

Quarantine and education: an assessment of Iranian formal education during the COVID-19 outbreak and school closures

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ABSTRACT

During the period of school closures in Iran, the authors were interested in the different types of platforms being used during quarantine associated with the COVID-19 pandemic, and the instructors and educators' point of view while using them in formal education. Student and teacher surveys assisted the authors to gain information about the work carried out during the school closures. The surveys were administered online and were designed to obtain information on the educational gateways, television channels, social media, and MOOCs, which were used during the school closures in Iran. Ninety-two K-12 instructors and five hundred and ninety-three K-12 students participated in the surveys. The results showed that the method most used was social media. The correlation between age and continuing teaching, gender, and continuing teaching during school closures by distance education methods, and age and using technologies, in the instructor surveys were evaluated to show any meaningful relationship. Students' surveys revealed that older students (in upper grades) use social media more for meeting educational purposes. Due to reasons such as culture and accessibility of technology, participants reported using social media for educational purposes making it more popular than other platforms. Further, the results indicate cause for concern in that every student cannot benefit from all types of Distance Learning.

Keywords: *Quarantine and education; Educational television; Distance learning; social media and education; COVID-19 and education; School closures*

INTRODUCTION

During the COVID-19 outbreak, numerous countries required their citizens to remain at home and ordered schools to cease in person operations. A key question asked during this time was: how would the large-scale closures of schools affect the future of education? Around the world, millions of students were prevented from attending schools in person, while teachers made rigorous attempts to provide online environments to reduce the loss of education and compensate for the lack of access to physical classrooms.

D-learning (Distance Learning) sources like social media, websites, and educational pamphlets - visual, audible, or text-based - were offered free along with other learning methods to learn from a distance, with the cooperation of national television channels, were helpful when students and teachers were unable to be physically present at schools. Moreover, the Distant Learning approach - involving social media, and educational television channels and MOOCs - were effective at delivering material because students and educators could continue to achieve their goals beyond the classroom. Specifically, the use of television and social media allowed for education to persist during school closures. This paper assessed empirical research and studies in all types of distance learning environments and examined what has been done in Iran's K-12 education sector during school closures.

D-learning, Online Learning, and E-learning

Distance Education is defined as direct teaching and learning that does not require being physically present in a class (Moore et al. 2011; Sadeghi 2019). For the most part, the majority of Distance Education occurs via web-based platforms and websites and involves instructors being in real-time communication with their students (Ryan 1997). Alternatively, Distance Learning involves transferring educational material onto a myriad of formats - particularly as DVDs, teleconferences, and printable material - and is viewable for self-learning at any time. (Meyer 2002; Sadeghi 2019). Around the end of the twentieth century, Distance Learning shifted focus onto the limitations of time and location (Volery and Lord 2000) and it did not evolve until some other terms emerged from it, especially E-learning and Online Learning. (Conrad 2006).

E-Learning and Online Learning first appeared when Internet access became more readily available. There is an ongoing disagreement regarding the definition of E-learning. Moore, Dickson-Deane, and Galyen (2011) gathered and presented literature about E-learning and showed opposing ideas about this word. This paper is written according to the definition that represents E-learning as educationally sound materials, video, and interactive TV that is acquired through web-based technologies: the internet and intranet (Clark 2002). In addition, E-Learning can be viewed as a type of Online Learning (Triacca et al. 2004).

There are contrasting definitions that distinguish Online Learning from E-Learning (Moore et al. 2011). The majority of researchers define Online Learning as the use of technology for sharing and spreading learning content (Benson 2002; Carliner 2004). However, opponents of this idea contend that Online Learning is an emerging form of Distance Learning that provides connectivity and flexibility, both of which contribute to an interactive environment (Ally 2004; Hiltz and Turoff 2005).

In addition, Online Learning benefits teachers and students with technologies that allow freedom of time, physical privacy, and self-paced learning (Bernard et al. 2014; Chigeza and Halbert 2014; Northey et al. 2015; Israel 2015; Potter 2015). This comfort and flexibility help individuals balance their work, school, and families (Kauffman 2015).

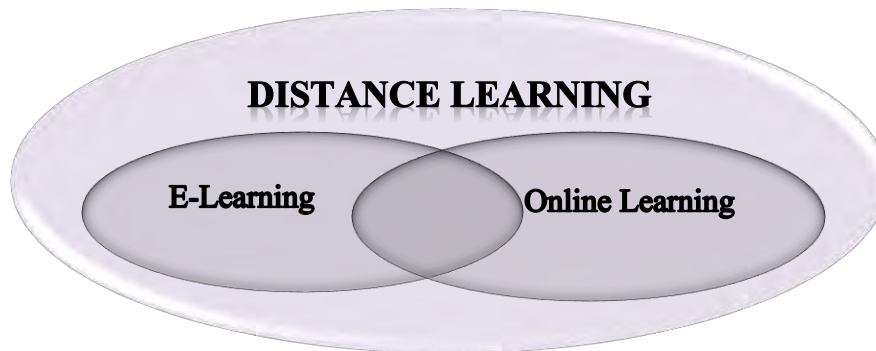


Figure1: D-Learning, E-Learning, and Online Learning

Distance Learning examples

The purpose of this paper is to review the literature on three types of learning methods: D-Learning, E-Learning, and Online Learning. These three methods were widely used during the COVID-19 pandemic period of quarantine in Iranian public schools. School closures lasted approximately 4 months and resulted in instructors pursuing their teaching via social media through photo sharing,

voice recordings, educational videos, and homework assignments. Additionally, television grew from being previously one educational channel to three channels, ultimately contributing to the increased hiring of K-12 teachers for daily lessons. In the end, television educational programs became widespread, however, it did not negatively influence social media's ability to educate. These two teaching methods complemented one another to progress teaching and learning in Iran during this time.

Educational publications were the third type of education material used. This includes educational videos and/or MOOCs alongside the book - here we focus on MOOCs - for students, which were available for free and for purchase. Specifically, students could utilize Iranian and international platforms that provided both MOOCs and educational videos to further enhance their education.

Social media

Social media is categorized into one of two groups - social networking and Web 2.0. First, social networking requires the use of web-based platforms and is a subcategory of social media (Boyd and Ellison 2007). Second, based on close boundaries, web 2.0, social media, and social networking terms can be used interchangeably (Fox and Bird 2015).

There is ongoing public interest towards social media and online networking for supplementing education (for example, Mazman and Usluel 2010; Mittal et al. 2013; Greenhow and Chapman 2020). Interestingly, there are noticeable trends between instructors and their preferred choice of social media. Age and gender, predominately, are two factors that influence whether or not an instructor uses social media. Both younger teachers and female teachers tend to use social media more often than seniors and males (NCES 2000; Lenhart et al. 2010). Another noticeable trend is the platform that is often used. Many studies have revealed that Facebook and Twitter are more popular for education (Pempek et al. 2009; Greenhow et al. 2020) and regional problems can make it difficult to access certain platforms and ultimately influence the preferred social media platform, for instance, Iranians have no direct access to some well-known social media such as Facebook and Twitter, thus, they do not tend to use them.

It may seem that social media can be used for sharing educational content while Hunter and Hall (2018) stated that social media can be considered for 3 purposes by instructors: developing teaching skills, searching among resources, and cooperation with other teachers. In addition, students can benefit from social media by simply being exposed to study material. Due to the recent pandemic, some scholars and experts have improved or discussed the values and insights of social media in K-12 education. Also, according to the statistics, noticeable increases in utilizing social media can be seen (Koeze and Propper 2020).

Television

Television is an effective Distance Learning tool because it is widely available and provides content in two ways - both visual and audio (Saglik and Ozturk 2001; Akhter 2011). Although it appears outdated, it is still a valid source (Saglik and Ozturk 2001). The other positive benefits of television include its ability to encourage and stimulate, support teaching, influence behaviour, and assist with delivery of other educational materials (Saglik and Ozturk 2001). Further, it compensates for lack of access to formal teaching for students who cannot communicate with their teachers directly (Chute, Thompson & Hancock 2009).

There are two main types of television programs that are used for education - interactive television and educational - both of which benefit educational programs on the international, national, or local television level (Akhter 2011). However, interactive television is not assessed in this study as it is not widely used in Iran. It is also worth mention that Turkey and Pakistan used their television channels as a Distance Learning method during the period of the COVID-19 lockdown (Zacharia

2020; ÖZER 2020). The most distinguishable feature of educational television is its fixed and stable schedules: thus, as a program continues, its effectiveness increases (Rao 2010). This paper's goal is to illustrate the effectiveness of national channels on the continuation of education during the COVID-19 school closures.

MOOCs

By 2018, the rapid growth in using MOOCs was evident as approximately 11 thousand courses were released as MOOCs (Shah 2018). Among various platforms that are host for MOOCs, the acronym MOOC is largely associated with the international sites of edX and Coursera. These two are large learning platforms that have and release MOOCs (Munoz-Merino et al. 2015). In addition, most MOOCs are generated for higher education or to improve general knowledge (Glance et al. 2013) and skills. Some researchers affirm that MOOCs have an evolutionary role in education (Pappano 2012) and can be recognized as belonging in the group of Online Learning. There is a misunderstanding between MOOC and educational videos; it is important to know that the interactive aspect of MOOCs is the key feature that differentiates it from educational videos. The acronym MOOC must be used with care because many teachers and educational websites release educational videos while mislabeling them as a MOOC.

Specifically, MOOCs which have been in our vocabulary more recently than educational videos, are evolving rapidly (Lakshminarayanan 2012; Bali 2014). Platforms that release MOOCs tend to keep them updated and even add translations for people who are not fluent in English (Soldak 2013). All of these changes and developments help students use MOOCs more effectively. Despite the benefits of using MOOCs, some platforms offer MOOCs when some prerequisites are provided (Koutsakas, Chorozidis, Karamatsouki and Karagiannidis 2020).

School closures and world experiences

The worldwide school closures due to COVID-19 is an unprecedented phenomenon and a great sum of government workers and scholars are carrying out activities based on trial and error. One debate during this time is the effectiveness of school closures for controlling the spread of the disease. One study, Viner et al. (2020) found no concrete information to prove that school closures controlled during a SARS outbreak when compared with the COVID-19 crisis and other types of social distancing, as decreases in just about 2-4% of death was noted. An issue with school closures is the increase in societal shortcomings like child labour and domestic violence. (UN Development Programme 2015).

When these issues are considered, technologies are not equally accessible for teaching from a distance (Armitage and Nellums 2020). The more frequently used digital communication platforms are more accessible and prevent loss of education due to school closure - specifically, it helps instructors and program developers to know which platforms are the most used and it assists in bringing more students together in a shorter time and increases educational equality.

Considering all problems and difficulties that school closures may cause for students, some believe it has triggered a change and/or improvement toward better achievements (Kinsey et al. 2020; Kaden 2020). Kaden, (2020), noted that current methods of teaching and learning can be known as a more effective and a hybrid one that will impact future education.

PURPOSE OF THE STUDY

Attempts were made to find the best Distance Learning methods for K-12 Iranian students during the coronavirus pandemic. New learning educational methods that teachers and students incorporated during this time were observed and the opinions of these two groups regarding the platforms they used were noted. A source for similar situations helps educators estimate which tool

or platform is most used for educating students and is easier to access than others in future times of crises, and even for distance learning in foreign countries which could benefit from studies like these on Iran because the learning methods that were evaluated, such as social media and MOOCs, are commonly used around the world.

This paper attempts to outline some advantages and disadvantages of several widespread examples of D-learning used in Iran during the COVID-19 quarantine. The K-12 educational system can benefit during school closures for air pollution, bad weather conditions and other types of crisis and situations in which background knowledge like this is needed. The results of this study will be beneficial, particularly, in countries with similar educational systems as Iran.

According to the data collected, educational managers, instructors and students had general points of view about the most used social media sources, the effectiveness of said sources, the efficiency of MOOCs, and the success of educational television as a big project that provided a solution to continue education for a great sum of students in about 4 months. In addition, the data included the preference for which source to use for students and teachers, and the use of three common tools in this crisis; the potential for use in normal situations as formal and/or non-formal education or as a supplementary and auxiliary method for students who are not in a good educational circumstance.

Instead of evaluating if teaching from distance was successful or not, we oriented our questions to understand relationships between the research participants and the situation in which they receive educational content or taught their students. In addition to the basic data, we obtained from the surveys we attempted to answer the following questions.

1. Is there any relationship between the gender of teachers and continuing teaching in the time of school closures?
2. Is there any relationship between the age of teachers and continuing teaching during school closures?
3. Is there any relationship between the age of teachers and using technology for teaching?
4. Is there any relationship between the age of students and their access to technology for educational use?

METHODOLOGY

Information was gathered to evaluate the educational methods that were being used to teach students during the period of quarantine. We initially sought relevant papers for a systematic review the use of distance education during the quarantine to have a general idea of how other countries experienced and was affected by the quarantine and what were their widely used methods for teaching by distance.

“Google scholar” was used as the main search engine to find papers and the following keywords, separately also combined, were employed to have a more concentrated framework: “MOOC+K-12”, “Social media+K-12”, “Distance learning+K-12”, “Effectiveness+MOOC+K-12”, “Effectiveness+Social media +K-12”, “Effectiveness+ Distance learning +K-12”, “And all above +education”, “Educational television”, Also, “quarantine and education” and SARS, COVID-19, coronavirus were searched to find any relevant research to educational experiences in recent years and during the current pandemic.

About 51 papers which included the above keywords were downloaded and viewed. 230 articles written between 2016-2020, and some other papers and research were also considered. Review of these articles identified points and features evaluated in some papers related to distance learning (Ruey 2010; Song et al. 2004; Eom et al. 2006; Park and Choi 2009; Bernard et al. 2014;

Westermann 2014; González-Gómez et al. 2016; Olsson et al. 2016). As part of our cross-sectional survey research, we provided two different surveys for K-12 teachers and students and released via an Iranian online survey website, then we shared two links into school channels and groups on social media.

The teacher and student surveys included some questions to gather general information on age to the ways of sharing educational content, then, Likert scale questions about each aspect of educational use of television, social media and MOOCs evolved from the literature, including interaction, educational design, time management, motivation, learning actively, flexibility, and the visual learning environment. The snowball sampling method was used to identify the teachers and students for participation in the study. In the first stage the teachers and students were reached via social media groups, then they were asked to share the surveys links among other teachers and students.

Analysis

IBM SPSS 25 and Microsoft Excel 2010 were used to sort data, process and create charts and tables. The Pearson test and Spearman correlation were utilized to assess the relationship between the variables included in our research. In addition, Independent Sample T-Test and Paired Sample Test were used to compare the results of pre- and post-tests.

RESULTS

Initially some questions on the online survey were asked using a Likert scale to solicit the opinions of the participants on the comparison of social media, television, and MOOCs.

This paper evaluated the frequency of factors and assessed their impact. Gender, age and the cooperation of teachers for continuing teaching during the quarantine were the initial topics on all the surveys. On the other hand, the student surveys focused on the frequency of the most popular pathway for learning educational content. We present the findings in two separate sections as teachers' and students' survey results below.

Teacher's survey results

Over a period of three months, teachers accessed the survey online and 92 teachers participated by sharing both their ideas and experiences of teaching during the period of school closure. At the start of the study, the focus was on the working experience, age, and gender of the teachers. Of the 92 teacher participants, 23 were male and 69 were female. When a noticeable number of educational programs for students of grades in K12 started via television and the students increasingly had access to MOOCs and educational videos, we assumed that there were teachers who stopped teaching, therefore, teachers were asked whether they continued teaching with the use of any tools. 67% of females and 21% of males declared they continued to teach during school closures and that social media was their preferred way to remain in contact with their students. Next, a comparison of the social media sources that were preferred by Iranian teachers were recorded and included a total of 12 international and Iranian social media sources.

The results are presented in the tables and figures below.

Table 1: Teacher's primary details

		Female	Male
Gender		69	23
Age	Minimum	20	23
	Maximum	58	52
Working experience	Minimum	1	1
	Maximum	32	32
		Mean	12.8
Continued teaching	Yes	67 (97.1%)	21 (91.3%)
	No	2 (2.9%)	2 (8.7%)

As shown in Figure 1 below, of the 12 social media sources, only 6 of them were used, specifically WhatsApp, Telegram and Shad (an Iranian educational medium) and were ranked in order as the top 3 widely used in Iran.

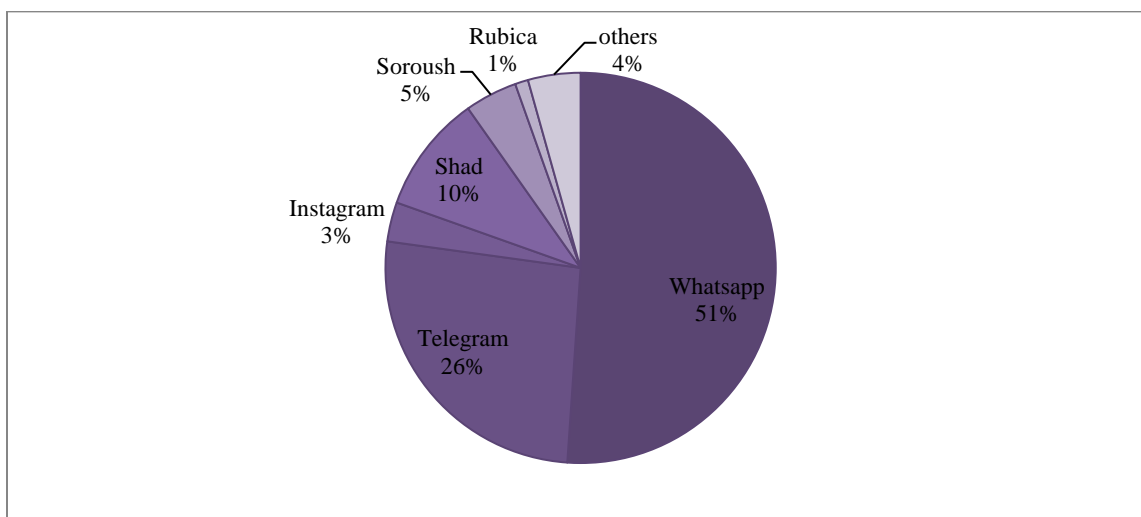


Figure 1: Percentage of each social media were used by instructors to teach during quarantine (Shad, Soroush, and Rubica are some Iranian social media)

We then shifted focus on investigating whether there were any significant relationships between gender and the continuation of teaching during the pandemic. The individuals in the study tended to believe that male teachers do not contribute enough time towards teaching in both online and in physical classrooms. The percentages in Table 1 showed more teachers in the male group did not continue teaching. We analyzed this data with a Pearson correlation test and the results did not show a significant relationship between being male and not teaching (Pearson correlation = 0.123; sig. = 0.242 > 0.05).

In addition, there were other social opinions regarding the sense of responsibility in the experienced teachers, whether teaching should be continued, and whether senior teachers could use technologies such as social media. We tested these three opinions with Spearman and Pearson Tests. In order to perform this test, we first categorized the working experiences into ranges. For the first item, the sig. (= 0.931) and correlation coefficient (= -0.009) revealed that there was no

significant relationship between an increase in working experience and the responsibility for the continuation of teaching.

In Table 2 below the responses to the items on the Likert scale represent the teacher's opinions on the impact of social media, television, and MOOCs on formal education during the period of quarantine.

Table2: Teachers' survey, Likert scale items

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Television provide interaction in educational programs	37%	17.4%	23.9%	9.8%	12%
2	Television educational programs are based on educational design.	12%	19.6%	25%	33.7%	9.8%
3	Television educational programs have a managed time.	18.5%	21.7%	19.6%	25%	15.2%
4	Television educational programs cause students' motivation.	22.8%	28.3%	27.2%	17.4%	4.3%
5	Television educational programs cause active learning.	29.3%	42.4%	16.3%	5.4%	6.5%
6	Television educational programs are based on a flexible schedule.	9.8%	23.9%	17.4%	30.4%	18.5%
7	Television educational programs provide a visual environment to learn more.	2.2%	5.4%	19.6%	38%	34.8%
8	MOOCs provide interaction in educational programs	31.5%	26.1%	19.6%	14.1%	8.7%
9	MOOCs are provided based on educational design.	3.3%	15.2%	27.2%	39.1%	15.2%
10	MOOCs produce by the consideration of time management.	8.7%	22.8%	18.5%	32.6%	17.4%
11	MOOCs cause students' motivation.	16.3%	23.9%	18.5%	27.2%	14.1%
12	MOOCs cause active learning.	16.3%	30.4%	18.5%	21.7%	13%
13	MOOCs prepare a flexible schedule for students.	12%	28.3%	18.5%	26.1%	15.2%
14	MOOCs provide a visual environment to learn more.	5.4%	14.1%	20.7%	44.6%	15.2%
15	Social media prepare an interactive environment.	6.5%	17.4%	12%	39.1%	25%
16	The educational content in social media is provided	4.3%	17.4%	23.9%	31.5%	22.8%

	based on educational design.					
17	Social media help to have time management for educational purposes.	5.4%	18.5%	20.7%	30.4%	25%
18	Social media educational content cause students' motivation.	6.5%	19.6%	25%	34.8%	14.1%
19	Using social media for educational purposes cause active learning.	6.5%	27.2%	15.2%	33.7%	17.4%
20	Social media provide a flexible schedule for education.	8.7%	21.7%	22.8%	29.3%	17.4%
21	Social media provide a visual environment to learn more.	5.4%	4.3%	19.6%	45.7%	25%

Cronbach's alpha=0.806

Students' survey results

593 students responded to the survey, of which 537 were girls while 56 were boys. Students from the 1st to 12th grade were represented among the survey respondents (see Table 3). Our main focus was to categorize students into groups according to the way they accessed educational content.

Table 3: Student respondents by Gender and Age

		Female	Male
Gender		537	56
Age	Minimum	7	7
	Maximum	19	12

As shown in Figure 2 below 81% of students stated that they used social media for learning. As teachers created study groups and education channels in applications such as WhatsApp and Telegram, students were able to interact with both their classmates and teachers, with lessons that were taught specifically to their grade level and class subject.

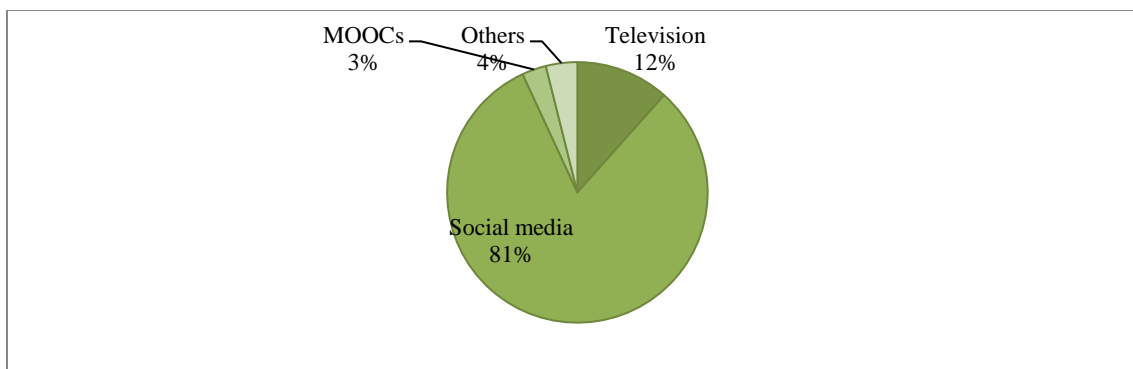


Figure 2: Tools that students used to learn during the quarantine.

Meanwhile, 21 questions were posed for students to answer regarding the effectiveness of television, MOOCs, and social media during the period of quarantine and school closures. The Likert Scale items were the same as those in the teachers' survey.

Table 4: Students' survey, Likert scale items

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Television provide interaction in educational programs	34.4%	9.8%	39.3%	7.3%	9.3%
2	Television educational programs are based on educational design.	19.6%	17%	39.7%	19.7%	14%
3	Television educational programs have a managed time.	36.4%	17%	20.7%	11.5%	14.3%
4	Television educational programs cause students' motivation.	25%	12.3%	38.4%	13.2%	11.1%
5	Television educational programs cause active learning.	31%	17.2%	26.8%	12%	13%
6	Television educational programs are based on a flexible schedule.	25%	15.9%	25.3%	16.5%	17.4%
7	Television educational programs provide a visual environment to learn more.	12.8%	8.8%	25.6%	28.2%	24.6%
8	MOOCs provide interaction in educational programs	27%	17.2%	27.8%	16%	12%
9	MOOCs are provided based on educational design.	14%	13.5%	29.8%	26.5%	16.2%
10	MOOCs produce by the consideration of time management.	20.6%	16.4%	24.3%	21.6%	17.2%
11	MOOCs cause students' motivation.	17.9%	12%	36.8%	17.9%	15.5%
12	MOOCs cause active learning.	20.6%	16.7%	30.7%	16.9%	15.2%
13	MOOCs prepare a flexible schedule for students.	24.8%	18.4%	21.4%	20.9%	14.5%
14	MOOCs provide a visual environment to learn more.	15.2%	12.8%	28.8%	20.9%	22.3%
15	Social media prepare an interactive environment.	15.2%	12.8%	17.9%	24.1%	30%

16	The educational content in social media is provided based on educational design.	12.6%	10.6%	22.9%	29.5%	24.3%
17	Social media help to have time management for educational purposes.	16.9%	14.5%	28.5%	21.2%	18.9%
18	Social media educational content cause students' motivation.	15.3%	12.1%	32.7%	19.1%	20.7%
19	Using social media for educational purposes cause active learning.	18.4%	12.1%	21.1%	23.9%	24.5%
20	Social media provide a flexible schedule for education.	18.5%	18%	20.2%	21.1%	22.1%
21	Social media provide a visual environment to learn more.	11.5%	8.5%	24.1%	27.8%	28%

Cronbach's alpha=0.928

A Spearman correlation test was performed to analyze if there was a significant relationship between the students' grades and the learning medium. The results yielded a weak significant correlation between students' grades and the use of these tools (correlation coefficient = 0.196; sig. = 0.00).

DISCUSSION

There are different types of educational systems and schools around the world. Despite the diversity of schools, several teachers have access to technology, including PCs and laptops, with educational platforms for teaching online like *Google Classroom* and *Adobe Connect*. In Iran and other countries around the world, there is a noticeable number of schools and students who lack access to online technology, which leaves students without any educational platforms to continue their learning. One way to compensate educational gaps caused by the lack of technological access is for students to have access to a cheaper alternative, such as a smartphone, so they can use social media for educational purposes. Specifically, social media allows students to continue their education due to its appeal and it functions as a bridge to connect those involved in education - teachers, the student, and parents of students.

The results of this study indicate the contribution of social media to the continuation of Distance Learning during the COVID-19 crisis. Although social media was widely used in Iran during this time, teachers appeared to be more satisfied with the performance of television educational programs and MOOCs than with social media. However, the results of the students' surveys showed a different outcome with regard to the use of social media and its impact on students' education. Prior to the crisis, there were not many teachers who were in contact with their students outside the classroom and those who were in contact did not use distance learning. Over time, as social media in Iran became easier to access during the quarantine, the Iranian Ministry of Education created the application *Shad* and applied it during the COVID-19 outbreak. Use will assist with continuation of learning during future crises. However, as it was already towards the end of the academic school year, several teachers had completed teaching activities in their courses and were unable to utilize this application.

To be clear, this research can assist educational managers, instructors, and educational researchers because it focused on the effectiveness of some Distance Learning tools in a real situation. This paper did not focus solely on the effectiveness of Distance Learning in the context of the COVID-19 pandemic and school closures in Iran, instead, this research is applicable to Distance Learning in any real crisis that causes formal education to be disrupted. As such, this study focused on the popular methods and educational tools that facilitated the continuation of formal education during the period of school closures. Meanwhile, these results are applicable to similar educational systems, and offers the view that use of educational social media can also be beneficial for other countries.

Nonetheless, we cannot expect every student to benefit from Distance Learning (Kauffman 2015). Visual learners tend to be more successful with specific types of Distance Learning such as Online Learning because the information is presented visually and that is their predominate way of gaining knowledge (Eom, Wen and Ashill 2006). Distance Learning without an instructor is not effective for all types of students. Specifically, different types of students do not benefit from Distance Learning in the same way - for example, students who are self-motivated and independent usually have better communication, interaction, and technology skills which can assist them in becoming successful with Distance educational tools (Dabbagh 2007).

To support the use of Distance Learning tools, researchers have suggested using multiple online educational activities (Cheng and Chau 2016; Fedynich, Bradley and Bradley 2015). The use of different kinds of tools, platforms, and social media assist with covering learning needs of various students due to everyone having different preferred styles of learning. The incorporation of a variety of materials tends to be more effective in the teaching and learning process.

Although this research results supported the use of Distance Learning indirectly, there are a noticeable number of studies which do not view Distance Learning as being effective for formal education. Some research, such as that of Adams, Randall & Traustadóttir (2015), showed that students who were taught using Blended Learning methods may become less successful than a group taught in physical classrooms, because of the decrease in classroom participation and the lack of sufficient interaction with materials.

We evaluated the beliefs of teachers and students during the school closures. We surveyed teachers with 3 different social beliefs and compared the grade of the student with their use of social media for educational purposes. Even when schools were open, it was felt that female teachers show more responsibility for their jobs. This study examined this belief, and the results did not show support for this belief. In addition, the results in this paper did not show any significant relationship between gender and work. Further, the results of the relationship between work experience and the continuation of teaching showed that teachers were more responsible, and they continued their job during school closures. Another aspect of the surveys focused on whether age affected the use of educational technologies and it was found that there was no significant correlation between the two variables. Perhaps age had an influence on the use of technology in the past when some technologies were not widely available, but now almost every teacher in Iran has a smartphone with social media accounts, even in areas with limited Internet access. Lastly, another part of the survey was targeted towards the students and showed that there was a relationship between grade and the use of social media. The results showed that students in higher grades tend to use educational social media more than those who were younger. This could have been due to the Iranian cultural beliefs that parents do not allow young children to create social media accounts as a way to protect them. In addition, these children would need to use their parent's cell phones to join the school groups and this can be another barrier for children. This study noted that although smartphones are widely used, low-income families usually did not have modern smartphones that can access social media, and this could reduce the number of students that joined the teacher's educational groups. Families with older children were usually in

households with older parents who had worked more years and had more money. When combined with the fact that some high school students have part-time jobs it is likely that it contributed to why older students tend to be in better financial conditions, leading to use of social media at higher rates than younger students.

It is important to note that while this study discussed the responses to school closures in the context of the social and cultural situation in Iran, the observations and results generated might be different in some developed countries or others which have different cultural and social situations and a different education system.

Limitations of the Study

In regard to distinguishing different types of instructional technologies, some K-12 teachers, as well as websites, tend not to easily differentiate between MOOCs and educational videos, which may have impacted the responses provided by students and teachers to the surveys.

Additionally, this study did not develop unique surveys for each grade level and instead grouped all grade levels together and provided them with the same questions, which may partially impact the results.

REFERENCES

- Adams, A.E., Randall, S. and Traustadóttir, T. 2015. "A tale of two sections: An experiment to compare the effectiveness of a hybrid versus a traditional lecture format in introductory microbiology". *CBE—Life Sciences Education*, vol. 14, no. 1, p.ar 6.
- Akhter, N. 2011. "Evaluation of Educational Television Programs for Distance Learning". *Turkish Online Journal of Educational Technology-TOJET*, vol. 10, no. 4, pp.188-194.
- Ally, M. 2004. "Foundations of educational theory for online learning". *Theory and practice of online learning*, vol. 2, pp.15-44.
- Armitage, R. and Nellums, L.B. 2020. "Considering inequalities in the school closure response to COVID-19". *The Lancet Global Health*, vol. 8, no. 5, p.e644.
- Bali, M. 2014. "MOOC pedagogy: Gleaning good practice from existing MOOCs". *Journal of Online Learning and Teaching*, vol. 10, no. 1, p.44.
- Benson, A.D. 2002. "Using online learning to meet workforce demand: A case study of stakeholder influence". *Quarterly review of distance education*, vol. 3, no. 4, pp.443-52.
- Bernard, R.M., Borokhovski, E., Schmid, R.F., Tamim, R.M. and Abrami, P.C. 2014. "A meta-analysis of blended learning and technology use in higher education: From the general to the applied". *Journal of Computing in Higher Education*, vol. 26. No. 1, pp.87-122.
- Boyd, D.M. and Ellison, N.B. 2007. "Social network sites: Definition, history, and scholarship". *Journal of computer-mediated Communication*, vol.13, no. 1, pp.210-230.
- Carliner, S. 2004. *An overview of online learning*. Human Resource Development.

- Cheng, G. and Chau, J. 2016. "Exploring the relationships between learning styles, online participation, learning achievement and course satisfaction: An empirical study of a blended learning course". *British Journal of Educational Technology*, vol. 47, no. 2, pp.257-278.
- Chigeza, P. and Halbert, K. 2014. "Navigating E-Learning and Blended Learning for Pre-Service Teachers: Redesigning for Engagement, Access and Efficiency". *Australian Journal of Teacher Education*, vol. 39, no. 11, p.n11.
- Chute, A., Thompson, M. & Hancock, B. 2009. *Handbook of Distance Learning*. New York: McGraw-Hill.
- Clark, R. 2002. "Six principles of effective e-Learning: What works and why". *The e-Learning Developer's Journal*, vol. 6, no. 2, pp.1-10.
- Conrad, D. 2006. "E-Learning and social change: An apparent contradiction". *Perspectives on higher education in the digital age*, pp.21-33.
- Dabbagh, N. 2007. "The online learner: Characteristics and pedagogical implications". *Contemporary Issues in Technology and Teacher Education*, vol.7, no. 3, pp.217-226.
- Eom, S.B., Wen, H.J. and Ashill, N. 2006. "The determinants of students' perceived learning outcomes and satisfaction in university online education: An empirical investigation". *Decision Sciences Journal of Innovative Education*, vol. 4, no. 2, pp. 215-235.
- Fedynich, L., Bradley, K.S. and Bradley, J. 2015. "Graduate Students' Perceptions of Online Learning". *Research in Higher Education Journal*, 27.
- Fox, A. and Bird, T. 2017. "The challenge to professionals of using social media: Teachers in England negotiating personal-professional identities". *Education and Information Technologies*, vol. 22, no. 2, pp.647-675.
- Glance, D.G., Forsey, M. and Riley, M. 2013. "The pedagogical foundations of massive open online courses". *First monday*, vol. 18, no. 5.
- González-Gómez, D., Jeong, J.S. and Rodríguez, D.A. 2016. "Performance and perception in the flipped learning model: an initial approach to evaluate the effectiveness of a new teaching methodology in a general science classroom". *Journal of Science Education and Technology*, vol. 25, no. 3, pp.450-459.
- Guynn, J. 2020, "Welcome to the first social media pandemic. Here are 8 ways you can stop the spread of coronavirus misinformation", USA Today, 19 March, available at: www.usatoday.com/story/tech/2020/03/19/coronavirus-covid-19-misinformation-social-media-facebook-youtube-instagram/2870277001/ (accessed 29 April 2020).
- Greenhow, C, Chapman, A. 2020. "Social distancing meet social media: digital tools for connecting students, teachers, and citizens in an emergency". *Information and learning science*, vol. 121, no. 5/6, pp. 341-352.
- Hiltz, S.R. and Turoff, M. 2005. "Education goes digital: The evolution of online learning and the revolution in higher education". *Communications of the ACM*, vol. 48, no. 10, pp.59-64.

- Hunter, L.J. and Hall, C.M. 2018. "A survey of K-12 teachers' utilization of social networks as a professional resource". *Education and Information Technologies*, vol. 23, no. 2, pp.633-658.
- Israel, M.J. 2015. "Effectiveness of integrating MOOCs in traditional classrooms for undergraduate students". *International Review of Research in Open and Distributed Learning*, vol. 16. No. 5, pp.102-118.
- Kaden, U. 2020. "COVID-19 School Closure-Related Changes to the Professional Life of a K–12 Teacher". *Education science*, vol. 10, pp. 165. doi:10.3390/educsci10060165
- Kauffman, H. 2015. "A review of predictive factors of student success in and satisfaction with online learning". *Research in Learning Technology*, 23.
- Kinsey, E. K., Hecht, A. A., Glagola Dunn, C., Levi, R., Read, M. A., Smith, S., Niesen, P., Seligman, H., K., Hager, E. R. "School Closures During COVID-19: Opportunities for Innovation in Meal Service". *AJPH*, vol. 110, pp. 1635-1643.
- Koeze, E. and Popper, N. 2020, "The virus changed the way we Internet", *The New York Times*, 7 April, available at: www.nytimes.com/interactive/2020/04/07/technology/coronavirus-internetuse.html (accessed 7 May 2020).
- Koutsakas, P., Chorozidis, G., Karamatsouki, A. and Karagiannidis, C. 2020. "Research Trends in K–12 MOOCs: A Review of the Published Literature". *International Review of Research in Open and Distributed Learning*, vol. 21, no. 3, pp.285–303. <https://doi.org/10.19173/irrodl.v21i3.4650>
- Lakshminarayanan, S. 2012. "Ruminating about MOOCs". *Journal of the NUS Teaching Academy*, vol. 2, no. 4, pp.223-227.
- Lenhart, A., Purcell, K., Smith, A. and Zickuhr, K. 2010. "Social media & mobile internet use among teens and young adults". *PewResearch.org*.
- Mazman, S.G. and Usluel, Y.K. 2010. "Modeling educational usage of Facebook". *Computers & Education*, vol. 55, no. 2, pp.444-453.
- Meyer, K.A. 2002. "Quality in Distance Education: Focus on On-Line Learning". *ASHE-ERIC Higher Education Report. Jossey-Bass Higher and Adult Education Series*. Jossey-Bass, 989 Market Street, San Francisco, CA 94103-1741.
- Mittal, S., Gupta, N., Dewan, P. and Kumaraguru, P. 2013. "The pin-bang theory: Discovering the Pinterest world". *arXiv preprint arXiv:1307.4952*.
- Moore, J.L., Dickson-Deane, C. and Galyen, K. 2011. "e-Learning, online learning, and distance learning environments: Are they the same?". *The Internet and Higher Education*, vol. 14, No. 2, pp.129-135.
- Muñoz-Merino, P.J., Ruipérez-Valiente, J.A., Alario-Hoyos, C., Pérez-Sanagustín, M. and Kloos, C.D. 2015. "Precise Effectiveness Strategy for analyzing the effectiveness of students with educational resources and activities in MOOCs". *Computers in Human Behavior*, vol. 47, pp.108-118.

- National Center for Education Statistics, U. S. Department of Education. 2000. Teacher use of computers and the Internet in public schools. (NCES Publication No. 2000–090). Retrieved from <http://nces.ed.gov/pubs2000/2000090.pdf>.
- Northey, G., Bucic, T., Chylinski, M. and Govind, R. 2015. "Increasing student engagement using asynchronous learning". *Journal of Marketing Education*, vol. 37, no. 3, pp.171-180.
- Olsson, M., Mozelius, P. and Collin, J. 2015. "Visualisation and Gamification of e-Learning and Programming Education". *Electronic journal of e-learning*, vol. 13, no. 6, pp.441-454.
- ÖZER, M. 2020. "Educational Policy Actions by the Ministry of National Education in the times of COVID-19". *Kastamonu Education Journal*, vol. 28, no. 3, pp.1124-1129.
- Pappano, L. 2012. "The Year of the MOOC". *The New York Times*, vol. 2, no. 12, p.2012.
- Park, J.H. and Choi, H.J. 2009. "Factors influencing adult learners' decision to drop out or persist in online learning". *Journal of Educational Technology & Society*, vol. 12, no. 4, pp.207-217.
- Pempek, T.A., Yermolayeva, Y.A. and Calvert, S.L. 2009. "College students' social networking experiences on Facebook". *Journal of applied developmental psychology*, vol. 30, no. 3, pp.227-238.doi:10.1016/j.appdev.2008.12.010
- Potter, J. 2015. "Applying a Hybrid Model: Can It Enhance Student Learning Outcomes?". *Journal of Instructional Pedagogies*, 17.
- Rao, V.K. 2010. *Media Education*. New Delhi:APH Publishing corporation.
- Ruey, S., 2010. A case study of constructivist instructional strategies for adult online learning. *British Journal of Educational Technology*, vol. 41, no. 5, pp.706-720.
- Ryan, M. 1997. "Education casts wide net". *Electronic Engineering Times*, 978, p.335.
- Sadeghi, M. 2019. "A shift from classroom to distance learning: Advantages and limitations". *International Journal of Research in English Education*, vol. 4, no. 1, pp.80-88.
- Saglik, A.P.D.M. and Ozturk, A.P.D.S. 2001. "Television as an Educational Technology: Using Television at Open Education Faculty", Anadolu University. *Turkish online journal of distance education*, vol. 2, no.1.
- Serth, S., Teusner, R., Renz, J. and Uflacker, M. 2019, October. "Evaluating Digital Worksheets with Interactive Programming Exercises for K-12 Education". In *2019 IEEE Frontiers in Education Conference (FIE)* (pp. 1-9). IEEE.
- Shah, D. (2018, December 11). By the numbers: MOOCs in 2018. Retrieved from <https://www.classcentral.com/report/mooc-stats-2018/>
- Soldak, K. 2013. "Online Education: No Longer Lost in Translation". *Forbes*. Available at: <http://forbes.com/sites/katyasoldak/2013/05/28/online-education-no-longer-lost-intranslation>.

- Song, L., et al. 2004. "Improving Online Learning: student perceptions of useful and challenging characteristics". *Internet and Higher Education*, vol. 7, no. 1, pp. 5970. doi: 10.1016/j.iheduc.2003.11.003.
- Triacca, L., Bolchini, D., Botturi, L. and Inversini, A. 2004. "Mile: Systematic usability evaluation for e-Learning web applications". In *EdMedia+ Innovate Learning* (pp. 4398-4405). Association for the Advancement of Computing in Education (AACE).
- UN Development Programme. UNDP Africa policy note: confronting the gender impact of Ebola virus disease in Guinea, Liberia, and Sierra Leone. 2015. https://reliefweb.int/sites/reliefweb.int/files/resources/RBA%20Policy%20Note%20Vol%202%20No%201%202015_Gender.pdf
- Van Lancker, W. and Parolin, Z. 2020. "COVID-19, school closures, and child poverty: a social crisis in the making". *The Lancet Public Health*, vol. 5, no. 5, pp. e243-e244.
- Viner, R.M., Russell, S.J., Croker, H., Packer, J., Ward, J., Stansfield, C., Mytton, O., Bonell, C. and Booy, R. 2020. "School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review". *The Lancet Child & Adolescent Health*.
- Volery, T. and Lord, D. 2000. "Critical success factors in online education". *International journal of educational management*.
- Westermann, E.B. 2014. "A half-flipped classroom or an alternative approach? Primary sources and blended learning". *Educational research quarterly*, vol. 38, no. 2, p.43.
- Yukselturk, E. and Bulut, S. 2007. "Predictors for student success in an online course". *Journal of Educational Technology & Society*, vol. 10, no. 2, pp.71-83.
- Zacharia, S. 2020. Pakistan: TeleSchool and Taleem Ghar (Educational TV at Home), Education continuity stories series, OECD Publishing, Paris.

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