning in Indian universities, the researcher elucidates that frequent electricity shortages have made it a problem to implement online learning in India because it causes a disruption to the students. OFCL8 explained how outages could lead to such disruptions. The respondent said that *"even in universities, there was often no connection for 20 minutes due to power outages"* (OFCL8, September 21, 2021), placing lack of electricity as a major concern when it comes to the implementation of e-learning. According to Faidhi (2020), electricity production in Kurdistan was cut by 700 watts in 2020. The cut in production worsened the situation of electricity coverage which the region was already suffering during the pre-pandemic era. Similarly, Sheridan et al. (2020) believes that most governments in the developing world struggled with enhancing electricity connection so that every student could have minimal disruptions, if any. The issue was exacerbated with digital divide already existing in the region between the rich and poor since the privileged could afford alternative sources of power that their counterparts could not.

For the people suffering from electricity outage at home, especially in rural villages, online learning can be regarded exclusive rather than inclusive as it is the aim of contemporary student-centered approaches. Electricity, like the internet and electronic devices is a major infrastructure and contributor of online education.

4- Location flexibility

All the respondents agreed with the fact that most learners were not having conducive learning environments while studying at home. All respondents agreed that ;

> "*We think that most students do not have a quiet place for online learning sessions. However, we understand that many students might live in houses or places not much suitable for online learning or that more than one student at home might be involved in*

> *online learning, which has a huge impact on students. Also, they think "Having a peaceful environment for students is due to two factors, such as economics and culture (OFCL1 et al., 2021).*

Family support for students positively impacts students and encourages them to focus better on lessons. Steinmayr and Spinath (2009) identified that motivational concepts contribute to students learning than general intelligence. However, many family members in Kurdistan and tiny houses have made it difficult for students to have a suitable environment and private rooms, especially families with three or four students. Another factor is the poor economic situation in the family, which has prevented families from providing students with supplies. At the same time, the strong affection among families has caused them to visit each other plethora, which impacts students and a peaceful environment.

Besides, the researcher asked the participants whether the effect on economy had affected their household income. All of them agreed that lack of economic support was a major hindrance to the attainment of online learning.

> *"Some families have a good economy, and they are very supportive of students to provide a peaceful environment for students in the online learning process. In contrast, the other part of the family has not been able to support students in all aspects due to poor economic conditions"* (OFCL1, personal interview, September 22, 2021).

In a similar study looking at the perception of e-learning in developing countries, Srivastava & Shainesh (2015) says that socioeconomic status of a particular family is a determinant in online education perception. Indicators of socioeconomic status of families include the neighborhood median income, the neighborhood's average educational attainment, and parental education attainment (Hansen & Reich, 2015). It comprises not ony the income level but

also a person's social class; in other words, it has to do with a person's life attributes and the privileges and opportunities which they can afford within the society. From the various study results, it can be concluded that poverty does not act as a single factor to influence the quality of online learning; rather, it is an array of psychological and physical stressors that prevent a person from accessing ICT resources (Van Lancker & Parolin, 2020). Most importantly, the gap between the rich influences the rate of acceptance of ICT integration in the education sector. The worst cases are experienced by the children living in refugee camps as well as the internally displaced people (Williams-Chase, 2020). One o fthe respondents said, *"Not only students, but teachers often did not have a suitable place because of family crowds, which had a huge impact on teachers"* (OF6, personal interview, September 26, 2021). Thus, teachers have a hard time continuing with the syllabus when the students' conditions at home are deprived.

COVID-19 pandemic caused a lot of social and health-related issues which affected family structures and the way of life for most of the people all over the world. Stressors at home included loss having a family emmber fall sick, losing a family member to COVID-19, loss of jobs, lockdowns, among others. These situations could hugely affect emotional and cognitive status of the learners which negatively affects their learning ability. In one of the focus groups, one o fthe respondents said that,

> "*Some students were not mentally prepared to study at home because most of them do not under normal circumstances. I have to say that this is not anything that could just be gained so easily. Some could not control their own emotions which was direly needed during this period, not only for learners but also for everyone who wanted to have a smooth new normal"* (OFCL1, focus group discussion, November, 2021).

Stressing on the same point, their colleague insisted;

> "*That's true. Some students were expecting interest to possess them to start studying at home. Look, it is you who have to show the interest first. I always told students to make sure they have a quiet environment and make sure that they mix their habits with study and learn to spend time alone to avoid distractions*" (OFCL1, focus group discussion, November, 2021)

This is no different from the findings of Shahmohammadi & Bahmani (2020) whose findings show that congestions at home led to the inability of students to continue with their studies normally with most students getting distracted by phones and other family members. In this case, a lack of proper location to do studies when the school and libraries are closed is a major factor that cannot be underestimated.

5- Digital illiteracy from some teachers and students in using technology devices.

With the mandatory online education introduced in the region, some of the services became freely available for use in most of the institutions. While there were no local platforms in place, the international ones such as Google Classroom and Zoom were easily accessible. Nonetheless, the participants said that it was still hard for learners and educators to use the technological devices, affecting the whole process of integration of online learning. They stated that;

> *"Yes, some students do not have enough ability to use technology devices very well, especially when registering and using platforms, they were facing a plethora of challenges. Also, some teachers are unable to use technology tools, particularly those who are an old generation" (OFCL7 et al., 2021).*

A major factor that will lead to the success of online learning implementation is the ability of the learners and teachers to use computers. A research by Muthuprasad et al. (2021) identified

the ability of a student and teacher to use electronic devices and the internet as the sole determinants of its success. However, the overuse of smartphones which can multitask has led to most of the people neglecting laptops and computers. Most of the college students and teachers are less familiar with these devices since they are less involved in their daily activities.

> *In HMU, around 22% of students and 10% of teachers had never used an online management system or platform before initiating online learning. Most of the others had poor skills in this regard. So we faced a real problem initially, and we had to provide training courses and guidelines. Proper use of platforms remained a problem for many teachers and students (OFCL10, email interview, September 22, 2021).*

Another one stated that;

> *"Students studying at scientific colleges can better use technology devices than students at literary colleges" (OFCL9, personal interview, September 13, 2021).*

Learners and teachers are major stakeholders whose perceptions should be considered when implementing the digital learning approach. The results of the current study are similar to those of Shearer et al. (2020) according to who, the technology does not facilitate the learning experience of the learners, but teachers. Three characteristics of an educator that controls the overall success of an e-learning implementation include the control of technology, teaching style, and attitude towards technology. As far as attitude is concerned, Technology acceptance model says that technology will be accepted if it possesses two features in the mind o fthe user; perceived ease-of-use and perceived usefulness (Al-Qaysi et al., 2020). Therefore, if a teacher or a student feels that the technological advancement is not beneficial to them, then there is the likelihood they will reject it or show resistane in its usage. In the current study, students and teachers alike were not conversant with the technologies needed to facilitate virtual learning which explains the resistance

experienced at the beginning of the lockdown. One of the participants said, *"Halabja University is about 80 per cent literary college. Unfortunately, their teachers are not technologically advanced, they do not use the Internet and email enough" (OF14, personal interview, September 29, 2021).* Others did not find technology to use since they were not using it frequently in learning and there was no widespread adoption during the pre-pandemic era. The following point came out during a focus group discussion:

> "*From my own experience using technology, it is pretty hard to separate usefulness of a system with its friendliness to use. A system that is easy to use kills a student's confidence and risks failure. Using an e-learning system needs to be as easy and as effortless as possible for both the teachers and students*."

All these findings revert back to the perception of usefulness from the students and teachers. To be ready for the implementation, teachers and students should show commitment and positive attitude towards online learning systems (Martin et al., 2020). Failure of the users-in this case teachers and students-to understand the functionality of a system across multiple devices, therefore, presents a vital challenge that hindered holistic integration of online learning. Almost ha of the participants in Zalat et al.'s (2021) study agreed or strongly agreed that online courses were harder for the students than the physical exams in a regular class setting. The reason for this perception could be attributed to the fact that online tests are usually carried out in a quick manner and allow testing of many students at once with multiple questions as compared to the essay questions in a classroom setting. While some researchers find it easier to use online methods of instructions and teaching due to flexibility (Zalat et al. (2021), others find it challenging for the teachers to carry out informal assessment in an online classroom as compared to the participatory and observational ones (Hannafin et al., 2003).

6- Lack of teachers' experience in managing online classes and evaluating students.

The participants noted that a considerable number of educators could not control online classes and did not know how to carry out the evaluation process. They pointed out;

> "*Of course, some teachers had no experience and had an impact on the process and students. Because online learning was new and no preparations, plans, courses, workshops had been done, and teaching staff only had experts in classical classes. Therefore, it certainly had an impact on the performance of the course and the way students were controlled"* (OFCL13 et al., 2021).

The management of online classes were by a great extent influenced by the fact that it was abrupt and teachers and students did not have enough time to prepare. Additionally, many learners were not satisfied with the online evaluations. Teachers required special training apart from the regular ones that the ministry usually gives for the physical learning.

> *"Although we have pedagogy courses, teachers must see the course six months before receiving the scientific title. And we have a project to open short-term courses for two months or three months to make teachers better off managing E-education, especially for older teachers"* (OFCL1, personal interview, September 22, 2021).

> *"Many teachers In Hawler Universities, especially the old and those with poor technology skills and experience, did not manage online classes appropriately and could not evaluate students appropriately. They also faced problems in controlling the sessions and preventing sabotage action by students during the class. This greatly affected the implementation of online learning."* (OFCL10, email interview, September 22, 2021).

The findings of the current study are similar to those of other researchers in Iraq and other parts of the world. In a research that Zalatt et al. (2021) carried out to determine the acceptance of ICT changes during the COVID-19 in Egypt, it was found that technical problems to be a major hindrance to acceptance, including low teacher experiences with online learning approaches. Sinmilarly, Serma et al. (2020) agreed to the fact that some teachers lack enough experience in using digital technology which makes it hard for them to organize learning materials. Looking at instructional delivery in this context, it can be stated that teachers with vast knowledge on the usage of digital technology will have more motivation teaching online than their counterparts with less or no prior experience in use of technology for instructional purposes. Their experiences with the various dgital platforms and learning avenues give them an ability to transform their knowledge to the various digital learning platforms even when they lack previous experience with a particular system (Horvitz et al., 2015). Richter & Idleman (2017) identified features related to instructor experience in using dgital platforms to facilitate teaching as time-consumin features in online platforms, a lack of sufficient comprehension of online pedagogical knowledge, lost connection between them and the learners, and the presedented difficulties with technologies.

The key fact derived from the information regarding the theme of inexperienced educators is that online teaching self-efficacy was quite low among the teaching staff in the region, presenting a common occurrence among the instructors with no prior experience in providing instructions

virtually, which is why the experts suggested that educators need to take online courses before commencing on online teaching process;

All interviewers agree that teachers have to see short courses. "*We believe that teachers need to participate in short courses and learn how to manage online class and which type of exam will need for students and evaluate them appropriately*" (OFCL11 et al., Focus Group Discussion, November, 2021).

The finding is in tandem with that of Devica's (2015) study whose findings show that a lack of or insufficient self-efficacious about ICT in education originates from having inadequate exposure among the educators. Another explanation of the current findings of insufficient self-efficacy could be the fact that educators might have had more anticipation of challenges they were about to experience with the implementation othe new system and not a lack of experience based on the fact that it is a new style which they have not adopted in the past (Lee & Tsai, 2010).

With the teacher efficacy of the online teaching strategies being challenged by the current situation, technology application and online instruction have been identified to be different. In one of the focus group discussions, an expert said that "*online socialization websites are quite different with the online learning platforms. Even though some knowledge can be tarnsferred from the knowledge o fuse of other websites and systems, we still need a heap of tariners to equip our teachers with the relevant skills and knowledge about the systems the government have recommended*" (OFCL9 et al., Focus Group Discussion, November, 2021). However, this finding is different from that of Richter & Idleman (2017) who found out that an increased technological use among teachers increases their self-efficacy when it comes to online teaching. However, He's (2014) study is in line with this finding, showing that there is a critical concern regarding the building up of interactions between learners and the creation of an online learning environment

shortly after e-learning is adopted. On the contrary, Ma et al. (2021) showed an improved self-reported online learning efficacy among the teachers with previous knowledge on difital technology. Ma and colleagues conclude that the impact of technological challenges is only felt when the educators are not familiar with other technologies.

7- Platforms

The final challenge that the interviewees identified is the lack of platforms in the region. There are no local platforms, but exotic ones which does not offer flexibility in regards to a student's English language levels. Some teachers and students could not also afford to premium prices for the exotic platforms such as Google Meet, Zoom, Blackboard, and others.

> *Of course, the lack of a platform had a significant effect. As the researcher mentioned initially, we didn't have any platforms, applications, or software. To rely on it, there were only global free programs. As you know, any software that is free of charge will deprive you of several privileges. And these platforms were all in English, and students need to be taught how to use them (OFCL8 et al., 2021).*

Even though the application of technology in the region is a new concept and it is still young in most schools, some tried to adopt the models, but the teachers and students did not have enough experience using the various platforms meant to facilitate online learning. Considering English is a second of third language to most of the students in the region, it formed a huge barrier since there was no language flexibility in most of the platforms. Most of them are global and they come in English or Spanish versions. This forced the universities to use different platforms which goes against the equivalency theory where the students are supposed to be given equal opportunities to learn to the best of their knowledge. Learning platforms differ significantly which in turn made

equal education access a challenge. Other universities lacked enough finances to maintain the use of these platforms which led to the deprivation of crucial daily operations.

> *"The lack of a suitable platform has had a significant impact on the online process at Halabja University. We were also unable to benefit from international platforms due to a lack of sufficient budget, so we were forced to use the free platform* (OFCL14, personal interview, September 29, 2021).
>
> *"Vice present scientific affairs in HMU about platform said that the lack of a suitable platform significantly impacts implementing online learning. It is essential to have one type of platform in the same universities as using different platforms by different teachers caused problems with the learning, and it was difficult for students to learn different platforms. It is essential to have a well-functioning platform and a suitable server for online learning"* (OFCL10, email interview, September 22, 2021).
>
> *"As Duhok University, we didn't have a lot of platform problems because we were able to buy zoom account"* (OFCL12, personal interview, September 27 2021).

CHAPTER V: CONCLUSION AND RECOMMENDATION

V.1 Conclusions

In the current research, the investigator was interested in exploring the challenges associated with online education during the COVID-19 pandemic. To accomplish this, the researcher interviewed education experts and officials about their lived experiences in distance learning which was introduced in Kurdistan region after the closure of all the public universities. The academic year was in progress when the schools were closed in February 2020 and thus, the students had to stay in session despite the challenges that were apparent. Some of the challenges the students experienced include low bandwidth in the region, lack of electricity, and not having the required devices and software. Besides, the researcher found out that some learners and educators did not have enough know-how on how to run learning systems in addition to experiencing time and location inflexibility. To curb these challenges, the participants said that the Ministry of Education in the region had applied immense efforts to make sure continual learning and to finish the syllabus on time.

The study was a reflection of the current state of things which is inevitable not only in Iraq but throughout the whole world. The impact on the education sector is only among the other impacts that the pandemic came along with since its introduction in the Kurdish soil. After the interviews were completed, more data was collected by holding two focus group discussions to identify more factors and solutions to this menace. It can be concluded that the whole issue lies with the Ministry of education because the KRG forms a major funding of all the public schools. There has been less efforts in the past to integrate ICT facilities in the education sector. Should there have been enough infrastructure for the teachers and students, the government would not be struggling to keep students learning at home. Even though there are other underlying factors

preventing smooth progress of learning, most of them are pedagogical which puts most of the blame to the Ministry. Overall, these challenges can be said to emanate from a lack of proper funding of the education sector from the KRG. Due to this previous problems of inexperience among the teachers and students, anxiety started to build up among them because they did not know how to keep up with the course outline within the given period with all the difficulties.

This research can be regarded as a major contributor to the extant literature, by looking at the difficulties that experts and officials say are faced by the major stakeholders within the education sector in Kurdistan during this uncertain times of the COVID-19 era. It offers significant practical insights into the application and adoption of online learning in the region. Some of the past literature have identified infrastructural issues to be the only or major issues that leads to the slow adoption of technology in the education sector. However, the current research have identified additional issues which relates to financial support from the government, digital self-efficacy, issues with the course designs, issues with change management, and technical issues with the learning systems. Having added knowledge onto this critical body of knowledge, the findings of the study can be used in offering counsel to researchers, developers, curriculum developers, designers, and policymakers to help them to be better equipped with the critical elements of online learning system adoption to ensure its success in future.

To begin with, university administrations and their technical support teams' problem lies with having inadequate resource allocation to ensure that teachers and students are receiving the relevant technical training and that anyone can access learning materials wherever they are. Should there arise an issue during the virtual delivery of instructions, they should be able to solve it within the shortest time possible. They should also train teachers and students to deal with minor issues that do not require much technicality. It can also be concluded that administrations in public

universities are reluctant because all the issues were and are being experienced because they are reactive rather than being proactive. They need to oversee future issues and advance with time. The adoption of ICT in institutions of higher learning in Kurdistan has been relatively slow considering we are in the midst of information age. Developers and designers in the region have a problem too-there has been no local platforms which are easy to use and which can accommodate all learners, including the English learners who may not be entirely conversant with some terms used in exotic platforms. Another group that has contributed to this issue are the policymakers who have over time failed to see the need for mandatory integration of e-learning in the region. There should be policies allowing for smooth, easy, but quick transition from analog to digital. There need to be training programs for teachers and students in support of e-learning. Overall, the findings of the current study provides new suggestions for the decision-makers in the education sector to boost ICT usage in delivery of knowledge so that the implementation can be as smooth as possible during the post-pandemic era.

The study also concludes that to ensure a success in the implementation of online learning in the region, the government and public universities administrations need to address the above challenges. This makes it imperative that governments and schools work together to create radical solutions to ensure that education as a basic human right has been given to all students in the same manner. They should be given equal opportunities regardless of their background as illustrated by the equivalency theory. Addressing each challenge at a time will see the adoption of ICT in the technology sector soar to new and unimagined levels. Some of the recommendations are provided in the section below.

V.2 Recommendations

From this investigation, it is clear that to successfully integrate ICT in schools is not an easy task because of the many challenged that face the schools, the government, and teachers. To ensure that all the learners have equal access to learning materials and teachers are managing the learners in a standard way requires not less efforts. Many preparatory steps need to be undertaken to ensure a smooth transition from the current state of things to a technology-based education in the region. These are uncertain times and it is not easy to tell what will happen next, what policies the government is going to adopt, and what health measures will be taken. Whatever measures are taken, they greatly affect the education sector because social distancing rules cannot be applied with the current infrastructure in Kurdistan. Therefore, this is a chance for the ministry of education and the KRG to work together to bring about the best student experience as they try to adapt to the new system. For this reason, the following are the recommendations that the researcher offers:

1. The government need to consider various success stories in other countries such as Korea and come up with its own platforms that are to be used across all the public institutions.
2. The government need to consider providing enough budget for all institutions of higher learning for infrastructural development and to boost their ICT facilities and other learning management systems.
3. Because teacher illiteracy and lack of experience was identified as a major factor, it is recommended that the ministry of education enhances their abilities by devising regular training programs. These training sessions should be oriented towards; 1. Specialized courses so that educators can acquire enough knowledge on how to use various digital devices and platforms, and 2. Pedagogy courses to enable them to run online classes and assess learners in

the modern way. The processes may be borrowed from developed countries that are already practicing it.

4. The government and other private companies should enhance internet connection to avoid issues with internet connection. All students from those in large cities to those in small villages should be provided with the required internet access with the least possible interruption
5. Some students and teachers lack electronic devices to access teaching-learning materials. As such, the government need to provide digital devices to the students such as tablets and laptops or find cheaper sources from companies such as Huawei and Samsung.
6. Schools need to organize workshops and seminars to familiarize the learners with how to use digital platforms in a healthy manner without distractions. There is a lot of information online and students might lose track while doing all their learning activities from their devices. Therefore, a lot of training is required to beat the challenges that come with internet use such as privacy issues, manipulation, bullying, among others.
7. Local platforms created must be easy for both the students and teachers.
8. University administrations should collaborate with the government to open doors to schools and libraries in case there is a library so that those students who cannot study at home due to congestion or lack of a safe place can have a cool environment to study.
9. The media need to promote awareness and family guidance for the guardians to take responsibility of their children and prepare them for an appropriate environment.

References

Aboagye, E., Yawson, J. A., & Appiah, K. N. (2021). COVID-19 and E-Learning: The Challenges of Students in Tertiary Institutions. *Social Education Research*, 1–8. https://doi.org/10.37256/ser.212021422

Adarkwah, M. A. (2021). "I'm not against online teaching, but what about us?": ICT in Ghana post Covid-19. *Education and Information Technologies*, *26*(2), 1665-1685.

Agnoletto, R., & Queiroz, V. (2020). COVID-19 and the challenges in Education. *The Centro de Estudos Sociedade e Tecnologia (CEST)*, *5*(2). 1-2

Ahmad, W. M. A. W., Ibrahim, N. A., Mohamad, N., Ghazali, F. M. M., Aleng, N. A., Mokhtar, K., & Alam, M. K. (2021). COVID-19: A Scenario of Malaysian Mortality. *International Medical Journal*, *28*(3).

Akkara, S., & Mallampalli, M. S. (2020, October). Online Teaching and Learning in India During Lockdown and Its Impact on Teaching Practices. In *International Conference on Interactive Collaborative and Blended Learning* (pp. 151-158). Springer, Cham.

Albiladi, W. S., & Alshareef, K. K. (2019). Blended learning in English teaching and learning: A review of the current literature. *Journal of Language Teaching and Research*, *10*(2), 232-238.

Ali, B. J., Gardi, B., Jabbar Othman, B., Burhan Ismael, N., Sorguli, S., Sabir, B. Y., & Anwar, G. (2021). Educational system: The policy of Educational system in Kurdistan Region in public Kindergarten. *Ali, BJ, Gardi, B., Othman, BJ, Ismael, NB, Sorguli, S., Sabir, BY, Ahmed, SA, Hamza, PA, Aziz, HM, Anwar, G.(2021). Educational system: The policy of*

Educational system in Kurdistan Region in public Kindergarten. International Journal of English Literature and Social Sciences.

Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, *25*, 5261-5280.

Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, *25*, 5261-5280.

Al-Maroof, R. A. S., & Al-Emran, M. (2018). Students Acceptance of Google Classroom: An Exploratory Study using PLS-SEM Approach. *International Journal of Emerging Technologies in Learning*, *13*(6).

Al-Qaysi, N., Mohamad-Nordin, N., & Al-Emran, M. (2020). Employing the technology acceptance model in social media: A systematic review. *Education and Information Technologies*, *25*(6), 4961-5002.

Altun, M. (2017). The effects of teacher commitment on student achievement: A case study in Iraq. *International Journal of Academic Research in Business and Social Sciences*, *7*(11), 417-426.

Amin, M. Y. M. (2021). Iraqi Kurdistan Region & Educational Policy in the Age of Covid-19. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *12*(13), 3960-3966.

Asiamah, N., Mensah, H. K., & Oteng-Abayie, E. F. (2017). General, target, and accessible population: Demystifying the concepts for effective sampling. *The Qualitative Report*, *22*(6), 1607.

Barznjy. (2020). Opinion | Kurdistan is not ready for online education. Retrieved from https://www.rudaw.net/english/kurdistan/070920201

Baydas, O., & Goktas, Y. (2016). Influential factors on preservice teachers' intentions to use ICT in future lessons. *Computers in Human Behavior*, *56*, 170-178.

Budur, T. (2020). The role of online teaching tools on the perception of the students during the lockdown of Covid-19. *International Journal of Social Sciences & Educational Studies*, *7*(3), 178-190.

CeUL. (2021). *Survey reveals major challenges with online teaching—Centre for the Advancement of University Teaching*. https://www.su.se/ceul/english/about-us/news/survey-reveals-major-challenges-with-online-teaching-1.525171

Colace, F., De Santo, M., & Pietrosanto, A. (2006, October). Evaluation models for e-learning platform: an AHP approach. In *Proceedings. Frontiers in Education. 36th Annual Conference* (pp. 1-6). IEEE.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

d'Antoni, S. (2007). Open educational resources and open content for higher education. *RUSC. Universities and Knowledge Society Journal*, *4*(1).

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, *49*(1), 5-22.

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, *49*(1), 5-22.

Downes, S. (2019). Recent work in connectivism. *European Journal of Open, Distance and E-Learning (EURODL)*, *22*(2), 113-132.

Ellis, R. (2009). *"Field Guide to Learning Management Systems."* https://web.csulb.edu/~arezaei/ETEC551/web/LMS_fieldguide_20091.pdf

Eltahir, M. E. (2019). E-learning in developing countries: Is it a panacea? A case study of Sudan. *IEEE Access*, *7*, 97784-97792.

Faidhi, K.D. (2020). Electricity shortages made worse by pandemic, financial crisis. Retrieved from https://www.rudaw.net/english/kurdistan/170520202

Faugier J. Sargeant M. (2008). Sampling hard to reach populations. Journal of Advanced NursingVolume 26 Issue 4 p. 790-797. https://doi.org/10.1046/j.1365-2648.1997.00371.x

Field L. Pruchno R. A. Bewley J. Lemay E. P. Levinsky N. G. (2006). Using Probability vs. Nonprobability Sampling to Identify Hard-to-Access Participants for Health-Related Research: Costs and Contrasts. Journal of Aging and Health. 18(4):565-583. doi:10.1177/0898264306291420

Flick, U. (2018). *An introduction to qualitative research*. sage.

Garratt-Reed, D., Roberts, L. D., & Heritage, B. (2016). Grades, student satisfaction and retention in online and face-to-face introductory psychology units: A test of equivalency theory. *Frontiers in Psychology*, *7*, 673.

Gergen, K. J., & Davis, K. E. (Eds.). (2012). *The social construction of the person*. Springer Science & Business Media.

Goldie, J. G. S. (2016). Connectivism: A knowledge learning theory for the digital age?. *Medical teacher*, *38*(10), 1064-1069.

Gouda, J., Das, K. C., Goli, S., & Pou, L. M. A. (2013). Government versus private primary schools in India: An assessment of physical infrastructure, schooling costs and performance. *International Journal of Sociology and Social Policy*.

Gustavsson, M., Ytterberg, C., & Guidetti, S. (2020). Exploring future possibilities of using information and communication technology in multidisciplinary rehabilitation after stroke–a grounded theory study. *Scandinavian journal of occupational therapy*, *27*(3), 223-230.

Hannafin, M., Hill, J. R., Oliver, K., Glazer, E., & Sharma, P. (2003). Cognitive and learning factors in web-based distance learning environments. *Handbook of distance education*, 245-260.

Hansen, J. D., & Reich, J. (2015). Democratizing education? Examining access and usage patterns in massive open online courses. *Science*, *350*(6265), 1245-1248.

Haris, R. M., & Al-Maadeed, S. (2021). Covid -19 Lockdown-Challenges to Higher Education in Qatar. *2021 IEEE 11th IEEE Symposium on Computer Applications Industrial Electronics (ISCAIE)*, 267–273. https://doi.org/10.1109/ISCAIE51753.2021.9431774

He, Y. (2014). Universal design for learning in an online teacher education course: Enhancing learners' confidence to teach online. *MERLOT Journal of Online Learning and Teaching*, *10*(2), 283-298.

Horvitz, B. S., Beach, A. L., Anderson, M. L., & Xia, J. (2015). Examination of faculty self-efficacy related to online teaching. *Innovative Higher Education*, *40*(4), 305-316.

Kenrick, A. (2020). *Teacher perceptions of efficacy in the secondary virtual classroom: A phenomenological study* (Doctoral dissertation, City University of Seattle).

Kibuku, R. N., Ochieng, D. O., & Wausi, A. N. (2020). e-Learning Challenges Faced by Universities in Kenya: A Literature Review. *Electronic Journal of e-Learning*, *18*(2), pp150-161.

Kundu, A. (2018). Blended learning in Indian elementary education: Problems and prospects. *Journal of Online Learning Research*, *4*(2), 199-227.

Lapsley, R., Kulik, B., Moody, R., & Arbaugh, J. B. (2008). Is identical really identical? An investigation of equivalency theory and online learning. *Journal of Educators Online*, *5*(1), n1.

Laskaris, D., Kalogiannakis, M., & Heretakis, E. (2017). 'Interactive evaluation'of an e-learning course within the context of blended education. *International Journal of Technology Enhanced Learning*, *9*(4), 339-353.

Lawrence, J. E., & Tar, U. A. (2018). Factors that influence teachers' adoption and integration of ICT in teaching/learning process. *Educational Media International*, *55*(1), 79-105.

Lee, M. H., & Tsai, C. C. (2010). Exploring teachers' perceived self efficacy and technological pedagogical content knowledge with respect to educational use of the World Wide Web. *Instructional Science*, *38*(1), 1-21.

Ma, K., Chutiyami, M., Zhang, Y., & Nicoll, S. (2021). Online teaching self-efficacy during COVID-19: Changes, its associated factors and moderators. *Education and information technologies*, 1-23.

Mart, Ç.T. (2017). Student evaluations of teaching effectiveness in higher education. International *Journal of Academic Research in Business and Social Sciences, 7*(10), 57-61

Martin, F., Stamper, B., & Flowers, C. (2020). Examining Student Perception of Readiness for Online Learning: Importance and Confidence. *Online Learning*, *24*(2), 38-58.

Mehall, S. (2020). Purposeful Interpersonal Interaction in Online Learning: What Is It and How Is It Measured? *Online Learning*, *24*(1), 182-204.

Mirzajani, H., Mahmud, R., Ayub, A. F. M., & Wong, S. L. (2016). Teachers' acceptance of ICT and its integration in the classroom. *Quality Assurance in Education*.

MoE. (2020). *RESPONDING TO COVID-19: ONLINE CLASSES IN KOREA*. http://english.moe.go.kr/boardCnts/view.do?boardID=282&boardSeq=80869&lev=0&searchType=null&statusYN=C&page=1&s=english&m=0303&opType=N

Park, S. Y. (2009). An analysis of the technology acceptance model in understanding university students' behavioral intention to use e-learning. *Journal of Educational Technology & Society*, *12*(3), 150-162.

Perienen, A. (2020). Frameworks for ICT integration in mathematics education-A teacher's perspective. *Eurasia Journal of Mathematics, Science and Technology Education*, *16*(6), em1845.

Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education*, *16*(1), 1-26.

Qasim, A. M., Al-Askari, P. S. M., Massoud, H. K., & Ayoubi, R. M. (2021). Student university choice in Kurdistan-Iraq: what factors matter? *Journal of Further and Higher Education*, *45*(1), 120-136.

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigital Science and Education*, *2*(3), 923-945.

Rasheed, R. A., Kamsin, A., & Abdullah, N. A. (2020). Challenges in the online component of blended learning: A systematic review. *Computers & Education*, *144*, 103701. https://doi.org/10.1016/j.compedu.2019.103701

Rassul, T. H., & Wali, H. A. (2020). The Efl Learners'attitudes towards Using Moodle as an LMS for Learning English Language. *Journal of Language Studies*, *4*(1).

Relief Web. (2020). Food Security in Iraq Impact of COVID-19. Retrieved from https://reliefweb.int/sites/reliefweb.int/files/resources/Iraq%20Food%20Security%20Report%20August%202020%20-%20Arabic.pdf

Richter, S., & Idleman, L. (2017). Online teaching efficacy: A product of professional development and ongoing support. *International journal of nursing education scholarship*, *14*(1).

Sandars, J. (2021). Cost-effective e-learning in medical education. In *Cost effectiveness in medical education* (pp. 40-47). CRC Press.

Shabila, N. P., Alkhateeb, N. E., Dauod, A. S., & Al-Dabbagh, A. (2021). Exploring the perspectives of medical students of application on e-learning in medical education during the COVID-19 pandemic. *Work*, (Preprint), 1-12.

Shahmohammadi, A., & Bahmani, M. (2020). Investigating Factors Affecting on Dropout of Rural Girls Based on Grounded Theory Approach: Case of Kurdistan Province. *Research in Teaching*, *8*(3), 194-171.

Shahzad, K., Jianqiu, Z., Hashim, M., Nazam, M., & Wang, L. (2020). Impact of using information and communication technology and renewable energy on health expenditure: A case study from Pakistan. *Energy*, *204*, 117956.

Shearer, R. L., Aldemir, T., Hitchcock, J., Resig, J., Driver, J., & Kohler, M. (2020). What students want: A vision of a future online learning experience grounded in distance education theory. *American Journal of Distance Education*, *34*(1), 36-52.

Shehab, A., & Khalifa, M. (2021). Evaluation of the Current Challenges of Nursing Students about Online Nursing Education at Kurdistan Region in Iraq. *Kufa Journal for Nursing Sciences*, *11*(1), 1-11.

Simonson, M. (1999). Equivalency theory and distance education. *TechTrends*, *43*(5), 5-8.

Singh, V., & Thurman, A. (2019). How many ways can we define online learning? A systematic literature review of definitions of online learning (1988-2018). *American Journal of Distance Education*, *33*(4), 289-306.

Stewart, Anissa R.; Harlow, Danielle B. & DeBacco, Kim (2011). "Students' experiences of synchronous learning in distributed environments". *Distance Education*. **32** (3): 357–381

Strong, K., & Hutchins, H. M. (2009). Connectivism: A theory for learning in a world of growing complexity. *Impact: Journal of Applied Research in Workplace E-learning*, *1*(1), 53-67.

Taherdoost H. (2017). Determining Sample Size; How to Calculate Survey Sample Size. International Journal of Economics and Management Systems Vol. 2. Available at SSRN: https://ssrn.com/abstract=3224205

Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic analysis. *The SAGE handbook of qualitative research in psychology*, *2*, 17-37.

UNICEF. (May 2020). Bringing learning to home through education television. Retrieved from https://www.unicef.org/mena/stories/bringing-learning-home-through-education-television

Van Lancker, W., & Parolin, Z. (2020). COVID-19, school closures, and child poverty: a social crisis in the making. *The Lancet Public Health*, *5*(5), e243-e244.

Von Mises, L. (2012). *Liberalism*. Liberty Fund.

Watts, L. L., Todd, E. M., Mulhearn, T. J., Medeiros, K. E., Mumford, M. D., & Connelly, S. (2017). Qualitative evaluation methods in ethics education: A systematic review and analysis of best practices. *Accountability in Research*, *24*(4), 225-242.

Williams-Chase, J. (2020). School experiences of immigrant and refugee students from Kurdistan: Implications for school-based professionals.

World Bank. (2020). *How countries are using edtech (including online learning, radio, television, texting) to support access to remote learning during the COVID-19 pandemic* [Text/HTML]. World Bank. https://www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic

Yarkoni, T. (2019). The generalizability crisis. *Behavioral and Brain Sciences*, 1-37.

Yusuf, B. N., & Jihan, A. (2020). Are we prepared enough? A case study of challenges in online learning in a private higher learning institution during the Covid-19 outbreaks. *Advances in Social Sciences Research Journal*, *7*(5), 205-212.

Zalat, M. M., Hamed, M. S., & Bolbol, S. A. (2021). The experiences, challenges, and acceptance of e-learning as a tool for teaching during the COVID-19 pandemic among university medical staff. *PloS one*, *16*(3), e0248758.