




The Impact of Digital Learning during the Covid-19 pandemic on Tertiary Education Students in Fiji

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Abstract

Digital learning has become a major concern in most education sectors around the globe. Most institutional leadership have invested a lot of resources to ensure that the teaching and learning processes of their various institutions are digitalized and attuned with the demands of the 21st century of learning and teaching. This study considered the impact of tertiary educational digitalization in Fiji during the Covid-19 pandemic. The objectives of the research was to examine learning pedagogies relevant in the 21st century; the relationship between digital learning and digital natives; the Use of digital learning platforms in tertiary institutions in Fiji; both positive and negative impacts of digital Learning on tertiary students and the challenges faced by students during the sudden transition from the traditional face-to-face learning mode to online instructional delivery of learning and teaching in Fiji.

Keywords: digital learning, digital literacy, digital natives, eLearning platforms, digital.

Introduction

The COVID-19 pandemic spread like wildfire around the world; having tremendous impact on the world economy and countries' financial fortunes. Accordingly, COVID-19 was initially detected in Wuhan, China and many countries urged by WHO to take precautionary measures to prevent it from spreading. Social distancing became one of such precautionary measures taken globally; and this had implications for the conventional instructional delivery mode within the wall of academic settings world over. Most countries, including Fiji, had to engage their students from home through online learning platforms to compensate for the face-to-face learning and teaching (Pandey, 2020). Sol (2020) noted that several concepts have been coined for online learning; these includes eLearning, distance learning, blended learning and hybrid learning. There was a clarion call on both private and public educational institutions for support by world governments in identifying effective forms of online educations that will be accessible by all students regardless of their financial background (Reimers, 2020). By this singular transition in most nations of the world, which was not akin to the conventional education system,

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students can hence access online learning, teaching and resources from the comfort of their homes. These platforms, Dua (2016) noted, are in every way interactive, with the aid of multimedia, mostly student centered, and even cost effective, when compared to the conventional institutional face-to-face learning and teaching. Although, most studies carried out in this highlighted the plethora challenges of online learning, especially for developing countries like Fiji. These challenges include digital illiteracy and incompetency, inaccessibility due to network problems, power outage, financial constraints and the information gap. Nevertheless, the contrivance has served and still serving its purpose for quality student experience and engagement during the pandemic. Face-to-face learning ended abruptly, and tertiary institutions in Fiji, and world over had to resort to digital learning and teaching in the wake of the Covid-19 pandemic. Digital learning platforms have complimented the teaching and learning processes in Fiji tertiary institutions before the advent of the pandemic. Therefore, all students were thrust into a learning space that suddenly becomes the sole mean of learning engagement and experience and not the augmenting role it has played. Majority of Fijian students missed out from learning due to various reasons, ranging from poor connectivity to financial constraints and other obvious reasons militating against students in developing countries.

The study aimed to investigate the impact of digital learning in tertiary education in Fiji. It identified the most significant factors in digital learning and measure the effectiveness of digital learning on tertiary education students in Fiji. The study examined the relevant learning pedagogies in the 21st century; the relationship between digital learning and digital natives; the Use of digital learning platforms in tertiary institutions in Fiji; both positive and negative impacts of digital Learning on tertiary students.

1.1. Literature review

1.2. Introduction

Inclusions of digital learning in the education system to replace the face-to-face classes and student tutorial support during the COVID-19 pandemic enabled digital learning as normal part of the school program and culture. Digital literacy allows a child to use the internet to solve varieties of education and social complexities; also prepares every learner to be digitally competent in private and public life. Digital learning has become the threshold for a holistic approach to learning especially in this time of crisis. Majority of schools and universities were shut down due to the pandemic and therefore, the education sector has no choice but to transit to digital and virtual learning in all schools. Students, especially in Fiji, got their notes and tutorial activities through online learning platforms and stay connected with their respective lecturers and tutors throughout the academic sessions.

1.3. Digital Natives and Education

The pandemic heralded a new generation of students or put a spotlight on the emergence of a new breed of learners within the academic space in most developing countries, like Fiji. This generation of students have grown up surrounded by technologies and have the ability to perform many things through the internet, understand, use and socialize effectively with the new technologies (Corrin, 2010). These are learners referred to as “digital natives” as first coined by Marc Prensky in 2001. Technologies resulted in the process of discontinuity of traditional education, as it is very influential to the new generation of students entering universities for the first time (Prensky, 2001). Digital natives are students who are born during the technological era. Digital native’s daily lives are spent around computers, phones, tablets, music players, video games and other form of electronic entertainment. A research conducted, have shown that students nowadays spent more than 10,000 hours with their electronic gadgets and less than 5000 hours on reading books (Prensky, 2001). The huge amount of time spends on these electronic gadgets have made contemporary students to think and process information differently from those referred to as” digital immigrants,” those born before the digital revolution. Highlighting Dr Bruce D

Perry, Psychiatrist at Baylor College of Medicine emphasis, Prensky opined that those students' mentality are bound to be different from those in the old days because of how they grew up.

It is therefore very imperative to consider the construct of the learning dynamics and styles of these digital natives and how they process information within a teaching and learning space. Protagonists of effective learning theories such as Piaget, Vygotsky, Skinner and Brunner, Bloom and Gardener have been put on the spotlight of re-examination of their theories as to their relevance and applicability in today's pedagogical strides. Good to note Prensky's concerns which he explained as responsible decline in education. According to him, firstly among these concerns is that of instructors who are digital immigrants teaching digital natives using an outdated language that could hardly be understood by natives. Furthermore, these teachers continue to teach using traditional method of teaching which becomes boring to natives and mostly tends to ignore the new skills that they had acquired through their regular interaction with the digital world. Kelly & McCain (2009) also agreed with Prensky that students learn better with internet and develop skills of digital fluency faster than the old method of learning through the use of chalk, blackboard and talking. Gates (2005) also mooted that contemporary learning method needs to change as it is like teaching a kid about today's computers on a 50-year-old frame. Learning of any content by these energetic generation of learners has to be taught to them in a way that they want to learn, such that negate the traditional mean of learners sitting quietly in front of a teacher (Tapscott, 1997). The theory of adaptation by Piaget states that learners build up new information by connecting it with what they already know (Piaget, 1954). Corroborating Piaget's position above, Kelly, McCain & Jukes (2019) posited that digital native regards digital technologies as part of their lives, which has implications on the way they think, the way they behave, the way they speak, their culture and perspective. Therefore, an effective teacher will employ examples from digital native's world to help a digital native to learn.

1.4. *Digital Learning in the Pacific*

There has been tremendous transform in the telecommunication ecosystem of Pacific countries. They had installed fibre-optic submarine cables connections to improve the internet connectivity rate in their countries. Countries that faced difficulties in installing submarine cables have sought the assistance of developed nations to use their satellite infrastructure. Development in the telecommunication sectors will allow employment opportunities and most importantly, it will boost the education sector and its stakeholders in the form of developing and delivering effective education programs to its students (ADB, 2018). Significant progress have been made despite the teething challenges occasioned by the topographic and geographical location of the region. Hence, due to the heavy investment of both human and resource capital in the sub-sector, legitimate obligation is placed on that sphere of national and regional economy to enable digital education and technology-enabled learning and teaching in the Pacific. After the survey conducted by Vaa (2000), the UNESCO also conducted a survey in 2003 on education and technology in the Pacific. The report highlighted the gradual improvements in term of infrastructural development and investments around the Pacific. However, it noted that the development was rather slow. It is due to the lack of basic communication technologies and some projects like Solomon Island Distance

1.5. *Digital Learning in Fiji*

Higher education institutions also play an important role in the development of online education in the Pacific. In Fiji, three institutions, which includes Fiji National University, The University of the South Pacific and University of Fiji, have provided their programs using online platforms. The Fijian government together with its' Ministry of Education, has come up with policies and initiatives to improve and develop digital learning. These initiatives include One-laptop-per child program, setting up telecentres on some parts of Fiji to ensure internet accessibility and a policy on open educational resource for teaching and learning. These initiatives were put in place in 2015 and have far-reaching implications for the current pandemic. The Fiji National Curriculum Framework has been implemented using traditional approach. The contemporary Fijian lifestyle, like most people in today's world, have been mostly molded through their interactions with technologies especially mobile phones.

Nevertheless, the Fijian education system falls short in adapting to technological change. The implementations of educational technologies in Fijian classrooms has challenged both the teachers and students in terms of computer literacy training, availability and accessibility (Gani, 2019).

A study was conducted on the readiness of Fijian classrooms to include eLearning into its leaning process has stated that Fijian administrators have realized the importance of educational technologies. Therefore, they have slowly introduced e-technologies inside the classrooms and are committed to improving its usage moving forward. According to the research, most of the teachers have been provided with technologies to augment their teaching in the classrooms. Some schools shown this paradigm shift in instructional delivery in Fiji classrooms. In addition, the articles have stated that more than 80% of the schools have staff Pcs, students Pcs, smart screens, printers and projectors inside their classrooms. However, this research article uses the convenience method of sampling; therefore, it does not fully show the reality of eLearning in all Fijian classrooms (Gani, 2019). Furthermore, a study conducted at the University of the South Pacific with regards to student's access to technology and experience with technology indicates that 75% of students interviewed have access to technology with 0% of less average have no access to technologies. Most of them have personal computers at home with internet access connected through Broadband. About 78% of the students enrolled at different programmes in Fiji have interacted and engage at various levels of their learning different technologies and digital platforms. They are conversant with the usage and engagement with word processing, email, Moodle, zoom, google meet, search engines and other online services. However, this study negates with researched articles' assumptions that the level of comfortability with technologies access to digital apparatus amongst digital natives is likely to be higher than others. Of those 75% of students who have experiences with technologies, 50% are those are between the age of 36-45 years and they are the digital immigrants (Thaman, 2011).

Moreover, the University of the South Pacific in another of its recent study (of which 65% of students interviewed are I-Taukei students) highlighted about eLearning and digital literacy. Most of these students own eLearning devices and have access to online platforms through their mobile phones connected to the Wi-Fi. The research article has also stated that 90% of the participants favor learning through mobile phones. For ICT literacy, studies indicates that 60.7% of the students spend 4 hours per day using internet for education purposes. Most of the students have good skills in computer operations. It is also stated in the research that 55.6% of the students prefer to use new technologies in education. They used it for video tutorials, emails and open group discussions. This research article also agrees with a research conducted by Reddy et al. (2020). Reddy stated that students have positive attitudes towards the use of eLearning technologies and therefore they will continue to use it in the future (Pritika Reddy, 2020). However, the sampling size of for these two research are 287 and the other one is not stated. For a university that caters students from all over the Pacific regions, the roll will be more than 1000. Therefore, the research will be more realistic if more than 500 students are interviewed. The Fiji National University was also in one of the research conducted recently about the use of mobile apps in eLearning. The research stated that 76% of the students are experienced mobile apps users and have no problem at all in using eLearning platforms. 80% of the students are satisfied with the eLearning apps on their mobile phones. They understand how to use it because of its appearance on the screen and it is organized. Lastly, 62% of the students interviewed found the mobile app useful for learning (Chand, 2018). However, this research article is baseless because there were only 20 students interviewed during the research. Online platforms have been created for digital learning in institutions in Fiji. It includes radio, television, Moodle and zoom. With the current COVID-19 pandemic, digital learning plays a crucial role at all levels of schooling so to keep students updated with their studies. An article published on the Fiji Times stated that Fiji tends to ignore the global development in education therefore; it needs to realign its education policy to the current development. It has also stated that the Ministry of

Education does not have the resources to assist distance learning and majority of the first year students at tertiary institutions failed their first year due to lack of eLearning technologies (Shah, 2021).

1.6. The Effect of Digital Learning during COVID-19 on Students' Learning Process

The COVID-19 pandemic has imposed a huge challenge on education system all over the world. Governments had to close schools as a precautionary measure thus putting face-to-face learning to a stop. Schools have to come up with means of ensuring that the learning process continues from home for all teachers and students. Sol (2020) stated that majority of schools has closed down and the education system has transitioned from face to face learning to online learning. It is also stated that online learning has become the new normal for teaching and learning during the COVID – 19 pandemics. The development in technologies has led to the development in educational technologies all over the world. Schools and tertiary institutions have relied heavily on these educational tools during this pandemic. It is a mean to inform and to keep up with their interaction with students and parents. This sudden transition of learning should not involve complicated technological usage but an educator should work with what they know about technology to ease education through the internet. Digital learning once, encompassed in the program of a school will make it part of the school culture. Digital learning will allow a child to be digitally literate. Digital literacy allows a child to use the internet to solve varieties of problem solving activities. It will not only help a student in online education but also it prepares the child to be digitally competent in private and public life (Serpa, 2020). Once the child gets used to digital learning, education will not be a problem in the future if there is going to be another pandemic. Santiago (2020), has highlighted that digital learning is a holistic approach to education. The reason being that majority of the students are digital natives and they learn well too through internet. Students nowadays are familiar with the use of internet so online education will not be a problem to them. The education department just have to ensure that all students have access to it during this pandemic. Furthermore, according to an article on the FNU website, it states that this digital learning platform will allow the students from across the country and international students to continue their study amidst of the COVID-19 lockdown. Students will still be able to get their notes and tutorial activities through this online platform and stay connected with their respective lecturers throughout the academic term. Digital learning also reduces the risks of catching the COVID-19 virus, as students will be just learning from home (FNU, 2020). Daniel (2020) agrees that the use of asynchronous learning during COVID-19 pandemic will be essential. Students will continue with their normal study form the comfort of their homes.

A research conducted by Bastas (2021), states that through the digital learning builds up digital citizenship. Digital citizenship refers to a person who knows how to accurately use technologies responsibly. The author has also mentioned that majority of the students believe that they will be more successful in their education when using eLearning platforms than face-to-face learning. Developing a digital citizenship behavior is essential in a digital learning environment especially during this COVID-19 pandemic. Ben (2020) has also mentioned that digital learning is a 'ready-made remedy for current crises.' It is a solution for the education process. Sudarshan (2020) highlighted that the digital learning method used is more effective on school students. This is mainly due to school students being guided along by their parents. It is also stated in the research that tertiary students access the digital learning platform mostly and they have benefit more from it. This is due to their high maturity and they are fully committed to their schoolwork when using digital platform. Dewese (2020) has stated that due to this COVID -19 pandemic, the online search for education tools has increased. Most of these searchers are teachers and this search act as a form of professional development to educators. This indicate that educators want authentic instruction to apply in their teaching. The searched term includes reading tools, learning tools, meeting calls and videos. The educators when trying to improve their knowledge on digital learning searched all these. The digital learning during COVID-19 pandemic has benefits all stakeholders of education in so many ways. However, some students out there have faces difficulties

during this pandemic due to various reasons. Online learning is more student-centered. Students tend to learn most of the time on their own with less teacher participation.

Pablo Picasso, a famous artist once said that ‘computers are useless and they can only give you answer’. All technologies invented by human beings will have its pros and cons and therefore it has to be relooked at carefully before its implementations. Some researchers around the globe have criticized the use of digital learning platform during COVID-19 pandemic. In addition, some parents have problems with its usage during this pandemic. United Nations (2020), mentioned that majority of the teachers are not prepared for this online learning. The sudden transition was not welcomed by most of the teachers, as they are not fully prepared for it. There is a need to train them to use online platform effectively. Sol (2020) also argues that both the teachers and students are digitally incompetent. Most have poor knowledge on the usage of online platforms. Santiago (2020) adds on that there is a need to train teachers on how to use the online learning platform to make online learning effective. Deweese (2020) and Pandey (2020) explains further that there is still a need to train educators on the use of online learning platforms and the use of teaching strategies that best suit this online learning and there is also lack of ICT knowledge on students and teacher.

Furthermore, student’s accessibility to digital learning is one of the main concern during this pandemic. Soykan (2020), highlighted that the online learning is not accessible to all students due to bad internet connections and the use of outdated technological devices that does not support online learning platform. Some students only access internet when they are in school because it is free, but when they are at home, online learning is ineffective due to financial constraint caused by COVID-19 pandemic. In addition, the study states, that during COVID 19 pandemic, the level of poverty increases and the internet accessibilities decreases. Ben (2020), also highlighted that although these learning technologies enable a child to continue with his or her education, at the same time it will contribute to the financial crisis that a family is going through due to this pandemic. Majority of the families will find means of getting finance (loan) so to meet their child education needs. Sudarshan (2020) also argued that digital learning is ineffective because some students have no laptops and poor network connection. Francis et al. (2019) indicated that online students received lower grades and were less likely to pass from their courses than face-to-face students were, with online adult learners receiving particularly low final course grades and pass rates. In the same vein, Ortagus (2020) noted that despite compelling evidence suggesting that learners perform worse in digital learning platforms in the short term, a growing body of research has shown that students who enroll in some online courses may also be more likely to persist and graduate when compared to their peers with similar demographic and academic characteristics. Pandey (2020) highlighted the lack of infrastructures and technological resources to cater for this online learning due to poverty. Digital learning is unreliable in developing countries due to their lack of access to internet. Developing countries have problems with network connectivity since they do not have the fund to support it. Dhawan (2020) highlighted further that users tend to face many technical issues, which slow down the teaching process. The author also mentioned about the disturbances caused by pets and humans during online learning which may distracts online learning participants. The author add on that digital learning will be effective if students are digitally competent. Moreover, online learning will give more chance to students to cheat, as there is no one to supervise them during online exams.

In summary, the need for digital learning in this COVID-19 pandemic is paramount as it meets the needs of all stakeholders in the education system. The learning process has to continue so to feed the employment industries. Governments around the world has to dig in funds to cater for online learning needs of students and teachers. Information and technologies goes together in learning. Students just cannot go through the information in the internet and learn at the same time. They will only understand it better if an educator explains it to them. This learning process will only be possible through the online platforms. These online platforms will ensure that learning takes place. Educators will use it to communicate required information to the learners. Activities and discussion will be done through online learning. Interactions with other colleagues and classmates will be made possible too through online platforms. These online platforms also allow group discussions with other colleagues. Lesson notes and other learning materials are put up in learning modes like Moodle and students can access it from any

time. Digital learning therefore is flexible. Negative impacts highlighted can be overcome if developed countries and UN bodies provides resources, which will allow its smooth running. Most of the problems are faced in developing countries and the focus and assistance should go towards them. Digital learning will be the only alternatives of learning during this COVID-19 pandemic and it will help the education system to move forward

2. Research questions

The following research questions were raised to direct the research:

- i. What learning pedagogies are relevant in the 21st century education?
- ii. Does digital learning make a student to be a digital native?
- iii. How are the digital learning platforms used in tertiary institutions in Fiji?
- iv. Identify the positive impacts of digital learning during a pandemic on tertiary institutions in Fiji?
- v. How are the challenges faced in digital learning can be minimized?

3. Method

The primary quantitative research method that was used was online questionnaires. Primary quantitative research is the most widely used method of conducting research (Bouck, 2021). The distinct feature of primary research is that the researcher focuses on collecting data directly rather than depending on data collected from previously done research. These online questionnaires were designed using google form. Due to social distancing rules and restrictions imposed during the COVID-19 pandemic, online questionnaires was the best way to collect data. The secondary quantitative method that was used were data available on the internet, government and non-government sources, educational institutions and commercial information.

3.1. Sample / Participants

The simple random sampling technique was used and a sample size of 27 students from the different Colleges of the Fiji National University, Fiji Islands, were used for this study. With stratified random sampling, the samples were further stratified into their gender, age and program of study.

3.2. Instrument(s)

A questionnaires was designed to include six main parts: demographic information; closed questions that indicate the learning pedagogies relevant in the 21st century, relationship between digital learning and digital natives, use of digital learning platforms in tertiary institutions in Fiji and (what and how) open-ended questions. The six part allows respondents enough writing space to express their thoughts and reveal their own experiences on both the positive and negative impacts of digital learning at Fiji National University.

3.3. Data collection procedures

An online survey-based questionnaire was designed to evaluate the impact of digital learning during a pandemic on tertiary education in Fiji. The research-based questionnaire contains 19 questions (multiple choice and open-ended questions) which covered the research objectives. The questionnaires consist of different parts: the first part is about the participant's demographic information, the second part includes

a set of questions about learner's experiences with online learning, the third part is about the problems which they encountered during online learning, the fourth part is about their satisfaction with online learning and finally, the open-ended questions to get any extra information about online education during a pandemic. Information gathered from this research was obtained through online questionnaires. The respondents answered the questionnaires through google form and it was automatically collated and analysed.

3.4. Data analysis

The data from the questionnaires through google form were automatically collated and analysed and result generated in pie chart and bar graph forms.

4. Results

The table below shows the demographic information's of the respondents of this study. As shown in Table 1, it is very clear that most of the respondents are evenly distributed with regards to their gender- male with 13 respondents (48%), while the female respondent were 14 (52%). They were distributed in various programs within the university with more participant from the degree level of study (70%). Their age ranges from 18 years to 45 years. The range of 18-25 years had 14 participants accounting a majority of 52% and 26-35 years accounting for 37% with 10 participants. The age gap between 36-45 years had only 3 participants (11%).

Table 1. Socio-Demographic Characteristics of the Respondents:

No	Demographic Characteristics	Frequency	
		Total	%
Gender			
1.	Male	13	48
	Female	14	52
Program of Study			
2.	Certificate	0	0
	Diploma	16	22
	Degree	19	70
	PGD	2	8
	M.ED	0	0
Age			
3.	18-25 years	14	52
	26- 35 years	10	37
	36- 45 years	3	11
Status			
4.	Full-time	18	67
	Part-time	9	33

4.1. Qualitative Analysis of Data

The results from the qualitative data indicated the following findings below:

4.1.1. Preferences: Online Learning or Face to Face Learning

Online Learning or Face-to-Face Learning: 22% of the respondents prefer online learning because it is easier, flexible, comfortable and more convenient whereas on the other hand, 70% of the respondents prefer face-to-face learning. There reasons were: they will be able to attend practical classes which help them to understand and develop their knowledge and learning skills, they also will be able to get access

to the school library, IT assistance is instantly available, they will be able clarify their doubts with academia in a proper way, they are able to learn more and understand better through face to face learning. Face-to-face learning is also interactive meaning that concepts taught would be very easy to understand compared to online learning. 9% of the respondents preferred both, online learning and face to face learning as they got used to it.

4.1.2. Positive Impacts of Digital Learning on Education:

Respondents indicated that digital learning makes learning faster, effective, flexible, and enhances literacy within the digital climate. Finding also noted that digital learning helps to overcome some of challenges like transportation costs to school every day, printing of lecture notes and other cost associated with face-to-face learning. The resources used are found to be more efficient, organized and vast knowledge provided. Digital learning makes it easy to refer back to video lectures if a concept is not understood. With digital technologies, education or study cannot be ruined by Pandemic or covid-19. Through digital technologies, access to quality learning resources and information online for students was made possible. From the findings, digital technologies enable more personalized teaching and learning, as well as with the privilege of being able to connect from anywhere at any time. It helps students to gather information from different articles and resources from the internet. It teaches students to be independent and not depending on academia and it makes them a strong researcher, hence, performance improvement is noted to have been recorded in online examinations and quizzes. It made students aware of any latest updates concerning their study.

4.1.3. Ways to accommodate Practical Classes during the Lockdown Period:

50% of the respondents mentioned that video live demonstrations are a more convenient way to teach students on the practical. Students can also record a video of their practical work at home and send it to their lecturers. Lecturers to prepare the most effective and understandable video for practical classes so the students can gauge the lesson being taught. 42% of the respondents had resort to YouTube videos in order to understand the practical components of their studies. In addition, they had highlighted that these videos are easier to understand since all the required materials for practical were being used. Use of digital learning platforms like zoom, google meet and Viber helps a lot in carrying out practical classes. 8% of the respondents, however, disagree with practical classes being carried out during lockdown period. They said, that it will be ineffective and the lecturers cannot cater for all the 200 plus students for online practical.

4.1.4. Digital learning to be made Compulsory in all Tertiary Institutions in Fiji:

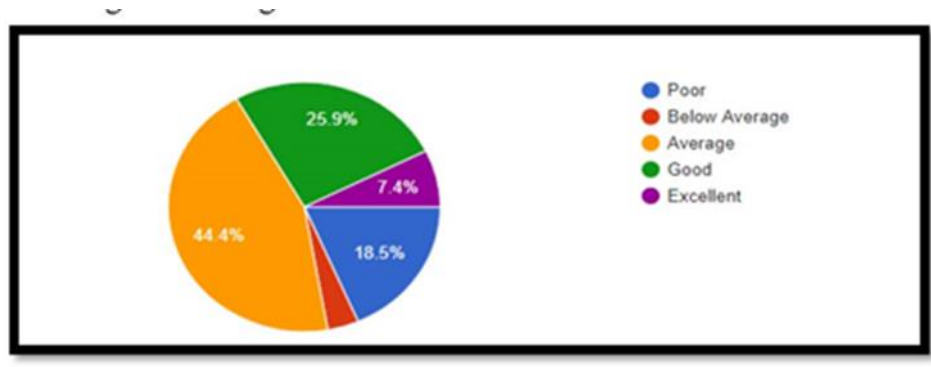
59% of the respondents agreed to digital learning being made compulsory in all tertiary institutions in Fiji. They believed that it is so affordable compared to face-to-face learning in term of transportations costs to and from school. Also as the current pandemic that the whole world is facing, online learning will be able to facilitate all students from the comfort of their home. However, the other 41% of the respondents disagree to this matter. Reason being were that: digital learning is quite stressful especially when there is a need for labs and outdoor practical. In addition, they mentioned that students have different ways in grasping information and learning. Some learned better through face-to-face learning. Digital learning should not be made compulsory because some parents do not have enough money to support their children with what they need.

4.2. Quantitative Analysis

The following are the quantitative results from the data set.

4.2.1. Students Approaches Towards Digital Learning:

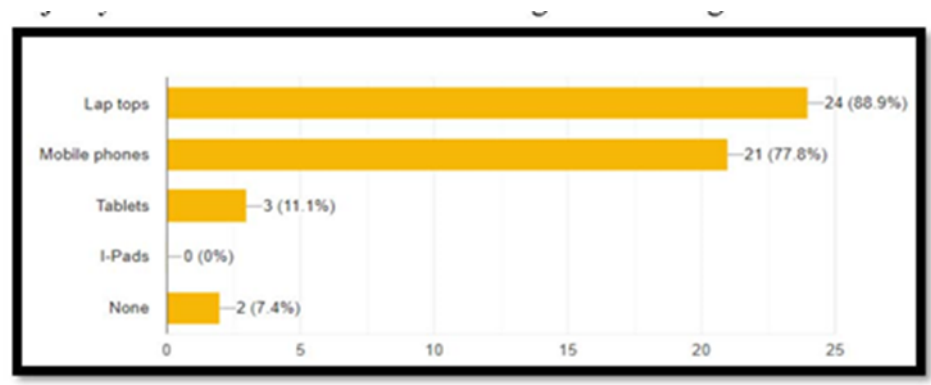
Digital learning was not easy for some students to adapt to due to various reasons. Respondents have different views and attitude towards digital learning. The pie chart below shows the students views and how they felt about digital learning.



44% of the respondents, which covers majority of the total, had average view concerning digital learning. This simply that a vast number of students at Fiji National University have been using digital learning platforms for learning before and during this pandemic. Second, to average is another 25.9% of the respondents, which felt that digital learning is good. From this response, it can be clearly stated that students at FNU are exposed to digital learning. 7% of the respondents viewed digital learning as an excellent method for education.

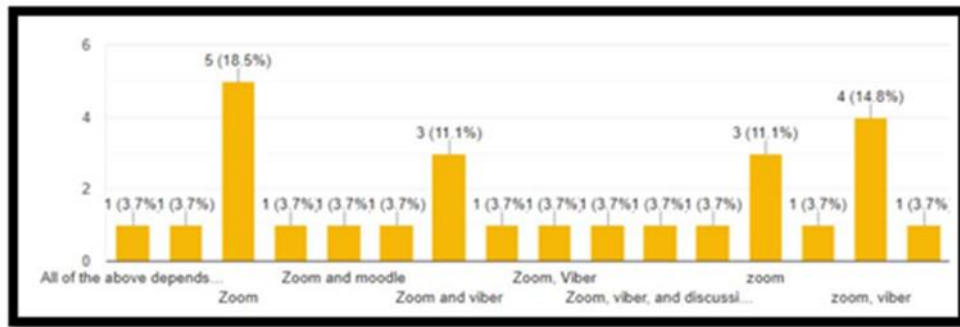
4.2.2. Types of Digital Technologies that Students Own and Use for Digital Learning:

Ownership of digital technologies by each student could be a good variable to measure the effectiveness of digital learning during a pandemic. The bar graph below shows the types of digital technologies that students own and uses for digital learning. It clearly indicates that majority of the students have access to digital technologies,; nevertheless, 88.9% having access to laptops and 77.8% have mobile phones for accessibility.



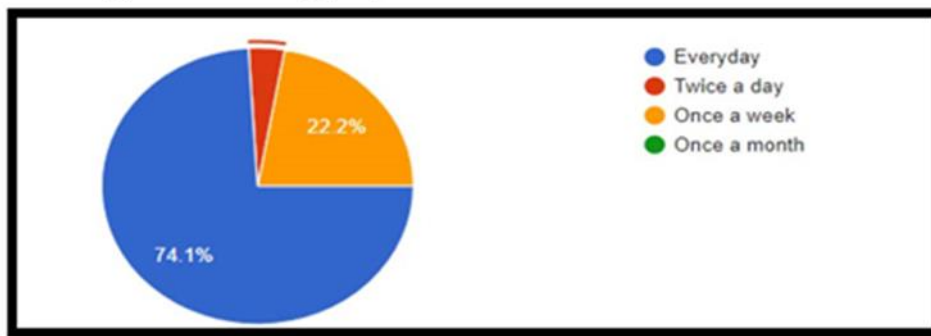
4.2.3. Digital Learning Platforms that Fiji National University Used:

Learning during a pandemic was made possible using various digital learning platforms. These platforms allow the students and the lecturers to interact and communicate during a class. The table below shows the different learning platforms that students use at FNU. From the table below, zoom and Viber appears to be predominant.



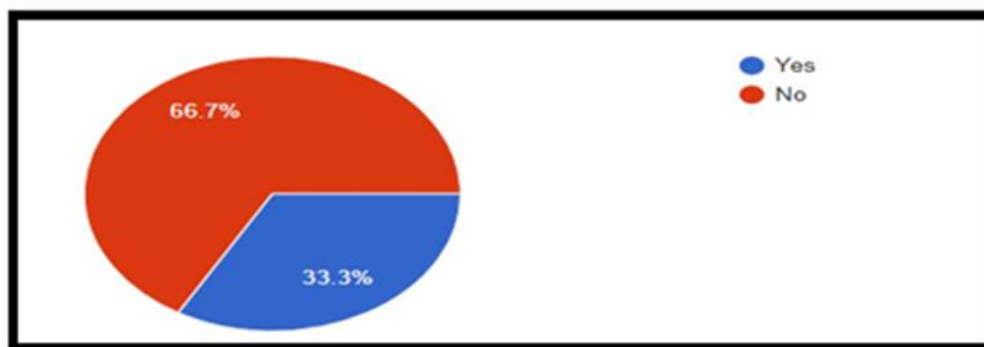
4.2.4. Frequency of Access to Digital Technologies for Learning Purposes:

Students learning materials were posted on their respective Moodle account and all relevant announcement by their lecturers were also viewed on Moodle. Frequency of accessing the Moodle and other online resources by each student would inform us on how effective digital learning is. The table below shows the frequency of access by each student through digital technologies for learning purposes. A percentage of 74.1% access digital technologies for the purposes of learning and teaching every day. 22.2% access these digital platforms twice a day.



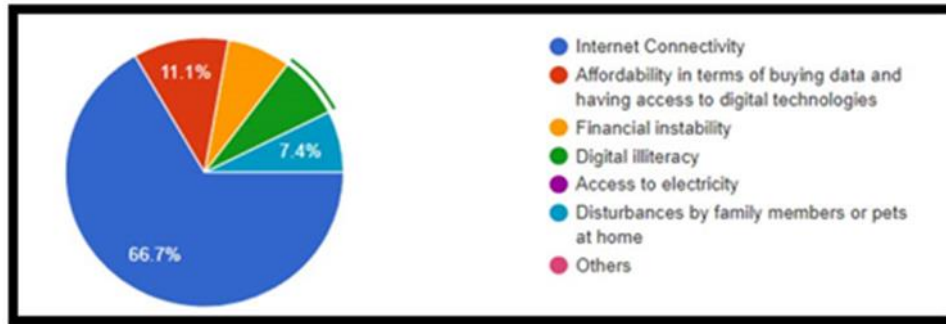
4.2.5. Availability of University Resources to assist Students in Online Learning:

Tertiary institutions play a major role in ensuring the flow of digital learning. They should employ all resources to ensure that all its students benefit from digital learning. The table below shows whether the university has been assisting students in learning from home or not. It clearly shows that the university somehow have been providing resources to assist students during the lockdown period. 66.7% indicated that there are availability of university resources to assist students during online learning and teaching. While, 33.3% of the participants refute the above resources.



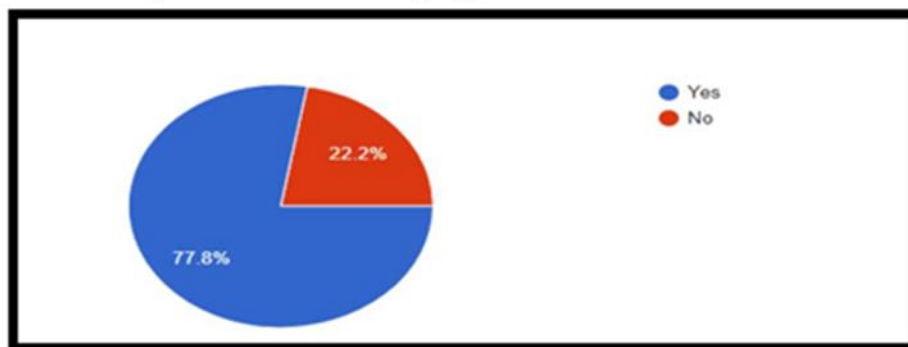
4.2.6. *Problems Associated with Online Learning during this Pandemic:*

Students encountered various problem with online learning during this pandemic. They had to look for means to overcome it as it is the only way they can learn. The table below shows some of the problems that students has to go through while studying online. An overwhelming 66.7% of the participants in this study had challenges with internet connectivity, with other myriad issues faced by students.



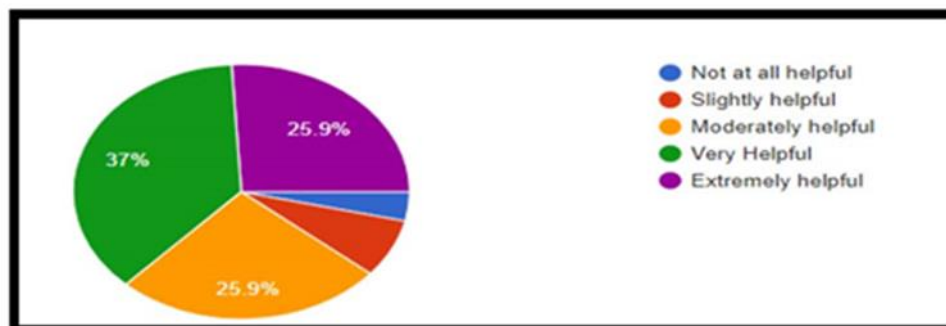
4.2.7. *Mental Health Issues Encountered during this Pandemic:*

Majority of the students encountered mental health issue as shown in the table below during this COVID-19 pandemic while studying online. 77.8%, as against 22.2%, responded on the affirmative to the question of mental health issues with regard to the transition to online learning as a result of the Covid-19 pandemic in Fiji Islands.



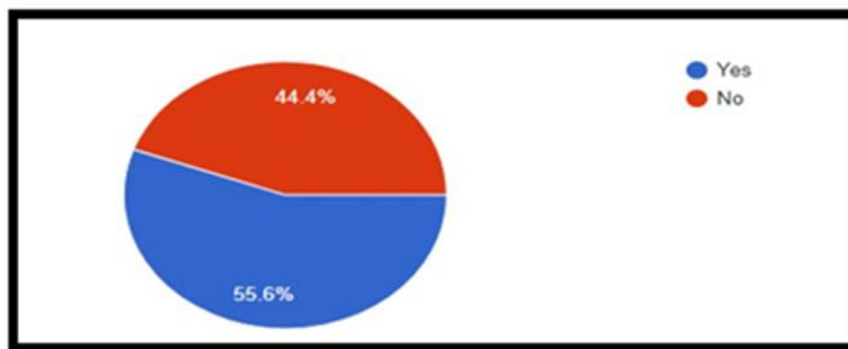
4.2.8. *Online Study Assistance Provided by Lecturers:*

With regards to assistance provided by course lecturers, the diagram below shows how supportive the lecturers at Fiji National University towards their students with regards to online learning. The results shows that lecturers have a lots of improvements to make in terms of support for students, as only 37% responded they were helpful and 25.9% said they were moderately helpful.



4.2.9. Student Accessing the Monthly Top up of \$20 by the Fijian Government:

During the pandemic, the Fijian Government decided to assist students in their online learning process by topping up their phone with \$20 every month. This assistance was quite helpful to both parents and student alike. Nevertheless, for other reasons not captured in this study, over 40% could not access that funded data top-up. The diagram below shows that the government assistance was helpful to 55.6% of the participants in this study.



5. Discussion

This study was designed to determine the impact of digital learning during the Covid 19 pandemic on tertiary education in Fiji. The pandemic caused tertiary institutions in Fiji to cease face-to-face learning and opted for digital learning. The research found that majority of respondents within the research context of Fiji National University prefer face-to-face learning than the digital learning. Accordingly, face-to-face learning was described as more engaging of students at different levels of the pedagogical experience. Face-to-face learning is seen as interactive; and facilitators have the privilege of feeling the physical presence and essence of the students in classes and can relate to the on-the-spot assessment of comprehensibility, which helps them to impart knowledge to students. The use of digital learning in Fiji does not encompass all related and relevant digital equipment that makes learning interesting and that is why the students preferred face-to-face learning. This finding is consistent with Grieve (2014) who also found out that students preferred face-to-face learning than face-to-screen learning. Although, he noted that learning activities could be completed much on time through online learning.

Another important finding was that digital learning has improved student's grades. It was noted for instance, during online quizzes and examinations, students had high grades and improved scores during the pandemic. Comparison of the findings with those of other studies confirms that the use of digital technologies in digital learning motivates students to learn more and enables them to be productive. Students also enjoyed using digital learning platform/gadgets because it is lighter than a reference book/notes (Pate, 2019). It helps students to gather information from different articles and resources from the internet. Online learning from the result teaches students to be independent and not depending on academia and it makes them a strong researcher. It made students aware of any latest updates concerning their study. However, the findings of the current research do not support previous research finding of students undertaking online studies have abysmal performance and even drop out at higher rates in comparison with face-to-face learning, with online adult learners receiving particularly low final course grades and pass rates (Francis, et al. 2019, and Ortagus, 2020). Nevertheless, this study revealed that students relied more on the internet to provide them with all resources without searching for other resources available like journal articles and books from the library, but with improved performance. Just like Ortagus (2020), the most interesting finding was that; students find digital learning affordable compared to face-to-face learning. It is affordable in terms of transportation costs and other associated cost of face-to-face learning. Students do not have to pay extra in order to access the learning materials, as most learning resources are made available on the internet.

Furthermore, students who participated in this study also found digital learning comfortable. They have access to all online learning platforms through their own digital technologies. These students consist of digital natives and digital immigrants. It is inferred that digital natives spent much of their time to go through their online learning resources and engagement. This study is contrary to that of Thang (2014) who opined that those digital natives, even though they own and have access to digital technologies, they still spend much of their time on social network sites than educational sites, which constitute a major distraction to the learning and teaching process within the online space. On the other hand, digital immigrants had social reliance, which enables them to rely more on internet not only for social purposes, but also for learning purposes (Long, 2010). Digital learning at Fiji National University was carried out smoothly during the Covid-19 pandemic through the assistance of the university management's strategic investments in both soft and hardware to facilitate that transition. Moreover, digital learning during Covid-19 pandemic has brought some negative impacts on students. Poor internet connection was one of the major challenges faced by students while attending to digital learning. Some areas in Fiji do not have access to network, so online learning becomes a grey space for students in those geographical locations. This also resonates with previous research, which shows that most students come from rural and remote areas with weak or no network during Covid-19 crisis as all students, teachers and most of the other sectors shifted to work online (Mahyoob, 2020). Data purchases was also another issues encountered by students. Majority of these students' parents have been laid off from work due to Covid-19 pandemic. Majority of the students are experiencing financial issues so digital learning will not be possible during a pandemic.

In addition, some students do not have access to electricity at their homes so this simply means that digital learning will be impossible for them as well. Some students experienced disturbances by family members and pets during online learning. This occurs because there is no proper learning facility at home. A few of the respondents encountered problem about the usage of digital learning tools, which affects their online learning. They lack basic skills on how to use those learning platforms. The digital learning during COVID-19 pandemic has create a lot of stress and other mental health issues to students. These mainly due to frustrations of not being able to access the resources provided online and the absence of educators physically to assist in learning. Mental health issues started to emerge during this shift in learning methods and because of COVID-19. However, students have also highlighted that there should be a need to make digital learning compulsory in all tertiary institutions since we are living in a technological era, and also the education process will run smoothly during a pandemic since school will be closed down.

6. Conclusions

The need for digital learning and teaching in Fiji during the COVID-19 pandemic became paramount as the lockdown and other stringent protocols was enforced. Curriculum learning outcomes and the educational needs of all stakeholders were still met via those platforms within that ecosystem. Governments around the world had to make budgetary re-allocations to cater for online learning needs of students and teachers. Most of the challenges faced in developing countries as a result of the transition from the conventional face-to-face learning mode to this online instructional delivery mode were multifaceted in nature. Institutions and schools have mitigated these challenges as they leverage in-house expertise, formation of communities of learning, peer assist-learning and others. As the pandemic began to abate, these challenges equally began to wane by reason of mastery of the online process through a knowledge niche acquired over time. Digital learning will be the only alternatives of learning during this and subsequent pandemic and will help the education system especially tertiary institutions to move forward. The inclusion of all learner from remote areas in Fiji is now made possible by digital learning, because student do not have to be physically present on campuses to learn.

Arising from the findings of this study, the following recommendations for improvement of digital learning were advanced:

- Students should be provided with electronic devices to assist them in online learning through government initiative that make hardware accessible and affordable for all students.
- There is a need for lecturers to improve the way they teach and also to encourage students to learn and engage maximally via the online process.

- There has to be re-definition of assessment in the online learning space. A determination between over-assessment and under-assessment has to be made very succinctly clear.
- Institutions and Government need to be proactive in seeking out effective and efficient means to enhance internet connectivity moving forward. The engagement of the public –private sector model will be a construct that needs to be explored.
- The provision videos that mimic practical work or laboratory work.
- Assist in building a learning environment from home that can be used only for distance learning. This is to ensure that there are no disturbances during online class.
- Counsellors to be available to help students who are suffering from mental health issues.
- Tertiary institutions to reduce the school fees during a pandemic.

Digital learning during a pandemic in Fiji will be more effective if the tertiary institutions re-assess their support systems for students within their learning spaces..

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