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(Student) teacher views: Impact of technology on teaching and learning during Covid-19 in Samoa

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Faamatalaga/Abstract

O le tali atu a Samoa i le Koviti-19 sa faigata ona o tagata ma meafaaleitino e pei o tekonolosi ma auala sa faaogaina mo le a'oa'o atu ma le a'oa'oina aua e le'i fa'ataitaia, pe na mautu se fa'aaogaina muamua e o'o mai i le taimi nei. O le Koviti-19, sa fa'amalosia e le malo o Samoa le puipuga o tagata i feoaiga vava mamao faapea ma le tapunia o nofoaga mo le saogalemu o tagata uma. Sa faapea fo'i ona suia le a'oa'o atu ma le a'oa'oina o tama ma teine aoga faapea ma faiaoga. Ua avea ma faalavelave le tapunia o aoga, galuega ma nofoaga i le fa'agaoioiga o galuega, ma fa'alapotopotoga. O le utiuti o alagaoa e pei o mea faitino na a'afia tele ai le a'oa'o atu ma le a'oa'oina i le tapunia o aoga. O le tali atu i le Koviti-19 sa unaia ai faiaoga ia fa'aleleia le malamalama i le fa'aaogaina o tekonolosi mo aoga. O le Matagaluega o Aoga, Ta'aloga ma Aganu'u (MATA) sa galulue fa'avavevave e faatino a'oa'oga e fa'aaoga ai upega tafa'ilagi e tali ai i le Koviti-19 ma aiaiga fa'ale tulafono a le malo o Samoa i le tapunia o le atunu'u. O le fa'amasaniga o faiaoga, tama ma teine aoga i a'oa'oga e lagolago ai le fa'aaogaina o upega tafa'ilagi, ma tomai fa'apitoa mo komipiuta sa avea ma fa'amuumua i tapenaga aua le fa'aleleia o aoga i totonu o Samoa. O fanau mai aiga e leai ni alagaoa e pei o komipiuta ma upega tafailagi o i latou nei sa tuga lo latou afaina. Sa fa'ailoa i tagata uma ia fa'atauinaina le fa'atinoga o vaega tau le soifua maloloina ia malu puipua mai le faamai o le Koviti-19, ae maise aua ne'i iai ni afaina tuga o a'oao'ga mo le fanau. O faiaoga o lo'o i totonu o aoga ua toe foi mai e a'ooga i le faailoga mauuluga o le tusi pasi tau a'oa'oga mo le tulaga lua, ma o loo a'oa'oina i totonu o le Saofaiga o A'oa'oga i le Univesite Aoao o Samoa, ma o i latou ia sa auai i leni suesuega.

Samoa's educational response to Covid-19 was impeded by human and physical obstacles largely because the new educational technologies and strategies that came into effect to support teaching and learning had not been trialled nor implemented well to date. During Covid-19, the Samoan government emphasised the importance of social distancing and lockdown as health safety measures necessary for the welfare of all, but these changed learning and teaching for students and teachers and impacted daily organisation and operations for these people, and schools. Samoa's limited physical and human resources affected schools' lockdown and teaching and learning. Responses to Covid-19 called for teachers' improved understanding of educational technology and its utilisation. The Ministry of Education, Sports, and Culture (MESC) acted immediately to activate online learning in response to Covid-19 and the government's lock-down policy. Familiarising teachers and students with online



support and acquiring appropriate computer skills were Samoa's immediate educational goals. Nevertheless, the children of families without access to resources like computers and the Internet were the most affected. It is acknowledged that for citizens to survive Covid-19 it was vital to adopt appropriate health safety measures, although it is also important to ensure that no student's educational progress is negatively impacted. Teacher upgraders studying for the Bachelor of Education primary teaching in the Faculty of Education at the National University of Samoa (NUS) were the participants.

Keywords

Covid-19; technology; on-line teaching and learning; computer; internet; education

Introduction

Internationally, distance learning has existed since the 20th century for correspondence courses and grew into television education during the early 20th century and into online learning on the internet in the mid-1990s (Perry & Pilati, 2011). Growing demand and acceptance of students into various institutions across the globe made online learning an acceptable alternative mode of learning, enabling education to reach even the most remote locations. In technologically advanced countries, all parties concerned with the delivery of education, namely institutions, teachers and parents collaborated with one another in the provision of digital resources for learning (Gilbert, 2015). Online learning benefitted both developed and developing nations, with the potential to improve education provision in less developed nations during the Covid-19 pandemic. However, many developing nations rely heavily on aid from donor nations and world agencies for educational infrastructure.

From late 2019 to early 2020, nations across the globe had to deal with the outbreak of Covid-19 instigating a lot of changes around the world. Social distancing was enforced in many countries to prevent the spread of the virus. Travelling between countries was minimised with border controls and schools were closed for periods of time, varying from country to country. Covid-19 had significantly disrupted every aspect of human life, including education (Dawadi et al., 2020). It was recorded that over one and a half billion students in approximately 188 countries around the world were affected by the closure of schools and universities as preventative measures against the spread of Covid-19 (UNESCO, 2020). To ensure students' learning continued through these tumultuous times, education providers around the world leaned more towards platforms such as Moodle (a learning management system), Zoom (video conferencing), email, and Facebook (social media). Additionally, implementing strategies to safeguard and maintain the quality of education provided through technology was emphasised. Technologically advanced countries such as China, the United States, the United Kingdom, Australia, India, and Germany (Dawadi et al., 2020) quickly adopted or enhanced online platforms being used in education settings. The Chinese Government, for instance, invested immensely, providing flexible, learning initiatives during the Covid-19 outbreak to over 270 million students from their homes (Huang et al., 2020) as well as adapting flexible teaching methodologies to facilitate learning. That is in conjunction with the development of student skills, like initiative, self-belief, time management, and self-improvement. With technology being a facilitator of educational change, it is of utmost importance that students become movers of their own learning and destiny.

In this article we focused on the ways in which Covid-19 has shaped teaching and learning in the Pacific nation of Samoa in the face of school closure. Although the Ministry of Education, Sports, and Culture (MESC) acted urgently to provide the necessary education and technology tools and resources available to activate online learning, Covid-19 brought to the fore the need for teachers and students to understand and exploit educational technology for teaching and learning. This research investigated the complexities and tensions of Covid-19 and the effect on Samoan people, their education, and social and

cultural experiences. This investigation of teacher upgraders in the Bachelor of Education in primary teaching denoted their experiences during lockdown and their perceptions of its effects on the education system.

Context: Effects of Covid-19 on Samoa's education system

Prior to the Covid-19 pandemic, several initiatives were offered to benefit teachers and students in government schools: the establishment of the Samoa SchoolNet and the Community Access Project by the Samoan Government in the 1990s became particularly relevant to the Covid-19 situation. It was set up specifically for the achievement of more equitable and effective Information Communication Technologies (ICT) learning and promotion of online learning. The Samoa SchoolNet and the Community Access Project have not only improved ICT learning but added other platforms to facilitate and reinforce online learning for students (Ah Tong, 2020). Thus, there were existing opportunities for some Samoan children to progress in education during the pandemic through e-learning. Furthermore, the Samoa Information Technology Association (SITA) offered aid to Avele College, a government school, with e-learning platforms (Government of Samoa, 2020). This has given Avele College students in the district of Vaimauga the opportunity to learn from home while under lockdown during Covid-19 (Tamaalii, 2020).

Although every system in the country was affected by the Covid-19 pandemic, we contend that Samoa's education system was vastly impacted, with all parties involved facing countless difficulties and challenges during school closure for six weeks (March 18–May 6, 2020). Online learning was introduced to Samoa in the 1980s but not to a wide extent, due to poor network access and telecommunication services, especially for Savaii. The importance of having an “accessible, personalised and cost effective” (Dhull & Arora, 2017, p. 32) online learning system had been recognised. According to a report by the Asian Development Bank (2018), there had already been an increase in digital learning resources in Samoa, through the encouragement of students to bring their own devices to school: “The practice is used in private schools in Samoa and is an example of how existing resources can be leveraged to increase access to learning opportunities in learning environments with limited access to financial resources” (Asian Development Bank, 2018, p. 7). Worth noting is that most school students in Samoa attended government schools (MESC, 2021).

Samoa is a developing Pacific Island of Polynesia with a total population of 200,000, located in the central South Pacific Ocean. It consists of two main islands, Upolu and Savai'i, and two small islands, Manono and Apolima. Samoa continues to rely on donor nations and world agencies for financial support due to limited physical resources (Tuia, 2020). Additionally, some families live in poor housing conditions, have low income and are unemployed (Ministry of Women, Community, and Social Development [MSWCSD], 2021). The MSWCSD (2021) reported, “Economic vulnerability exasperates the social challenges faced by women, youth, persons with disabilities, rural residents, low-income households and other vulnerable groups” (p. 42). Many individuals are unable to purchase equipment due to economic constraints. This is the digital divide demarcating the haves and have-nots, rich, and poor, the developed and developing nations where wealthy families are more financially able than poor families (Mamtora, 2001). In fact, modern technology in developing nations like Samoa reveals unequal opportunity amongst individuals and families due to their socio-economic situation.

In Samoa, MESC implemented initiatives to ensure that education continued throughout the six weeks of lockdown. Traditional technologies, such as radio and television, were used to provide audio and televised educational programmes to cater for students' missed class hours. Many children in Samoa during the lockdown were able to learn from home through the assistance of radio and television. Additionally, MESC worked collaboratively with two mobile service providers in the country, Digicel and Vodafone, to enable students' unlimited access to information and communication services with

schools and teachers through phone networks. According to the Minister of Education in Samoa, “with the limited resources and capacity that the Ministry has, working in partnership with Vodafone is the way forward to enable the learning and education that our students and people deserve” (Samoa Global News, 2020, p. 1). This initiative was the preferred solution to continue learning for students given the increased percentage of Samoa’s population with mobile phones. MESC (2020) reported a study conducted by the Asian Development Bank (ADB) in Samoa in 2014 that indicated only 10% of households have computers although 90% with mobile phones as recorded in the 2016 census. Moreover, Vodafone Samoa offered \$19 million dollars to assist with e-learning during the pandemic to ensure Samoan children were educated. As expressed by the CEO of Vodafone Samoa, this assistance was viewed very positively, “this initiative and free student sims have all you need to stay on top of your studies and succeed academically” (Vodafone, 2020). At least, Vodafone’s initiative meant students would continue to have Internet access at home. Students from vulnerable families and living in remote areas of the county would also have easy access and rapid Internet speed.

Online learning, as needed for students during the Covid-19 lockdown, favoured those who have adequate access to technologies and relevant resources, such as computers and laptops. The problem with e-learning in Samoa was the absence of technology in most family homes, such as computers and access to Internet. Chand et al. (2021) argued that those “restricted to accessing the internet in certain locations such as local remote campuses and/or education centres in Samoa ...” (p. 2) were mainly from remote areas of Upolu and Savaii islands (Esera et al., 2019). Tufue-Dolgoy et al. (2016) reported that the challenges facing e-learners were “internet related factors which can be very discouraging” (p. 63). Technological problems, such as operating the computer, poor Internet connection and families without computers, all contribute to unfavourable online learning for students. Furthermore, Tiruneh (2020) indicated that families in rural areas without electricity and Internet access faced huge problems. Therefore, students with limited or no access have difficulty attaining educational assistance through online platforms. Due to the low level of family economic resources in Samoa, e-learning would continue to be a problem for some families.

Another crucial element of online learning is the novelty of the approach for teachers and students in Samoa. Back in 2008, Chan Mow (2008) recommended more time be invested in training teachers in the use of technological resources for effective lesson delivery. Furthermore, Chand et al. (2021) corroborated that problems arise when students, parents, and teachers have inadequate knowledge of technologies used in distance and online learning. In addition, some of the problems as reported in Cheung et al.’s (2021) research was the low performance of tertiary students in distance learning compared to students in the face-to-face learning mode. Similarly, Hutauraki et al.’s (2021) study in Indonesia also considered face-to-face learning as more favourable to students than online learning because it is direct interaction with teachers and other students. A study in Ethiopia over a similar period found that teachers, principals, and parents lacked technological know-how and most disadvantaged students during the Covid-19 pandemic were from low-income families (Tadesse & Muluye, 2020). Based on these well recognised complications in delivering education online during Covid-19, it was vital for Pacific Island nations to reinforce the need for conducting more research on technology use in education. In this way, MESC could provide more training and technological awareness programmes in villages and schools to prevent Samoa from encountering major problems as research indicated in other developing countries.

Significance of the problem

The push for distance learning in Samoa as the result of Covid-19 lockdowns meant a complete change of instructional and learning practices from the traditional face-to-face classes in classrooms, to virtual classrooms and self-learning. Distance learning using the Internet can be described as remote or online

learning. Remote learning, as described by Daniela and Visvizi (2022), is very similar to a face-to-face type of learning with scheduled lectures and tutorials as well as the lecturer and students all sharing a virtual synchronous classroom once or twice a week. As described by Daniela and Visvizi (2022):

Remote learning, means trying to create the same organisational structure for learning in an online environment as during the face-to-face learning process, where technology is used to communicate with students, lead lessons, check that learning objectives have been met, and provide feedback on learning outcomes. (pp. 1–2)

Students' class timetable ensured scheduled times were followed, unlike the online learning described by Singh and Thurman (2019) "as learning experiences in synchronous or asynchronous environments using different devices with internet access" (p. 293). Online learning is about students that work independently from any location and time of their own choosing (Gilbert, 2015; Singh & Thurman, 2019, as cited in Huang et.al, 2020; Duraku & Hoxha, 2020). In fact, online learning is accessible in terms of time and place; however, completion of tasks typically has stipulated times and due dates.

In the case of Samoa's lockdown, the switch from face-to-face classes to remote learning was bumpy, but it was the only option available for students in Samoa at the time. The nature of remote learning changed many aspects in the way education is carried out. For instance, the teacher-student relationship in the classroom was replaced with primarily individual learning. That is, students were expected to contact the teacher when they needed clarification with the schoolwork.

In the case of Samoa, this was especially difficult due to the limited physical resources and number of people who were familiar with face-to-face teaching and learning only. A report by the World Bank (Akmal et al., 2021) explained that remote learning could only be effective if there are "effective teachers, suitable technology, and engaged learners" (p. 4). However, the main problem for Samoa is the limited availability of technological resources. Many individuals are unable to purchase equipment due to economic constraints.

As other research studies (Duraku & Hoxha 2020) have demonstrated, the downside of remote learning was that even when connection was available, access to the necessary technology and adequate technological formats used by students with special educational needs and economic difficulties was not observed. In fact, not all teachers and students had access to online resources, such as computers or laptops, which contributed to the problem of readiness for online learning. Samoa's attempt to continue with quality online platform teaching and learning was affected by the absence of computers, reliance on mobile phones, and issues with Internet connectivity.

The impact of Covid-19 on educational experiences was observed by both parents and teachers in Samoa. As in many countries, the closing of schools due to the Covid-19 pandemic meant that parents were given the responsibility of becoming both the parent and the teacher at the same time. The sudden shift of roles proved to be burdensome for most parents, in that they were ill-prepared for the change. Working parents were faced with the difficulty of managing work schedules, while at the same time fulfilling obligations for their children's learning at home. Parents were also faced with the task of familiarising themselves with technology to facilitate children's learning.

From a positive perspective, Duraku and Hoxha (2020) highlighted the necessity of online learning for teachers to explore other teaching methodologies to enable flexible learning. In Samoa, lockdown meant that teachers had to adapt to these new concepts and modes that many had not been trained for (Schleicher, 2020). Furthermore, Esera et al. (2019) explicated that not all teachers have the necessary skills to operate and navigate their way around the Internet. Similarly, Tufue-Dolgoy et al. (2016) indicated technological and Internet problems in Samoa have affected teaching and learning for teachers and students. However, Samoa is not alone in this problem and as reported in research from Nepal, most teachers did not have adequate skills to run online classes because they had neither been trained in special courses pertaining to online learning, nor had they been involved in any prior training (Dawadi

et al., 2020). Prior to the necessity of teaching online, prompted by Covid-19, teachers in Samoa had little reason to explore or develop teaching pedagogies using technology.

Aim and focus

The aim of the research was to explore how education continued under new regulations through the utilisation of online teaching and learning during lockdown. Samoa, prior to the global pandemic, as reported by the MESC (2020), already had experience with remote teaching and learning through radio and television with very little exposure to computers and Internet. However, when Covid-19 came into effect, computers and Internet were added to the essential list for remote and online teaching and learning. Although online teaching and learning became a challenge for most students and teachers, it was seen at the time as the most effective, fast, and suitable education method during the pandemic (Dahiya et al., 2021).

The focus of the research study reported below is how a group of Samoan teachers (studying at the time to upgrade their teaching qualifications) met the challenges identified. The main research question was, “According to upgrading teachers in the study, what was the impact of technology and learning on upgrading teachers in the study?” Sub-questions were posed to find out the i) technological challenges impacting teaching and learning; ii) initiatives and strategies to improve teachers’ skills and knowledge of technology; iii) social and cultural problems affecting online teaching and learning preparations.

Methodology

The study employed a Samoan qualitative research methodology of *talanoa* and *nofo*, which extracted its features from the social and cultural characteristics of Samoan culture. According to Vaioleti (2016), *talanoa* can be referred to as conversation, a talk, an exchange of ideas or thinking, whether formal or informal and is often carried out face-to-face. It has association to the Samoan language in relation to research. In fact, *nofo* is sitting in Samoan and has a cultural relationship to *talanoa*, as both represent Samoan protocols when conducting research (Tuia, 2013). In Samoa, *nofo* represents Samoan cultural values of behaviour accorded to others (*ava fatafata*), mutual respect (*va fealoai*), respect (*faaloalo*), and reciprocity (*feavatai/fetausia*) (Tuia, 2013). Cultural alignment of protocols and the nature of Samoans usually means unknown passers-by are invited to *nofo* and stay without considering the consequences. During the *nofo* sessions, the unknown and new families’ *talanoa* and get to know more about each other.

Conducting *talanoa* in an indigenous cultural and social manner allows individuals to dialogue and socialise freely without fear. *Nofo*, in the cultural situation, is significant in doing research where it is inappropriate for young adults without *matai* (chief) titles to dialogue directly with *matais* or significant adults. In the Samoan culture, all young adults without *matai* titles must *talanoa* and *nofo* when they dialogue with *matai* and significant adults in the village.

It is the Samoan way to display respectful behaviour to others with mutual respect (Tuia, 2013). Not all individuals normally engage in *talanoa* with one another, as it would depend on the status and age of the person. In fact, if *matai*, pastors, and elders are involved, then conducting *talanoa* and *nofo* should be culturally appropriate, and that is to *nofo* (sit) with folded legs, and conversing using respectful cultural language. However, if it is informal, casual *talanoa* with a group of friends then it is suitable to dialogue in whatever way they want, and that can be done by standing or just sitting (*nofo*) without folding legs. The amalgamation of cultural aspects of *talanoa* and *nofo* in research from the Samoan context depended on the individual’s involvement in the research. During the research the participants were aware of the importance of respect and behaviour accorded to others which they adhered to by listening and responding when they were asked to do so.

Researchers undertook the Samoan cultural protocol of talanoa and nofo to dialogue with participants during data collection. Once the research conversations were recorded, it was transcribed and analysed. Gender was not considered a criteria during and after data collection but participant availability for the research was essential. Participants had the freedom to move and talk amongst themselves while nofo and talanoa, at the same time, respecting the presence of the researchers.

Data collection was guided by the work of Sarantakos (2005) and Neuman (2014). Sarantakos' (2005) method of analysis described a cyclical process with three stages: reduction of data, data organisation, and interpretation of data. In addition, Neuman's (2014) typology was employed to inspect and assess the significance and effectiveness of data elucidation after extraction and the final formulation of the main research themes. Eventually, themes were generated from the data, which emerged from participants' opinions and views. These were meticulously inspected, arranged, and categorised into appropriate themes that supported the aim and focus of the research.

The participants were in-service teachers studying in tertiary education institutions to upgrade their qualifications and were also using online teaching and learning for their studies. There were 10 teacher upgrader participants: four were secondary teacher upgraders, two from the Open Distance Learning (ODL) programme in Savaii and two from Upolu; six were primary teacher upgraders, three from the ODL teacher upgraders programme in Savaii and three from Upolu. All participants were married mothers with children. Students and parents were not included due to limited accessibility at the time of the research. The teacher upgrader participants were asked their experiences with online learning at their tertiary institution and how that impacted their own online teaching and learning classes during Covid-19. Participants that took part in the research were coded and given a number to anonymise their contributions.

Participants' views on Covid-19 and education in Samoa

Online learning as a replacement for face-to-face learning during the pandemic required appropriate technological educational methods to ensure students continue to learn. Moreover, teachers were expected to work proactively and adjust instantly during the Covid-19 situation. Responses to the research through the utilisation of talanoa and nofo (focus group discussions) revealed teachers' experiences with online learning and teaching during Covid-19 and its effect on studies. It recognised the negative and positive impacts of technology on teaching and learning for teachers and students' educational development. Teacher upgrade participants relayed their experiences about the new teaching and learning platform as opposed to the traditional classroom teaching and learning. The key aim for Samoa throughout the pandemic was guaranteeing the health protection and safety of children and adults, which led to the increased use of technology as Samoa's response to Covid-19.

Focus group talanoa with upgrading teachers

Four themes emerged from the data: (i) Negative and positive impacts of technology on teaching and learning, (ii) Students in teacher upgraders classes misuse of technology for social purposes, (iii) Provision of technology workshops on teaching and learning, (iv) Social and cultural problems.

Theme 1: Negative and positive impacts on technology in teaching and learning during Covid-19 in Samoa

The participants were not all positive about the presence of technology in education due to complexities in its usage. Some stated that it was very confusing and hard to follow. Some were first time users of

the different apps needed to connect to others online, including students and parents. According to Participant 8:

Technology such as Zoom and virtual online sessions were the only means of keeping up to date with teaching and learning. Some families don't have technology while others have connection problems due to distant localities. Available options during lockdown were limited, except for this one device, the mobile phone.

Similarly, another participant echoed the need to reach out to others for help because of his/her limited understanding of technology. Participant 10 had difficulty with computer operations: "I have very little understanding of computer operations, especially with Zoom, but I sought assistance from colleagues, university lecturers, and did my own research on Google."

Teacher upgrader participants were in contact with one another to update or support them in the use of online technology. This collegial support provided just-in-time professional learning for teachers. The utilisation of mobile phones as well as email became quite handy for those who accessed Internet.

The pandemic highlighted how motivated participants were to keep up to date with the use of online platforms. However, those without access to computers and online service due to poor connectivity or lack of monies to pay for data were disadvantaged. Participant 5 said:

Technology was lifesaving but as a primary school teacher it was very hard to reach our students. We have not been exposed to these tools for teaching, although we had Internet. Moreover, internet connection for most primary schools was sporadic.

Others stated that technology helped them to teach and assist students during the Covid19 lockdown and having access to technology contributed positively to teaching and learning. According to Participant 2,

I was happy with technology because it helped me to continue teaching students during the Covid-19 lockdown. Most of us have had exposure to some of these online techniques, but the pandemic ensured that was put into good use and was productive for teachers and students as well.

The following two participants shared similar sentiments about the importance of technology in relation to teaching and learning during lockdown. Participant 3 said:

As a primary school teacher, I was able to connect to my students through parents as I had their place of work phone numbers and email to contact them. This enabled me to prepare students' homework for the whole lockdown period.

Participant 4 said:

Technology saved us from schools closing because everyone was lost, especially with the unexpectedness of it [lockdown], as once word got around, government moved to close its borders including schools. There was little preparation time, but [school] administrators and management were quick to respond to provide online support. Students and teachers were able to continue their education and kept up to date with classes and assessment.

Although most were grateful that technology use enabled some form of continuing education to occur during this time, other participants had mixed opinions about the impact of technology on teaching and learning during lockdown depending on if they were talking about their initial experience or their overall experience. These participants supported technology use after initially struggling to understand how it operates and having access to it. Participant 6 stated:

It was hard to learn and understand the different technologies that were available to use for teaching because I had never been exposed to these before, such as Zoom, Moodle and virtual interactive sessions. Working with colleagues and others, I learned to adapt and adopt technologies to deliver subject contents during lockdown.

Similarly, Participant 5 found technology to be an important tool for teaching and learning, but the problem was some students had limited or no access to the Internet services, especially in remote areas. In addition, students in some classes were young and inexperienced, and they needed parents' support and guidance.

Participant 1 indicated the importance of parents' assistance in helping their children learn, use, and access technology:

Technology is good but not for primary students, so I used parents to communicate with students' schoolwork during lockdown ... It is always great when students' parents are helping them at home in the use of technology to learn, because I believe parental assistance is crucial for young children using telephones or computers.

Participant 5 said:

Technology was lifesaving but as a primary school teacher it was very hard to reach our students. We have not been exposed to these tools for teaching although we had Internet. Moreover, Internet connection for most primary schools was sporadic.

The case with Samoa education during lockdown was hard but the collaborative effort between parents and teachers facilitated ongoing learning for students, especially for teachers in primary schools with limited knowledge and skills of computer and Internet teaching young learners. Subsequently, these teachers reported that most parents assisted their children by receiving emailed schoolwork or by uplifting schoolwork from school during lockdown.

Parental support was evident where access to the Internet and online services was a problem, as parents collected and returned tasks and contacted teachers using email and mobile phones. Teacher participants, with parental assistance, connected positively to support efforts to continue teaching and learning during Covid-19. Although most students had problems with technology operations, teachers reported that parents were able to assist in whatever way they could.

In the next theme, students' misunderstanding of the utilisation of technology for teaching and learning is discussed.

Theme 2: Students in teacher upgraders classes misused technology for social purposes but less on education

Teacher upgraders' concerns were directed towards their perception of technology, particularly mobile phones, as an education platform for online teaching and learning. According to participant 7, "most students lack basic understanding to use technology properly to learn. Some of my students have phones with internet access but the instructions were difficult and not readily easy to understand".

According to Participant 10,

technology is good, but too many devices and different instructions used by teachers and students seemed to adversely affect teachers in operating productively in class, as these devices simultaneously slow down the information process and contribute to information loss.

A variety of instructions across different technologies and teachers impacted on students' productivity in online classes and slowed communication of subject content information.

Upgrading teachers in this study were surprised that some students found it easier to use technology for social media but ignored the importance of the device for education. This is the concern raised by Participant 9: “Most students have phones and love social media, which they would spend time on, but when it comes to using phones for learning they have difficulties, do not take time, or just don’t know their way around it.”

Young children are fast learners in social media but not as active when it comes to education. They still find it strenuous to comprehend their way around technology to help them with schoolwork.

These teachers felt that students and teachers should receive training, workshops, or assistance on how to operate and utilise technology properly.

Theme 3: Provision of technology workshop on teaching and learning

Participants emphasised the importance of workshops for teachers on technology communication pertaining to teaching and learning. Some indicated that technology could contribute to their teaching more effectively if they have the knowledge to use technology appropriately. Many participants indicated support for workshops to provide knowledge and skills on how to use technology effectively in teaching and learning. Participant 4 stated:

There should be workshops to support staff for online teaching and learning. In this way they become better adapted and student learning is enhanced through the efficient and effective use of technological tools to better enable them to enjoy learning through interactive and simulation sessions and activities.

In addition, Participant 5 argued that it is important to understand how to operate and organise Zoom, Moodle, and virtual sessions and guidance should be provided in workshops by the school or MESC. Similarly, Participant 10 emphasised the utilisation of technology application in teaching and learning, such as the “proficiency and competency in the use and application of technological tools advanced and consolidated through staff workshops, on Zoom, Moodle, and virtual sessions”.

To improve understanding of the operation and organisation of these technological platforms, ongoing workshops could play a vital role, as Participant 3 offered that workshops would be useful “in addressing some of the areas that teachers and students found they have problems with as well as the opportunity to share with others the benefits of the technological tools”.

Participants interviewed indicated a view that online teaching and learning workshops should have taken place before the lockdown. Participants suggested such workshops would have eased the problem that students and teachers faced.

Technological communication has the potential to help students and teachers replace face-to-face teaching and learning during events such as the Covid-19 pandemic, and workshop coverage of the online platforms would have established understanding, including practical applications of the learning platforms so preparation for teaching would require less time and effort during lockdown, although where the time for teachers to attend workshops would come from was unclear as participants in this study also highlighted the potential of technology and the demands of teaching and learning online to create more social and cultural problems between individuals.

Theme 4: Social and cultural problems

The theme of social and cultural problems relates to participants’ views on social and cultural activities they were engaged in before Covid-19 which they put on hold due to the many technological preparations for teaching and learning online. According to Participant 1, “Covid-19 disrupted my

participation in social and cultural activities because it would be time consuming, thus leaving little time to prepare technology to communicate with students and other teachers”.

Similarly with Participant 8:

I don't have time for my family as well as for the village and church activities, I tend to spend more time organising Zoom and virtual sessions with my students. Sometimes I stay up for hours answering emails from students that don't know how to use Moodle and Zoom.

Participant 5 said: “I don't have time for socialisation and cultural activities due to Covid-19, and I tend to be more worried about technology communication in case my students don't get through.”

Participants showed more concern for their students learning than their socialisation and cultural activities because it was imperative to spend more time in the preparation of technology communication to ensure everything was set and ready for teaching and learning.

The usual face-to-face social and cultural activities were now replaced by technology through Zoom and Facebook. According to Participant 3, “we are prohibited to participate in large cultural gatherings, especially funerals and weddings; it is sad because we are expected to have computers and Internet to access Zoom in order to communicate and participate [in such events]”.

Accessibility to computers and Internet to communicate with families during funerals and weddings at the time of lockdown was not viable for all. As such, it was an unfortunate situation for many individuals who wanted to be visually if not physically present due to Covid-19 rules and regulations. Such social and cultural disruption gave teachers more time to prepare for online teaching and learning and increased their sense of disconnection to family and community during this period. Subsequently, most people with less knowledge of technology must adapt to communicate with their families as well as helping children's learning.

Discussion

Remote and online learning is imperative for teaching and learning during difficult times like the Covid-19 lockdown in Samoa. Technological communication, such as Internet services and phones, existed and was available in Samoa long before Covid-19, but its accessibility for Samoan families was very limited due to socio economic and cultural factors affecting families, thus hindering ongoing learning during Covid-19. Fortunately, at short notice, MESC was able to assist by providing online educational pathways, and MESC's response in activating online learning enabled individual students in remote areas in “the procurement of Zoom software and development of Moodle platforms for schools” (MESC, 2020, p. 19). For Samoan teachers, however, lockdowns also came with issues that bombarded them in online learning utilisation as well as the resources needed for daily operation using technology for teaching and learning. Some of these issues encountered by teacher upgrader participants were mainly the lack of knowledge and skills, their own and their students' poor Internet connection, and the absence of computers in their students' homes. In addition, problems such as the preparation demands for online teaching and the lack of workshops to help teachers learn more about computers and Internet services were key concerns for teacher participants in this study.

Teacher upgrader participants' online teaching and learning challenges were mainly the lack of know-how in operating a computer and navigating their way around the Internet and apps. In addition, teacher upgraders from remote areas of the country had connection problems, which was a disadvantage for online teaching and learning. The challenges, as indicated by the participants, have been reiterated in the studies from other countries (e.g., Das et al., 2021) where teachers “encounter obstacles and problems in technology integration” (Ozudogru, 2021, p. 322). However, for students to continue receiving learning, Samoan teachers must be able to learn, adapt, and move forward with MESC's (2020) stipulated plan.

The effects of the Covid-19 pandemic have complicated individuals' social, cultural, and educational situations in different ways. This is due to Samoa's limited human and physical resources and insufficient knowledge of modern technology communication. Provision and access to suitable devices and the Internet was limited for students. Chand et al. (2021) argued,

Most students from Samoa had problems with online learning due to their family economic situations as some families were unable to purchase equipment such as laptops or desktop computers or be able to afford internet access plans with sufficient bandwidth and data allowance for video streaming or other data heavy applications. (p. 2)

As explained by Membrere (2020), "social media platforms such as Facebook, Instagram and video sharing application TikTok continue to grow in popularity among youth in Samoa" (p. 1), and were deemed appropriate for teaching and learning under pandemic circumstances but were problematic for most individuals when used for educational rather than social purposes.

Online learning was also a way forward for all the countries around the world during Covid-19 lockdown to help maintain teaching and learning for children. Participants explained that online teaching and learning provided educational assistance for children to continue to learn. Like the aspirations of other countries during Covid-19, "online learning serves as a panacea in the time of crisis" (Dhawan, 2020, p. 6), to maintain educational stability in society. Although prior to Covid-19 MESC had already introduced online learning through the SchoolNet Project as a platform for teaching and learning, there had not been much progress to purchase platforms, systems, and software, or conduct teacher workshops. The participants indicated that workshops should have been conducted before and during the lockdown to assist teachers to comprehend the utilisation of the Internet and computers on both technical know-how (for Zoom etc.) and ways to use such platforms for teaching and learning.

The problems with the social and cultural situations of participants during Covid-19 lockdown could not be avoided due to Samoa's attempt to remain safe from Covid-19. Individuals' usual socialisation and cultural activities were curbed. For participants, their lack of social and cultural activities during lockdown were viewed with both regret and sadness, and it was a blessing, as it gave them more time necessary for their teaching. Although lockdown and the use of online learning changed the social and cultural situations of individuals in Samoa, it saved the country from being badly affected by Covid-19.

The impact of Covid-19 on educational experiences was observed by both parents and teachers in Samoa. Participants who were also parents were faced with the task of familiarising themselves with technology to facilitate their own children's learning. As in many countries, the closing of schools due to the Covid-19 pandemic meant that parents were given the responsibilities of becoming both the parent and the teacher at the same time. Working parents, including teachers in this study, were faced with the difficulty of managing work schedules, while at the same time fulfilling obligations for learning at home for their own children.

Instead of organised professional learning workshops, collaboration between teacher upgrader participants, peers, and colleagues during lockdown was a lifesaver to some, who had just been initially introduced to these technological online tools. This contributed a lot to an ongoing virtual teaching and learning environment and supported both teachers and students. In addition, parental assistance provided ensured children continued to be educated during Covid-19.

Conclusion

In summary, Covid-19 reshaped Samoa's education system, at least in the short term, when traditional face-to-face teaching and learning was suddenly replaced by online teaching and learning. The lockdown reality forced the education system at all levels to review priority concerns. As a result, MESC stepped up to provide students with relevant curriculum support to prepare them for online teaching and

learning. In doing so, MESCS (2020) implemented the Covid-19 basic education response programme to assist with the need at the time and implemented new teaching and learning platforms using what seemed appropriate and readily available. However, government optimism was based on assumptions in technology as the solution without full consideration of Samoan people and their situations.

Samoa's attempt to continue teaching and learning during lockdown with use of quality online platforms was affected by the absence of the availability of appropriate devices, reliance on mobile phones, and issues with Internet connectivity for schools as well as for teachers and students. It is crucial that MESCS and NUS, in partnership with willing commercial and media organisations in the country, provide the aid required to improve reliability of electricity supply and robust technology communication developments in the country's education system and to look towards a future where online teaching availability becomes a norm as an alternative to face-to-face classroom teaching.

While countries around the globe have been facing the pandemic and resorting to the use of online technologies, the lockdown brought to the fore the need for Samoa, as a fledgling technological nation, to invest in online technologies and to develop and conduct workshops in preparation to support teachers and students, especially during unpredictable times, such as the Covid-19 pandemic. The Samoa education system should therefore provide opportunities for the teaching and learning of technology communication to ensure teachers and students develop skills and expertise in online communication and study.

Finally, although Samoan teachers faced major challenges as the result of the Covid-19 lockdown and an immediate shift to technology use for teaching and online learning, there are some positive lessons to be learned from the experience, as shown in this study: Teachers' and parents' mutual concerns for children's learning and use of technology helped formulate better partnerships between teachers and parents to ensure children would have continuous support and schoolwork during lockdown; teachers sought informal learning support and worked collaboratively with peers for just-in-time technical learning and solutions to immediate problems in their online teaching; and in times of crisis, schools, teachers and parents, supported by government and commercial agencies made use of what technology was available (such as mobile phones and Zoom) to ensure that any impact on student learning was mitigated as much as practically possible under the circumstances.

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