

Teachers' perspectives on the impact of online education on students' learning

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Abstract

The recent, sudden school closures due to the Covid-19 pandemic forced school teachers to quickly transfer their face-to-face teaching to online teaching platforms and to support all of their students remotely, revolutionizing the concept of K-12 learning using digital online technology. Physically being present in a classroom environment, five days a week, may not be the only option to acquire formal school education, in the future, as was modelled by Maldivian schools during the pandemic, using a blended approach to learning, whenever each island community was not in full lockdown.

The purpose of this qualitative study was to identify the factors that contributed to a successful online learning environment and to identify teachers' perspectives about online education and its impact on secondary students' performance. Data for this study was collected by using semi-structured interviews with twelve teachers in a public secondary school in Male'. The interviews were conducted through an online platform due to the ongoing Covid-19 pandemic. This paper describes how these teachers created online learning environments and the strategies they used to support students' learning. The findings of this study demonstrated that some teachers had used self-regulated online learning themselves, to develop their competency for online teaching and to learn how to use educational technology effectively. However, individual teacher competencies did not lead to effective collaborative learning among teachers or to team teaching within the school. Many teachers did not conduct online collaborative learning among their students. The home digital environment and living conditions for many children need to improve for them to engage and to achieve through online learning. A recurring theme was the high cost of internet connectivity and unaffordability by parents and schools, preventing collaborative learning.

Keywords: online education; children's learning; teachers' practice; Covid-19 pandemic

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Introduction

Situated in the South Asian Region, the Maldives is a small country with 1196 coral islands. Despite the wide geographical dispersion of the islands, the use of digital technology in the educational sector of Maldives is limited. More specifically, most of the people who live in other islands, other than the capital city use digital technology for learning sparingly, due to slow internet speed, and exorbitant costs of accessing the internet (Adam, 2016). In Maldivian schools, teachers use digital technology mostly for administrative work such as in the preparation of student reports and to search for teaching resources (Hoque et al., 2012). However, often this is also difficult due to slow internet speed, lack of technical support available to teachers and due to lack of competent staff and equipment to repair and maintain broken or damaged computer systems (Riyaz et al., 2012).

One of the main targets of incorporating information technology in the field of education is to improve students' academic achievement (Nguyen, 2017). It is necessary to evaluate the effectiveness of online learning in secondary schools and the challenges the educators face when assessing students online. Often it is believed that online education is a means for improving the educational outcomes and providing access to all at a lower cost (Christensen & Horn, 2008).

This is an exploratory case study done to determine the perception of Maldivian secondary teachers towards the impact of online education on secondary students' learning. Schools in Maldives had been based only on traditional methods of learning, which require students to attend to school for classes every day. Due to the outbreak of Novel Corona Virus (COVID-19) and sudden school closures, teachers had to adapt fast to use online platforms for teaching their students. For most of the teachers, this was the very first time they would have used synchronised online teaching in their classrooms. As a developing country, with very few digital resources available, the teachers had to adapt to the new change in every possible way.

Unlike the public education sector of the Maldives, the private schools in Male' started synchronous online classes since the first day of school closure in March 2020, and their students were receiving formal education. These schools conducted interactive lessons and shared materials through platforms such as Google Meet, Zoom and Google Classroom. It took time for the Ministry of Education to negotiate with telecommunication companies in the Maldives to provide a free internet package for all of the students and teachers so that

all of the schools could switch to online teaching. Support was also provided by the United Nations International Children's Emergency Fund (UNICEF) to the Ministry of Education, to conduct Google for Education Training program for educators to facilitate online learning in Maldivian schools, during the pandemic (UNICEF, 2021).

Literature Review

This study utilized Walberg's (1982) educational productivity theory to analyse students' achievement. Furthermore, to identify contributing factors of a successful online educational environment, community of inquiry framework in online learning (Garrison, Anderson & Archer, 1999) and online collaborative learning theory (Harasim, 2012) was used.

Walberg's educational productivity theory stated that students' psychological attributes and the psychological environment around them impact the behavioural, cognitive and learning outcomes. This theory points out nine factors that influence educational outcomes of students. These nine factors are categorized into three groups. The first group of factors consists of aptitude variables that include ability and motivation of students. The second group of factors in the educational productivity theory are instructional practices that affect students' learning. The third group of factors includes the psychological-environmental factors, which include home and class or school environment, peer group and exposure to mass media (Buruinsma & Jansen, 2007; Mazana, Montero & Casmir, 2019).

The community of inquiry framework is a process model of learning in online and blended environments, in which the social construction of knowledge is made non-trivial by the separation of course participants in time and space (Swan, Chen & Sommers, 2020). This concept was used by the early pragmatists, and is defined as any group of individuals that have a commitment to address a shared problem, interest or issue through a method that is similar to a scientific investigation (Shields, 1999).

Online collaborative learning theory focuses on the accommodations of the internet to deliver educational environments that foster collaboration and knowledge building. Harasim (2012) described this theory as a new theory of learning that has a focus on collaborative learning, knowledge building and use of the internet as a source to redesign formal and informal education. Knowledge is constructed in three phases through discourse in a group, idea generating, idea organizing and intellectual convergence (Harasim, 2012). Picciano (2017)

stated that this theory has been derived from social constructivism as learners are encouraged to collaboratively solve problems through discussion in which the educator has the role of facilitating. He also stated that this type of learning is suitable for smaller instructional environments.

Online education can be defined as learning experienced in synchronous or asynchronous environments by using various devices with access to the internet. In these environments, the learners can be anywhere to learn and interact with the teacher and other students (Singh & Thurman, 2019). Furthermore, online learning can be defined as a tool that can make the teaching and learning process more innovative, learner-centred, and flexible (Dhawan, 2020).

Online Pedagogical approach

Student engagement and motivation

A vast array of studies has been conducted to study student motivation in traditional classroom settings, but very few are found in online learning research. There are several factors that affect learners' motivation in general, such as the characteristic of the learners and their prior knowledge about the content. Furthermore, the motivating factors that are unique to online education could be experience and confidence in using the digital technology, and previous online learning experiences (Lim & Kim, 2003).

Martin (2020) stated in his paper that one area of motivation that is particularly relevant to online education is self-regulation. A study conducted by Sahranavard, Miri and Salehiniya (2018) showed that students who have better cognitive self-regulation have better educational performance and they have a great motivation towards learning. Martin (2020) stated that in an online environment, students can easily be distracted, therefore, there needs to be high-quality instruction and content to keep the student engaged in learning. He also suggested that setting more frequent due dates for small tasks gives the opportunity for learners to receive more feedback from teachers, which will increase students' motivation towards learning.

Instructional Strategies

Schools are experiencing difficulties in transferring effective teaching strategies in the traditional classrooms to an online environment and the online mode of instruction is not as simple as replicating the atmosphere that is found in

traditional classrooms (Fisher, 2003). One of the main issues in an online learning environment and in a traditional classroom setting is that teachers tend to have their focus on delivering the contents of the subject, rather than giving the opportunity for students to apply the learned content to real-life situations (Laurillard, 1993).

Hennessy, Ruthven and Brindley (2005) stated that teachers need sufficient ICT skills to implement the technology, and they need to have the confidence to use it in a classroom setting. Furthermore, they also mentioned that teachers require a vision into the pedagogical role of ICT for them to use it expressively in their instructional practice. In order for students to succeed in the online learning environment, they must be conscious about their comfort level with ICT, and the level of motivation to take on a self-directed learning experience (Cereijo, 2006). A strong understanding of this will help students to better handle the challenges posed by the online learning environment, which includes adopting their own strategies for learning and developing their own study schedule (Cereijo, 2006). Inadequate computer literacy among learners may cause novice computer users to suffer from computer anxiety, which prevents them from concentrating on learning activities (Lee, 2000).

In the community of inquiry model, the social presence is considered as the aptitude of the members to project themselves socially and emotionally in an online classroom environment and their consistent ability to perceive other participants in that class as real (Swan & Shih, 2005). Social presence is important in order to maintain a high degree of online social interaction (Kreijns, et al., 2014). This is also associated with the learning outcomes and the degree of satisfaction of the group members (Garrison & Arbaugh, 2007). It also affects the participation and social interaction of the learners, which is essential for successful collaboration and knowledge construction (Kreijns, et al., 2014).

The teaching presence can be defined as the design, facilitation and direction of the cognitive and social processes for the purpose of recognizing personally meaningful and educationally worthwhile learning outcomes (Garrison, Anderson & Archer, 1999). In a virtual learning environment, the interaction can be insufficient to ensure effective online learning. These types of interactions need to be supplied with clearly defined parameters and be focused towards a specific direction, thus the teaching presence is required. Although interaction and discourse play a key role in higher-order learning, without proper guidance, learners will engage in 'serial monologues' (Pawan et al., 2003). The educators need to give specific instructions in their assignments for threaded

discussions, charging the learners to resolve a particular problem and pressing the individuals to integrate their ideas (Meyer, 2003).

Online collaborative activities have the potential to keep learners engaged; and to establish a sense of community in an online learning environment, allowing them to experience and practice virtual teamwork skills (Faja, 2013). In an online environment, educators cannot assume that each member of the group makes an equal contribution to a task that is assigned to the group (Wang, 2010). Hence, the teachers should give marks to the students depending on their individual contributions (Swan, Shen & Hiltz, 2006). Compared to face-to-face teams, collaboration in virtual teams may be more challenging (Faja, 2013).

Collaborative activities in an online classroom can take different forms. It can be a discussion among the whole class or small group activities within smaller groups in separate online rooms (Macdonald, 2003). Online collaborative learning theory emphasizes peer discourse as the key to learning. In this theory, learning is defined as intellectual convergence, which is accomplished through three progressive stages of group discourse: idea-generating, idea-organising and intellectual convergence (Harasim, 2012).

Researches have considered how online discussions can be planned for learners' success (Corfman & Beck, 2019). Gao, Zhang and Franklin (2013) stated that there are four ways that online educators plan asynchronous online discussions: constrained environments, visualised environments, anchored environments and combined environments. They stated that in a constrained environment, the educator gives students starters or frames; in visualised environments, educators provide the students with software or digital tools that allow the learners to turn their discussions into concept maps; in an anchored environment, teachers give learners texts to interpret and ask learners to turn in their annotated texts for discussions; and in a combined environment, educators instruct students to participate in two or more types of discussions.

Teachers' perceptions

For successful online teaching, the instructors of online education need to have a positive attitude towards the technology (Selim, 2005). The attitudes of teachers towards using online education tools are associated with the perceptions of the implementation process (Cunningham & Bradley, 2006). The study conducted by Crews (2015) revealed that teachers do believe in online

education, but some practise it while other teachers do not practise it. He stated that teachers need the training to overcome the challenges that prevent them from instructing students in an online learning environment.

Learning conditions

In Walberg's theory, the third group of factors involves the learning conditions or the environment. Fraser et al. (1987) stated that the variables for the third group include home environment, classroom or school environment, peer group and mass media. Online education takes place on a different platform compared to the traditional classroom environments. In well-maintained online learning environments, all of the learning environments are taken into account (Williams & Fardon, 2005).

The online learning environment also changes the nature of interaction between the educator and the students. In an online environment, the students are expected to take greater control of their learning approaches (Xu & Mahenthiran, 2016). In online mode of education, the educators need to develop the resources in a way that will match the learning needs of the students, if it does not do so; the materials are considered to be useless as it doesn't contribute to students' learning, same as in regular face-to-face teaching (Ofsted, 2009).

Socio-economic status

The participation of students in a class can be characterized by various factors, which can affect their performance. The socio-economic background variable consists of factors such as the family situation of the student, the living environment, lifestyle and prior education of the caregivers (Koole et al., 2018). Learners from higher socio-economic backgrounds often perform better than other students since they often have more available resources including adult support (Ali et al., 2013).

Dawan (2020) suggested that during the Covid-19 pandemic, digital inequity came into sharp focus, as not all educators or all students have the access to digital devices and to the internet or access to sufficient internet connectivity even when the devices were available. Furthermore, he stated that the unavailability of proper digital tools and lack of or slow internet connection can cause a lot of problems such as students losing opportunities for learning and losing interest in engaging in online learning. Oswal and Meloncon (2014)

mentioned that cultural restrictions are an area that online educators should be mindful of as educational technology continues to represent the dominant culture and thus can be irrelevant to the students who are not familiar with the dominant culture.

Inadequate internet access is the main concern in implementing blended learning (Jurado et al., 2010). If the educators in a school do not have the access to adequate technological resources and a fast internet connection, it will not be feasible to implement educational technologies (Johnson et al., 2016). Limited access from homes or slow internet connections in rural areas can lead to students falling behind in their academic performance (Hampton et al., 2019). Lynch (2017) stated that there are several different ways in which a lack of internet access can influence the academic performance of a student. The reason for this is because without proper internet access, students will not be able to interact with their teachers or their classmates or they will be not able to do more research or get online homework help (Lynch, 2017).

Methodology

In this qualitative research, we used an interpretivist approach as our focus was to identify Maldivian secondary teachers' perspectives on the impact of online education on students learning. Purposive sampling was used, and twelve secondary teachers who taught in Key Stage Three and Key Stage Four in one public school of Male' were selected for the study. The data for this research was acquired through semi-structured interviews using a Voice over I software called 'WhatsApp'. 'WhatsApp Calling' was used because it provides the opportunity to speak privately; and end-to-end messages and calls are end-to-end encrypted. The data was collected after teaching session hours. The audios of the interviews were recorded and transcribed for the process of data analysis.

Pilot testing of the interview questions and interview process was done by pilot interviewing three teachers from the same school who did not participate in the actual study. The questionnaire was revised and improved based on feedback from the teachers (Lancaster, Dodd & Williamson, 2004).

After transcribing the interviews, each participant was given a pseudonym. Next, a series of codes were given to the statements made by the participants. These codes were selected by referring to the literature review and by referring to factors that contribute to a successful online educational environment. Then the codes of all participants were colour coded and cross-checked. This led

to identification of subcategories which consisted of similar codes collected together. Finally, from these subcategories, themes were selected.

Results and Discussion

The purpose of this study was to find out teachers' perspectives on the impacts of online education on students' learning. The thematic analysis was focused on the two main components that contribute to a successful online learning environment: the online pedagogical approach and the learning conditions.

Online Pedagogical Approach

The teachers perceived that students were less motivated in participating in online classes in comparison to traditional classes.

"Most of the students don't engage, and don't want to engage in the class. When asked, they say they don't want online classes, and that it is boring." (Participant L)

This could be due to both teachers' and students' previous unfamiliarity with ICT and online learning experiences (Lim & Kim, 2003). Some of the participants stated that they were unable to provide effective feedback to students in the online learning environment and they also stated that they were not familiar with the online tools and approaches to provide feedback, thus this increased their workload.

"It consumes a lot of time: marking and giving feedback in online classes. It is more time consuming in online classes. It was like a 24/7 job when it came to online classes. The workload was increased in online classes." (Participant G)

One reason that the students' engagement in online classes was less could be due to the unfamiliarity by teachers in using online tools and to give on-time feedback to students. The teachers who were more familiar with online tools seemed to be able to engage students in learning and to provide timely feedback.

"I found that actually more tools were available to monitor their work and also to provide feedback when we use different online tools, that was one thing, there were tools available to give more personalized feedback

I found when we did online teaching.” (Participant D)

One area of motivation that is significant in online education is self-regulation (Martin, 2020). Similar to the study conducted by Sahranavard, Miri and Salehiniya (2018), the findings of this study also showed that students who have self-regulation skills have better academic performance. Furthermore, it was evident that, in the classes in which more frequent due dates for small tasks were given; the students’ engagement was more, as it gave the opportunity for learners to get more feedback from other learners, as mentioned by Martin (2020).

This study showed that most of the teachers in the particular school do not conduct online collaborative activities as they have less knowledge in online collaborative pedagogical approaches and some of them were unfamiliar with collaborative teaching online.

“Actually, for my subject I don’t give any group work, I don’t normally give any type of group work for my subject.” (Participant H)

Inconsistent with Faja (2013)’s idea, it is evident from this study that the students are more engaged with learning when they have online learning activities. However, some participants mentioned that learners found online group activities to be more challenging in comparison to face to face groups due to the difficulty in communication, thus these findings coincide with the findings of the study conducted by Koh and Hill (2009). Connecting to Harasim (2012)’s online collaborative learning theory, the teachers who had planned the activities well were able to follow the three progressive stages of group discourse: idea generating, idea organising and intellectual convergence.

“Collaborative learning in an online classroom can take the form of discussion among the whole class, or team activities between small groups, can include group projects like small group discussions, and brainstorming.” (Participant I)

For example, a language teacher mentioned that before directly going into writing work, the teacher planned an online collaborative activity in which students were provided with pictures and cues for them to think more about the topic and then they had to share the ideas with their peers. The ideas were organised in the form of graphic organisers and those were presented to the whole class later, thus this helped the students to learn or gain knowledge through online collaboration.

Most of the teachers in this study were not very familiar with ICT tools and online educational technologies. They did not have any prior skills or experiences of online teaching; thus, it was a huge challenge to conduct classes.

“I don’t think google training was much effective because we were actually given a small duration to complete it so we were at a rush, so we didn’t learn most of the things, I didn’t learn that much.” (Participant A)

Similar to the study conducted by Yang (2020), teachers’ perceptions revealed that all of the teachers expressed willingness to support online teaching.

“If we get more training and more lessons for the teachers, I think this will be much more beneficial. But for now, I don’t think this is very effective. But we need training, we were not given training and suddenly we started this, so that is why I think we teachers are also struggling to work like this. (Participant A)

Most of the teachers conveyed that the challenges they face are due to the sudden shift to online classes and they did not have any time for preparation or for training. Prior to this pandemic no online classes were conducted in secondary schools of Maldives, thus it was a new experience for students as well. They also didn’t have any experiences with ICT educational tools.

Inadequate computer literacy among learners was also a hindrance to learning and a source of computer anxiety by some students, which prevents them from concentrating on learning activities (Lee, 2000). Some teachers mentioned that they took separate classes, to teach students on how to use some of the tools. They also stated that, this was a challenge as this resulted in less instructional time in classes.

Many participants highlighted the fact that they spent a lot of time preparing materials for online classes. Moreover, it was evident that due to the fact that they were unfamiliar with various online educational tools, some of them failed to incorporate interactive activities in their teaching. Most of the time, teachers opted for using only presentation slides as a teaching aid as it was the one with which they were most familiar.

Learning Conditions

Online classes were started for the first time in Maldivian schools during the

Covid-19 pandemic and many of the students had to face financial issues due to their parents' losing jobs. Furthermore, some students migrated from the capital city to different islands temporarily as they were not able to pay rent and these students attended online classes from their islands. In accordance with Dawan (2020), the participants of this research also mentioned that it is important to have digital equity and the unavailability of suitable digital tools and no suitable internet connection can result in a lot of problems such as students losing opportunities for learning.

"When online classes there may be more than one child at home. For both the children, the parents have to provide the expensive data packages, because of that some students are sacrificing some of the subjects" (Participant J)

"Some students, at the end of the month, would not be joining the class, their parents will separately call me and tell that due to financial problems they can't take extra internet packages." (Participant A)

One main challenge the teachers had to face was issues with the internet. They mentioned that the ten gigabytes of the data that was provided to the teachers per month were insufficient for successful teaching. All of the teachers mentioned that they had to pay for extra data packages as the data provided for them didn't last till the end of the month. Only 5 gigabytes of data were provided for each child, often this data was only enough for about 30 hours of Google Classroom access only.

Participants stated that students did face a lot of difficulty as in some households there was more than one student studying online in the same room with different devices. In addition to this, not having a comfortable home environment influenced students' performance as they were hesitant to turn on their camera or microphone as they didn't want others to see their home living environment or for others to hear the noises in their background.

Conclusion

In this study, we looked into how online education impacted students' learning in one of the public schools of Male', the capital city of Maldives. The findings showed that online education had impacted students' learning in an undesirable manner, mostly due to the unpreparedness of teachers for online teaching; lack of adequate teaching resources available and familiar to teachers; as well as lack of exposure to online learning by children. Ineffective pedagogical

approaches and unfamiliarity of both students and teachers in online teaching and learning techniques caused disengagement of students and for teachers to spend huge amounts of time preparing resources, whilst paying from their own pockets to cover internet costs.

Integrating digital technology into our teaching is an important matter as we need to help our students to develop the appropriate digital literacies by modelling them in teaching. Developing teacher capacity to use digital technology to design effective learning environments; to engage students in self-regulated and collaborative learning, well-matched to their learning needs, goals and interests; and to assess and provide timely and effective feedback, can be achieved using similar techniques in MOOC teacher training courses. Moreover, developing a tailor-made online educational tool that is well-suited with the National Curriculum of the Maldives and a digital platform where Maldivian teachers can share online teaching materials will be helpful for teachers. This will increase the teachers' knowledge about ICT tools and teachers will have the opportunities to share their ideas across the country, regardless of the geographical barrier. Additionally, improving internet speed and eliminating the financial burden of internet data packages will help students, teachers and parents to create a collaborative online learning environment.

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