

## Teaching Early Years Children during COVID-19 through Digital Technologies

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### Abstract

COVID 19 has transformed the modes of formal schooling for early childhood education from physical face to face formations to virtual interactive arrangements. This sudden outbreak created uncertainty as well as unknown fear among the masses. This grave situation and unexpected obligatory closure of early childhood schools has deprived many children to attend schools. This qualitative study was planned to explore the effect of modern technologies in engaging early learners during this period. Twenty early childhood education teachers and head teachers of public and private schools of a metropolitan city of Pakistan were interviewed. The results revealed that the education authorities accepted this situation as a challenge for engaging young children at their homes through latest technologies and software applications. It helped children to come out from the psychological melancholy and panic of the pandemic during the lockdowns. Parents and teachers faced many problems for provision of digital equipments and access to internet. They also faced quandary of not being well versed with the use of latest gadgets, software and social media for the purpose of teaching early years' children. The practitioners are supposed to work for using such technologies on regular basis by adopting the blended learning approach at early childhood education level.

**Keywords:** *COVID 19, technological tools, social media, digital skills, early childhood education, blended learning.*

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## **Introduction**

Corona virus is an infectious disease that was appeared first in Wuhan in 2019. Later, it was oblique as “Covid-19” by World Health Organization that stands for Corona virus disease 2019. The outbreak of Covid-19 had adverse effects on educational activities throughout the world and caused long closure of schools. According to United Nations Educational, Scientific and Cultural Organization (UNESCO) over 100 countries applied school closure and impacting over half of the world’s students’ population (UNESCO, 2020).

COVID-19 has adverse effects on education system as well as on children, adults and on their learning. According to UNESCO, 1.6 billion students in education system are affected in 190 countries. There were no definite plans for opening the schools in the early outbreak of pandemic. The schools and other educational institutions were considered more vulnerable in spreading this virus due to their intensive interaction during school hours. Specially, children have become movers who pass on the virus to the members of society, such as their grandparents. Due to COVID-19 children have to face some serious consequences because their cognitive, emotional, social and psychological developmental patterns have been disturbed.

It is observed that children’s intellectual and psychological development has been affected through this pandemic. It is noticed by school teachers that their younger students are suffering at mental health and need counseling and psychotherapy in these affected situations of covid-19. In US, almost 13% of adolescents are receiving mental health and psychotherapies from their schools (Park, 2020)

Quarantine time has greater psychological effect on children’s lives, by staying only at home for a long time has changed their life routines, physical activities and their mental expeditions. Children are also at risk of psychological illness, who are quarantined in their institutions and cannot have meet with their parents. Children’s good health and safety depends on their nutritional and medical patterns but companionship with their parents also matter a lot. So, in this crucial quarantine time, detachment from parents may cause long lasting psychological consequences including post-traumatic stress disorders, anxiety, psychosis, depression and delinquency. Children whose parents and friends are isolated from them due to this forced distancing in this quarantine time are stressed, anxious and feel insecurity. Eventually those children are psychologically and socially at risk (Onojah, & Onojah, 2020)

Schools are not only educational center but also a second home for children, where they spend plenty of time with pleasure. Schools provide a number of opportunities for social interaction to children with peers and other school personals. Schools also help in purifying the child's habits of healthy food, body fitness and other physical and psychological aspects of their life. But due to covid-19 effect children are bounded in their homes and have no opportunity to exercise physical and psychological activities and suffering in health and mental issues (Soetan, Onojah, Alaka, & Aderogba, 2020). They have no choice except smart phone and TV screening that have adverse effect on their mental and physical health due to long school closure. Schools are the platform where child's food pattern, work routines, social interactions with peers and teachers, physical and psychological activates is considered very important, but due to forced stay at home they have had to exercise mental illness as well as psychological stress (Ochayi, Aderogba & Aneh, 2020).

In this COVID-19 break, children's learning is also affected because they do not have proper audio-visual systems of learning at home, and also has connectivity issue i.e. poor internet connection and non-availability of internet. A large number of students do not have proper residence, course related books, conducive environment for doing homework and learning, smart phones technologies and access for outdoor activities for their entertainment. The inadequacies of electric gadgets, internet connections and unfavorable learning conditions at home have adverse effect on child's learning. Students had to face inappropriate school-home interactions, difficulties in online education classes, and no educational financial assistance for poor needy students in this pandemic situation (Sen, Antara, & Sen, 2019).

The use of digital technologies are not effective for young children as it has negative impact on their social and emotional growth in later academic years (Edwards, Skouteris, Rutherford, & Cutter- Mackenzie, 2012; Zalaznick, 2019) and also not good for their health. While some researches focused their attention towards the use of digital technology as it help young children to understand the difficult concepts, and provide them opportunities for cooperative learning and problem solving activities (Clements & Sarama, 2003; Stephen & Plowman, 2002; Yelland, 2006). But during the wave of COVID-19, the use of digital technologies has become essential in order to maintain students' performance and learning. So this study was conducted to highlight the use of digital technology at early childhood level and provide information to parents and teachers about the effective use of digital technology for their young children.

During COVID-19 outbreak, online learning has seen at fast growth because of its flexible nature as we can study at any place and at any time. In this modern time of technology, our government agencies, education department and other educational personnel are trying to promote online learning and shifting traditional face-to-face learning to online learning. Online teaching helps students to learn in innovative ways though modern technologies (Dong, Cao & Li, 2020). There are fewer researches about the use of digital technology at early childhood level; this effort was to fill this gap by interviewing teachers who are teaching online at early childhood level during this COVID outbreak.

The COVID-19 outbreak affects education system negatively. In start of this infectious disease some countries and their educational systems refused and opposed to closure of schools. But later they admitted that closure of schools could reduce pressure of COVID-19 outbreak (Onyema, Eucheria, Obafemi, Sen, Atonye, Sharma & Alsayed, 2020). As a result of school closure, the social, psychological, and physical troubles have stimulated in younger students (UNESCO, 2020). The corona virus effect lasts longer if a reliable solution is not founded on time and it may continuously affected education system. The long school closures have undesirable affect on students, parents, educators and on other educational personnel. It also has negative effect on students' learning and academic performance (Holcombe, 2020).

COVID-19 outbreak has lessened the child's interest in learning and has reduced their academic performance. School closure can negatively affect the education system of schools and can reduce the quality of teaching and learning system. Especially for students with special needs who needs special concern and physical attention from teachers. Although teaching learning system has replaced with online teaching, but the importance of face-to-face interaction cannot be minimized. Most of the students have no access to technology and have difficulties in learning in school closure situations (Ghosh, Dubey, Chatterjee, & Dubey, 2020).

School closure sometime may be for good reason but now in these COVID-19 situations, school closure adversely has been affected. A number of problems came out during COVID-19 school closure i.e. the issues in online teaching and learning system, effective delivery of content, switching classes for online learning, managing technology at internet connections at home, lake of proper food nutrition and security provision by school, because many people rely on schools for their child's physical and psychological fitness (Husaj, 2020).

During COVID-19 situations, education system has been changed entirely and caused many difficulties for children and their parents as well as

for teachers. They had to experience limited digital skills, smart phone technologies, educational resources and poor availability of internet connections. Parents found difficulty in providing academic assistance to their children at home. They also felt troubling in checking their children if they are learning properly during school closure in these pandemic situations. Further parents are unable to provide their children with opportunities to exercise social interaction and physical activities (Holcombe, 2020).

Due to long school closure, hospitals are also under pressure to deal with those children's problems that are mostly attended by school health care centers. COVID-19 situations had alarming effect on children's social, physical and psychological aspects as they are forced to stay at home and have no opportunity to exercise physical and psychological activities at home. Due to this they tend to have mental illness, psychological pressures and other disorders that affected their health (Onyema, Eucheria, Obafemi, Sen, Atonye, Sharma & Alsayed, 2020).

According to UNESCO (2020) COVID-19 outbreak has some destructive effects on school closure and education system. School closure has been affected students' learning, their growth and developmental pattern because they have no opportunities at home. Many students whose parents rely on school meal and healthy nutrition are also at risk due to forced stay at home. Children also have to face learning difficulties due to less access to technology and poor internet connections. As schools provide a platform for social interactions and opportunities for social activities, in this outbreak child had to face social isolation, they are depriving of social interactions with friends and peers. Children found no chance for activities that are necessary for their creativity and development.

The outbreak of COVID-19 has turned education system in online learning system thus it highly demands the use of technology throughout world. Because only technology is the mean to transit education school to home. As the covid-19 outbreak is extended unexpectedly, the use of technology is demanding for schools, teachers and parents to facilitate children's learning at home. In these pandemic lockdown situations, only technology can play essential role for teacher-student interaction to prevent educational issues. With the help of technology teachers can provide academic and psychological assistance to children at home by maintaining social distancing (Onyema & Deborah, 2019).

However, in developing and remote areas students find difficulties to deal with technology as they have less technological skills and connectivity issue. So they are unable to connect with their school system and are at risk of poor academic, physical, social and psychological disadvantages. In rural and remote areas, both teachers and students find

it difficult the transition of online teaching and learning system as they have restrict access of technology and other facilities (Hopman, Allegranzi & Mehtar, 2020).

The lockdown of COVID-19 transformed the conventional education system with online learning system and transformed teaching methods. During this outbreak most of education is going through online system where students are in contact with their school systems. The successful delivery of education through online system is depending on uninterrupted internet connections, digital skills, easy access to technology and availability of internet connection. During COVID outbreak schools and other educational institutions are using multiple technological platforms for smooth delivery of education. These technological platforms are: Go to Meeting .com, Skype.com, Google Classroom, Youtube.com, Blackboard.com, udemy.com, easyclass.com, vedamo.com, Edmodo (edmodo.com), google hangouts (hangouts.google.com), funbrain.com (for kids), Zoom (zoom.us) and WhatsApp.com etc (Onyema, E. M., Eucheria, N. C., Obafemi, F. A., Sen, S., Atonye, F. G., Sharma, A., & Alsayed, A. O., 2020).

The Corona virus has turned learning system in online education and a large number of students are forced to get study and learn at home. But both parents and children have to face many challenges while getting learning at home. They have less digital skills, technologies, internet availability and connectivity issues during online classes. Further there is no conducive and comfortable environment for learning at home as many students live in joint family systems so find no proper learning environment. UNESCO is working for resolving these issues, and putting efforts to accommodate these challenges by providing free learning software, online learning facilities and resources to minimize effect of school closure in this corona virus lockdown (Kraemer, Yang, Gutierrez, Wu, Klein, Pigott, Brownstein, 2020).

### **Objectives of the Study**

Objectives of this study were to;

1. Examine the professional development of teachers and heads at early childhood education level during COVID-19 pandemic.
2. Investigate the use of online teaching apps at early childhood education level in COVID-19 outbreak.
3. Explore the use of online teaching learning tools at early childhood level during corona virus lockdown.
4. Study effectiveness of online teaching system at early childhood level during COVID-19 lockdown.
5. Investigate the students' satisfaction in online teaching and learning setup during COVID-19 situations.

This study may provide support about the use of digital technologies and learning apps effectively to teach young students. Parents and teachers may be benefited by avoiding unnecessary downloading of applications. Teachers may develop rules and protocols for online teaching and learning, they can communicate these rules with parents to avoid haphazard issues during online teaching. Further it may give support to teachers on preparing formative assessments, tests and exercises to monitor students' progress if they are working well during forced lockdown.

## **Method and Procedure**

In this COVID-19 situation, teachers, parents, students and all school personnel have to face many challenges with regard to online teaching-learning process. Current study was qualitative in nature that was conducted to explore the effect of newly adopted technology based techniques used for teaching young children during COVID-19. Early childhood education was planned for children of age less than 3 years and is mostly known as preschools, nursery schools, kindergartens, Montessori schools and preprimary schools. However, in quarantine situation these early childhood setups were also affected due to forced school closure. This study was conducted to investigate the effect of digital technologies, tool and apps that were contributing for teaching-learning process during COVID-19 outbreak. Further it was intended to examine students' related issues that they faced during school closure.

The population of this study consisted on the heads and teachers of early childhood education. The target population was selected from public and private sector schools of a metropolitan city of Pakistan. The sample for this study was selected through purposive sampling. Twenty respondents in which were five teachers and five heads from private schools and five teachers, five heads from public sector pre-schools. Were selected/included. The criteria for selection of participants were as follows;

- i. Early childhood education teachers having maximum five-year experience in relevant teaching field.
- ii. The heads of early childhood education having maximum 10-15 year experience in teaching field.
- iii. Having qualification in early childhood education.
- iv. Having certificates and attended workshops, seminars and other sessions related to early childhood education.
- v. Currently teaching at early childhood level since last five years.

- vi. Having maximum knowledge and awareness about COVID-19 diseases from different sources.

## Results

Data were collected through interviews and these interviews were recorded face-to-face, as well as telephonically. Some interviews were recorded via social media apps due to COVID-19 isolation and social distancing. Face to face interviews were continued up to 90 minutes. Interviews on telephone were of 60 minutes duration each. A structured interview protocol was used to record answers from participants. There were five main sections in interview protocol except participant's background information. In background information section, following information was collected about participants; age, gender, type of school, teaching experience, and transition to online classes.

Interview protocol comprised of open ended qualitative questions that were asked about participants' professional development, their use of online teaching apps, usage of online teaching/learning tools, effectiveness of online teaching system and student-related issues like; students' accessibility of online teaching tools, parents' ability to guide their children in online learning, gender differences in access to technology and students' socio-economic status in order to access technology.

After data collection through interviews, transcribed data were used to extract major themes. A thematic approach was used to transcribe and analyze data. Data were collected from early childhood teachers and heads of public and private schools, who were teaching online by using different digital learning tools during COVID-19. Themes of this study revolved around use of digital technology, online learning tools, professional development of ECE teachers and heads, and effectiveness of online learning system. After data transcription and coding, following themes were emerged.

- a. Readiness for using online apps.
- b. Use of online teaching tools
- c. Effectiveness of online teaching approaches
- d. Problems faced during online schooling

### *a. Readiness for Using Online Apps*

The focus of this study was on the online teaching system adopted by public and private schools and its effect on ECE students during COVID-19 outbreak. A number of different digital technologies and apps were reported by respondents that were mostly used for online teaching students

during COVID-19. The forced closure of schools due to pandemic highly demands online learning system. Only digital technologies facilitated education system at home in these situation. In all interviews, there were sub-themes related to readiness and professional development of teachers and heads in using online education system during pandemic. These sub themes included: *Provision of education during pandemic, devices used for online teaching, availability of teaching devices, familiarity with online teaching mode, nature of trainings received for online teaching.*

#### ***Public School Teachers and Heads (Respondent)***

Teachers and heads of public schools were active towards the use of digital technologies in teaching during lockdown. They were using online teaching system, online Google classrooms and live sessions in WhatsApp groups to engage children at home. Different technological devices i.e. Laptop, Desktops and smart phones were used for this purpose. Some respondents have these devices before pandemic but many respondents shown their unfamiliarity with the educational and instructional use of these technologies. They got help from internet, you-tube and other sources to educate themselves. They argued negatively about receiving proper trainings in order to teach online effectively from school administrations. Although a few respondents show positive response towards educational training provided them by their schools.

#### ***Private School Teachers and Heads (Respondent)***

Private school teachers and heads were more responsive towards broadcasting online education rather than public schools. Heads and teachers were using planned system for online teaching students at home. They were using home based assignments for pupils learning by assisting them through videos, animations, and pictures. They shared different interactive ways to keep students in touch with learning system. For this purpose, Google classroom and Google meet/zoom, Blended learning system (LMS) was used by them. They were using laptops, smart phones, desktops, portable cameras, and voice over system to share learning materials i.e. graphics, pictures, diagrams, learning videos and online learning games. Some respondents were very conscientious with online teaching system as they were providing their teaching services to some foreign students in some local and international schools. Teachers were provided proper trainings from school heads and administrations about how to plan online lessons, preparation of lesson activities for online teaching, how to engage and collaborate with students. Some private schools heads got proper trainings for online teaching methodologies from

foreign organizations. They were trained about different aspects of online learning system and providing sessions to their teachers for smooth running of education system during school closure. They have arranged many online and also physical sessions to help their other fellows in this regard. Training sessions focuses on both collective dealing as well as individual counseling of students. Their training focus was on how to teach students according to their need by adopting online methodologies of current era worldwide.

***b. Use of Online Teaching Tools***

Technology is playing essential role to spread out education especially now-a-days in situations of quarantine, and school outbreak. It is well organized way to maintain interaction between teacher and students. The uses of online teaching apps have become the up-to-the-minute reality for education system and its personnel. Through technology educational, psychological, remedial and spiritual assistance can be provided to students, parents and other educators in the time of lockdown and after it. This second major theme of study has further sub-themes including: *use of different online apps, availability of these apps, and application of these apps.*

***Public School Teachers and Heads (Respondent)***

Teachers and heads of public schools were using different apps for online teaching. At start of lockdown they were not taking online classes and they had no online teaching system to educate their children. But later as per government directions and decisions they were supposed to establish online system to teach students at home. They reported about the use of Skype, WhatsApp and Google meet to teach students at their home in case of school outbreak. Further they were to bear all expenses of online teaching by their self as schools were not providing any assistance regarding to online teaching system i.e. free educational online apps, internet connections and other sources for delivery of content. They have had no formal trainings from school administration about how to use these apps, so they worked out by their self to learn about related apps to educate children at home. However, some teachers received trainings to use these online learning apps by school administrators and heads.

***Private School Teachers and Heads (Respondent)***

The respondents from private schools were much responsive toward using digital apps for online teaching. They properly managed and planned online teaching system by their administration of schools. For this

purpose, they organized online sessions on Google classroom, Google meet, Zoom. All teaching and learning resources for online education system were provided to them by their school. Schools put up all expenses for online teaching system. Respondents received training sessions by school administration about the use of online teaching apps effectively. After some time of lockdown, they started online teaching and got engaged their students in online learning system. Audio-video recorded lesson are provided to students to get learn at home.

#### ***Use of Online Teaching-Learning Tool***

Some educational institutions were already taking assistance from technological apps and tools in order to boost up their learning system. In COVID-19 outbreak they were at advantage in using online teaching tools because they were familiar with digital learning system as it was in their daily practice before this outbreak. However, switching to online learning system was a big challenge for schools especially for those who have no digital learning experience in their education system, because schools haven't infrastructure and facilities for online learning system. This discussion was also divided in to sub-themes that are: *comfort level with using online teaching tools, difficulty in using online tools and supports for using online teaching tools.*

#### ***Public School Teachers and Heads (Respondent)***

Considered it difficult task to teach students through online means. Public school teachers and heads agreed on this view point that online teaching is not an easy task because it is hard to get attention of students in online work. The use of online app and tool is difficult when no trainings are available. Especially from perspective of teaching WhatsApp is not easy to get students' attention in learning. Internet and help from other people who were trained in technology use were found supportive for learning about online apps and tools.

#### ***Private School Teachers and Heads (Respondent)***

Found less difficulty in using online teaching tools and apps because they have training sessions about how to use online teaching tools and methodologies appropriately. Some respondents were more very much satisfied with these learning methodologies who have attended training sessions from foreign organizations. They found assistance from their peers and fellows with regard to use of online teaching and learning tools.

**c. Effectiveness of Online Teaching Approaches**

Technology plays fundamental role in education system for all ages and types of children without considering their status. Technology provides opportunities to get education in any situation at any place. During corona outbreak it has been proven beneficial to teach students at their home. In this outbreak, where students find difficulties in learning, technology helped them to continue their learning without affecting their grades and education. The theme of effectiveness of online teaching is *sub* divided in further sub-themes: *Strategies to make online teaching effective, students' attention issues during online classes, parental help in online instruction, subjects not be taught effectively through online teaching, achievements of learning goals, quality of education before and after COVID-19, effectiveness of assessment system during online system of education.*

**Public School Teachers and Heads (Respondent)**

Were very keen towards achieving effectiveness of online teaching and learning system. They reported different strategies that they practiced to ensure effectiveness of online learning system. These strategies were; use of animated movies, videos and other helping resources to grasp students' interest, Let students know about the technology using for online teaching, Help teachers to get familiarize with the technology, Had a backup plan for all assignments and assessments that rely on technology as if at some point technology failed, Sent a message to all students, to welcome them in online learning and reassure them, Respond to the community as a whole rather than directing all responses to individual participants outside of the community, Monitor participation and contact students individually if they are either not participating, Regularly check all resources, modules, and activities. Online content can move or change, which can lead to disengagement. Mostly teachers of public schools were using WhatsApp to send learning material to students.

Lack of motivation in students is the main problem experienced during online teaching. Students were not responsive and show less interest in taking class or lesson. **Clear, measurable goals were the best source of motivation.** Set regularly these goals and communicate with students and parents so that students have something to focus on. Instead of setting an open-ended task and leaving them to it – Clearly specify: the time students should spend on the task, a measurable or quantifiable outcome and a means of accountability.

It is reported by teachers and heads that parental help was much needed during the online sessions not for all the students but for younger

students because of space for learning. For example; many people have a specific area at home in which they live and do work, and it's difficult for them to create a comfortable space for such child. Students achieved their best work in a quiet, comfortable, and dedicated space that is strictly devoted to learning. This space should be a different set-up than where they normally play games or watch television. A schedule, for work and their child's work, was extremely important. Keeping them on the same or similar sleeping schedule that they have when they were going to school was a difficult task. They also reported parental involvement is necessary to intimate their children for learning, as young children do not show interest by their self. So parents help them how to use apps to download and upload their work and how to join classes on educational apps.

Heads of public schools responded that all subjects can be taught through technology if teachers are familiar with right use of technology. Regarding teaching different subject it is observed that all the subjects can be taught online if they are good in use of technology.

Quality of online teaching before and after COVID outbreak was positively reported by respondents, they argue that before COVID19 it was very easy to teach the students not only in educational learning environments but also students participated and learnt some disciplinary norms in their extra-curricular activities. For example; students were participating in physical games like Cricket, football and other outdoor activities, in that they learnt social skills, team work and mutual cooperation with friends and fellows. But now after the COVID-19 and as per the new schooling policies students cannot participate in any physical outdoor activities which are affecting their physical and psychological health as well as their social development.

Assessment of students are continued by different methods, teachers assign them different tasks, send them related pictures and videos of lesson and students are asked to do their work, take pictures of the work and upload related educational app used by their school. But it seems not as easy as students got late in submission of assessments and also sometimes it wasn't completed as it should be, like written formats.

#### ***Private School Teachers and Heads (Respondent)***

Were very vigilant about using different strategies to make online teaching effective. They were using different strategies including: Use of Camera, microphone questioning, cross-talk method, frequent and quick response to students, 3D-animations, white board videos, power point presentations, pictures, story videos of lesson, different colored markers and scale to

design lesson to make online teaching effective and for students' interest development.

Respondents argued that they faced a number of problems during online teaching session. Such as internet issue, sound effectiveness issue, electricity issue, image clarity problems. Many students have not equipment's and internet access. They have to repeat lesson again and again in order to make students attentive in online classroom. They have also found the lack of students' attention; sometimes student went offline during online class, start gossips with parents & siblings and do start other activities, play online games.

According to respondents parental help was required because many students were not serious in online classes. They often slept during class and do not pay attention in class. They start using mobile phones in other ways i.e. playing online games. They do not answer the questions asked by teacher. Students do not give positive feedback of class work. Some parents were really showing involvement towards online classes even received calls from parents mentioning that their internet was not properly working etc. For countries like Pakistan where speeds of internet in some areas posing issues, parental help was very necessary to maintain students learning and progress on track.

Private school teachers and heads agreed on this view point that all subjects can be taught effectively during online classes if teachers are well trained about using digital technology and online methodologies for teaching. Teachers do their best but student do not join classes regularly so online teaching method is not much effective as interactive teaching classroom. Their responses about goal achievement is based on this view point that goal achievement is not easy during online teaching as only some students are able to join class due to multiple reasons, lack of connectivity, poor availability of internet connection, be deficient in use of technology, do not have laptop/ smart phones/ desktop. Sometimes teachers also have to face same difficulties and do not have training sessions for effective online teaching system. However, they have learnt many new techniques and strategies for online sessions during pandemic lockdown that are helpful for educational goal achievement.

They argued that quality of education before COVID-19 was better than the education after COVID-19 because all students were not involved in online classes. Their interaction and involvement in class was very low. They don't join classes on regular basis. Some teachers and students from remote areas were unable to connect in online system due to no access of internet and digital devices. They agreed that physical interactive classes are much better because physically interaction can be made with students

and especially teaching and learning can be in a very responsive way. They found that in online classes some students could not respond well because online classes were totally new concept for them. So face to face teaching and learning system is far better than online teaching.

Respondents from private schools rely on daily basis assessment of students' performance during online teaching. They try to assess students on daily basis by taking the follow up of the previous lesson on frequently. Students are required to give response in chat room on educational app used by school and upload assignment and daily work pictures as well. Students are assigned different projects and creative work in order to boost up their learning during school outbreak.

They found students' assessment seems quite fruitful and helps them in understanding and learning their topics. Maximum students perform well but few students either submitted their assignment late or even after a month but overall student were little bit satisfied with the classes and learning they got from online classes.

#### ***d. Problems Faced During Online Schooling***

During COVID outbreak students were forced to stay at home and bounded to get education online. Online learning at home was a quite new phenomenon for students. Parents and students didn't have easy access to technology. Their socio-economic status (SES) also had diverse effect on their learning; as students with low SES didn't have facilities to learn online, poor internet connections and device and laptop etc. Parents also found difficulty in providing assistance to their children as they also don't have awareness about using technology. There were a number of other factors that affect students' learning i.e. poor digital skills, electricity supply shortage, lack of internet facility, lack of digital devices etc.

#### ***Public School Teachers and Heads (Respondent)***

Agreed with the availability issue of internet facilities. School authorities have shared Skype IDs and WhatsApp groups with students but all students didn't have access to technical tools and apps. Students and their parents find it difficult to operate these apps and tools. Some heads and teachers reported that parental ability to support their children in learning was very effective, like providing space for learning, allowing them to interact with friends via video chats, did not let children treat this as a vacation, remember to schedule time for studies and fun. Public school respondents never noticed any gender difference in order to access technology for online learning. But they argued that boys are more active than girls in adoption of technology. Socio-economic status (SES)

possesses some differences with respect to availability of digital technology. Children with high SES were being addicted to the smart technology as they do not want play some physical games rather than video gaming and internet surfing. Students with low SES find it difficult to access technology and were not able to attend online classes regularly. Mostly students who have easy access to technology show less attention and lazy attitude towards online classes as they focus their attention on online games and on other apps etc.

#### ***Private School Teachers and Heads (Respondent)***

Positively agreed on this view point that students have access to technology but not all students have technological tools. Mostly students did have Mobile phones, laptops, Desktop, internet access, head phones to connect with online classes. With respect to parental involvement respondents reported that parents show their positive involvement in their child's online learning. But they were not skilled in technology uses and find difficulties in order to provide assistance to their children. Their support was not satisfactory according to private school respondents. Private school respondents were also not found any gender difference in actual use of online learning tools. Further they did not find any socio-economic difference with regard to online teaching and in usage of technological tools.

### **Discussion**

The main purpose of this study was to study the effect of modern technologies on students of early childhood education during pandemic and school lockdown. Different difficulties that affect student-teacher interaction, access to technology, use of digital technology, use of online learning tools, professional development of ECE teachers and heads, effectiveness of online learning system during school outbreak were explored. UNESCO is working for resolving these issues, and putting efforts to accommodate these challenges by providing free learning software and other learning facilities and resources to minimize effect of school closure in this corona virus lockdown (Hopman, Allegranzi, & Mehtar, 2020).

Findings of this study revealed that online Google classrooms and live sessions in Whatsapp groups, and Google meet/zoom, Blended learning system (LMS) are used in online teaching system results are aligned with previous study that a number of technologies are used to facilitate education system during this outbreak i.e. Google classroom, skype, YouTube, Go to meeting, Blackboard, WhatsApp, and Zoom (Onyema,

Eucheria, Obafemi, Sen, Atonye, Sharma, & Alsayed, 2020). Different technological devices i.e. Laptop, desktop and smart phones, portable cameras, and voice over system to share learning materials i.e. graphics, pictures, diagrams, learning videos and online learning games etc. are used for transmitting knowledge in online sessions. The results are aligned with previous research that in these pandemic lockdown situations, only technology can play essential role for teacher-student interaction to prevent health issues. With the help of technology teachers can provide academic and psychological assistance to children at home by maintaining social distancing (Onyema & Deborah, 2019).

But this study found some negative effects of online teaching system on ECE. Some teachers did not find proper trainings in order to teach online effectively from school administrations. Results are aligned with previous research teachers have to bear all expenses of online teaching by their self as schools are not providing any assistance i.e. free educational online apps, internet connections and other sources for delivery of content. Lack of students' motivation and interest is main issue identified in online teaching process. The COVID-19 and as per the new schooling policies students cannot participate in any physical outdoor activities which are affecting their physical and psychological health as well as their social development. The result are aligned with previous study that most of the students have no access to technology and have difficulties in learning in school closure situations (Ghosh, Dubey, Chatterjee & Dubey, 2020).

This study found a number of problems during online teaching session, such as internet issue, electricity issue, students have not equipment's and internet access, lack of students' attention, less deficient in use of technology; do not have laptop/ smart phones, sometimes student went offline during online class. A number of problems came out during COVID-19 school closure i.e. the issues in online teaching and learning system, effective delivery of content, switching classes for online learning, Onojah, & Onojah, 2020) managing technology at internet connections at home (Sen, Antara, & Sen, 2019).

The use of technology has become an indispensable part of education in this 21<sup>st</sup> century. Technology has rapidly changing our traditional system of education in to digital system of education. Technology has moved face to face teaching methodologies into technological methods of teaching especially during COVID-19 outbreak. This study concluded the effect of digital technology on children's education at ECE level during COVID-19 outbreak and school closure. It is found that a number of technologies can be used effectively to transmit education to children at

their home. However, some negative effects or problems are also found in this study such as internet access issue, electricity issue, lack of technological equipment's (laptop/ smart phones) lack of students' attention, less skills for use of technology that leads towards inefficient education system at ECE level and create difficulties to teacher, parent and students in their teaching and learning process.

In COVID-19 situation, when all education systems has been affected adversely, there is need to establish more organized ways and platforms to engage students. The use of technological tools may be improved for teachers, parents and students in order to enhance student's learning. This study proposed that all school administrators, educators and policymakers need to develop more interactive system of education to facilitate learning at early childhood level where COVID-19 has closed social doors for children, but still there is opportunity of learning activities are remaining. Parents, teachers and children may be made more familiar with use of technology and needed learning apps so that they can boost up their learning during this pandemic outbreak.

Teachers and heads of early childhood education may decide appropriate technology for smooth running of online teaching-learning system. Internet connectivity may be improved for delivery of instructions. Teachers may plan audio-video lessons and can record these lessons for YouTube and other social media platforms. Interaction among teachers, parents and students may be improved by using appropriate technological tools and apps. It may help them to select appropriate teaching methodologies, learning tools, and digital applications according to requirement of students' interest, need and status of school closure and home based quarantines.

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