THE IMPACT OF COVID-19 OUTBREAK ON SCHOOL E-LEARNING SYSTEM

O IMPACTO DA EPIDEMIA DE COVID-19 NO SISTEMA DE E-LEARNING DAS ESCOLAS

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Abstract: In any operation of the world, advanced technology plays a vital role. Consequently, the e-learning system encourages and plays a role as a substitute system in the teaching-learning process due to the pandemic of COVID-19. This study explores the e-learning access by students through identifying the Strengths, Weaknesses, Opportunities, and Challenges (SWOC) analysis during the COVID-19 pandemic period. The simple random sampling technique was utilized to select the participant students at Kalkudah Educational Zone, Batticaloa district. The primary data were collected from 300 secondary school students through a questionnaire to collect data in line with the aim of the study for quantitative analysis to interpret the performance of SWOC. This study revealed, Strengths: the majority of (55%) of students familiarized to use social media for the teaching-learning process in the COVID-19 pandemic period. Weaknesses: the majority (59%) of students could not use the ICT to learning certain subjects such as Maths, Sciences and practical part of other subjects. Opportunities: a great (90%) usage of smartphones for education purposes. Challenges: more majority (80%) of students do not have competencies in using smartphones and unstable networks. Also, the majority (57%) of students' families have economic challenges in having smartphones. Further, the study also showed that ICT skills among students have improved and that the availability of smartphones at the national level has increased during this pandemic period. The recommendations of the study: improve the ICT competencies of teachers and students in the education system, and the Ministry of Education needs to consider providing smartphone facilities under the free education system of Sri Lanka.

Keywords: COVID -19. E-learning. ICT. Secondary school. SWOC.

Resumo: Em qualquer operação do mundo, a tecnologia avançada desempenha um papel vital. Conseqüentemente, o sistema de e-learning incentiva e desempenha um papel como sistema substituto no processo de ensino-aprendizagem devido à pandemia da COVID-19. Este estudo explora o acesso ao e-learning pelos estudantes através da identificação dos Pontos Fortes, Pontos Fracos, Oportunidades e Desafios (SWOC) durante o período pandêmico da COVID-19. A técnica de amostragem aleatória simples foi utilizada para selecionar os estudantes participantes na Zona Educacional Kalkudah, distrito de Batticaloa. Os dados primários foram coletados de 300 alunos do ensino médio através de um questionário para coletar dados de acordo com o objetivo do estudo para análise quantitativa para interpretar o desempenho do SWOC. Este estudo revelou, Pontos Fortes: a maioria (55%) dos estudantes

familiarizados com o uso das mídias sociais para o processo de ensino-aprendizagem no período da pandemia COVID-19. Pontos fracos: a maioria (59%) dos estudantes não pôde utilizar as TIC para aprender determinadas matérias como Matemática, Ciências e parte prática de outras matérias. Oportunidades: um grande (90%) uso de smartphones para fins educacionais. Desafios: a maioria (80%) dos estudantes não tem competências no uso de smartphones e redes instáveis. Além disso, a maioria (57%) das famílias dos estudantes tem desafios econômicos em ter smartphones. Além disso, o estudo também mostrou que as habilidades em TIC entre os estudantes melhoraram e que a disponibilidade de smartphones a nível nacional aumentou durante este período pandêmico. As recomendações do estudo: melhorar as competências TIC de professores e estudantes no sistema educacional, e o Ministério da Educação precisa considerar o fornecimento de instalações de smartphones sob o sistema educacional gratuito do Sri Lanka.

Palavras-chave: COVID -19. E-learning. ICT. Escola Secundária. SWOC.

I. Introduction

The free public education scheme has been practicing in Sri Lanka since 1943 from primary to tertiary level and providing expanded educational opportunities and access to all disadvantaged children of the country. At the center of this structure is the conventional classroom, which, considering many structural and regional differences, has functioned to a degree as a leveler, taking students from diverse economic and cultural backgrounds to a similar, shared space. From what we observe, physical distances will be inevitable for weeks and, most likely, months to come. In this situation, the advent of online education transfers a large part of the studying to the student's home-Batticaloa School of Educational Institutions. The scheme is based only on conventional instruction methods, that is, on the traditional set-up of face-to-face teaching-learning in the classroom. While several school levels have begun integrated learning, many of them are already sticking with old practices.

The abrupt closing of the schools on 12 March 2020 to counter the proliferation of COVID-19 saw the education sector react rapidly with a slide of interim steps aimed at continuing education by online and other distance learning mode. However, the move to online learning has received contradictory responses; amplifying already established socio-economic gaps embedded in state education. Approximately, 34% of Sri Lankan households with children have access to e-learning through an internet interface, ranging from online classes to tutorials disseminated via social media platforms (Gamage, 2020).

*A.   SWOC Analysis of Online Learning During COVID-19 Pandemic*

Most students have faced numerous difficulties with the school education system due to the COVID-19 pandemic. At this juncture, the government launched e-learning as a solution to start education at school. However, there is a lack of knowledge on the technology, vulnerability of the people, benefits, and threats of e-learning in the field of school-level education in the local context.

II.   AIM of the STUDY

The study aims to explore the performance of students in e-learning in school education during the COVID-19 pandemic period by analyzing Strengths, Weaknesses, Opportunities, & Challenges (SWOC).

III.   METHODOLOGY

This research was undertaken to assess the student's success in e-learning during the COVID-19 pandemic. The survey research design was applied for this study and a quantitative research approach was followed to undertake this research. As a sample 300 junior secondary (Grade 06 to 09) school students were randomly selected from Kalkudah Education Zone of the Batticaloa district for this study. The questionnaire was developed and distributed among selected samples to collect data in September 2020 and filled questionnaires were collected by the researcher from sample students in October 2020. The SWOC study was undertaken to clarify the benefits, limitations, prospects, and difficulties of online learning in this crucial situation. The collected data were analyzed using the SPSS – 16th version and fie-chart and bar-chart are utilized to interpret the data analysis in the study. The following figure – 1 shows the geographical pattern of the research area.

Fig 1: Geographical Area of the Study
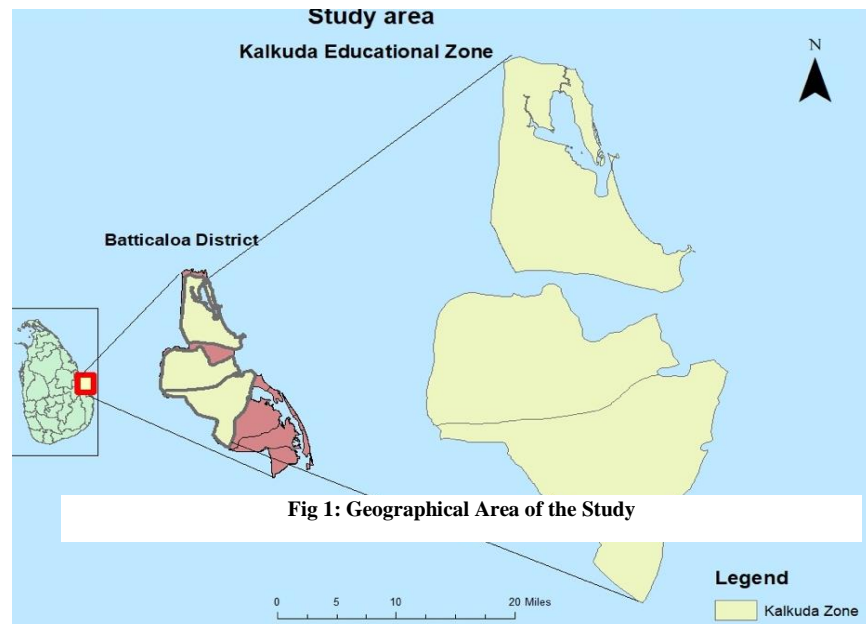
IV.   RESULTS and DISCUSSION

Online learning should be used as a platform that can make the teaching and learning process more student-centered, more creative, and versatile. Online learning is characterized as learning experiences in synchronous or asynchronous environments using various devices such as mobile phones, laptops, etc., with internet access. Identify the Benefits, Drawbacks, Prospects, and Threats (SWOC) on online learning during the COVID-19 pandemic. This study would help assess the efficiency of e-learning (Henzi, Davis, Jasinevicius & Hendricson, 2007).

a.   Strengths

E-learning approaches and processes are powerful. These benefits of online learning modes will save us from these challenging times. It is developed as a focused student and provides a great deal of versatility in time and place. There is a range of online resources available that are essential for an effective and productive learning environment. Technology offers creative and resilient strategies in crisis times to combat disruption and allows people to collaborate and even function remotely without the need for physical contact. This adds to a variety of system shifts in organizations as they embrace modern digital and operating systems. These statements are the assertions of the authors (Mark & Semaan, 2008).

Delivering E-learning Different Organizations: The education system has been changed from traditional approaches to online channels since the pandemic period.
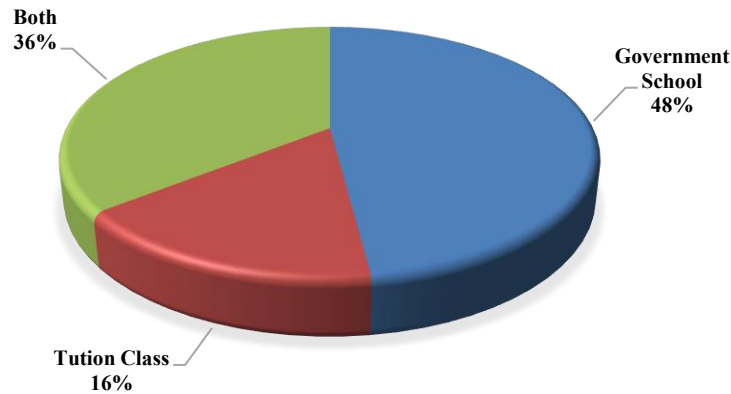

Fig. 2: Delivering e-learning organizations

Figure - 2 describes utilizing e-learning in different organizations, which states that government organization (48%) than tuition class (16%). The study is performed by most institutions, such as government, private school, and both, via zoom, WhatsApp, and other social media. A similar study conducted by Ketheeswaran and Mukunthan (2016) revealed the usage of smartphones related to distance education support to increase students learning, social interactions, collaborative learning, and socialization of students, etc. The freedom in the learning environment. In the coming decade, smartphones will be a main learning tool in the distance learning system. It confirms the findings of the present study in line with the importance of smartphones in e-learning.

The Trend of Online Modes of Education: There are several modes of access to online learning. Also, the following figure – 3 illustrates the trend of online mode of learning of students during the pandemic period.
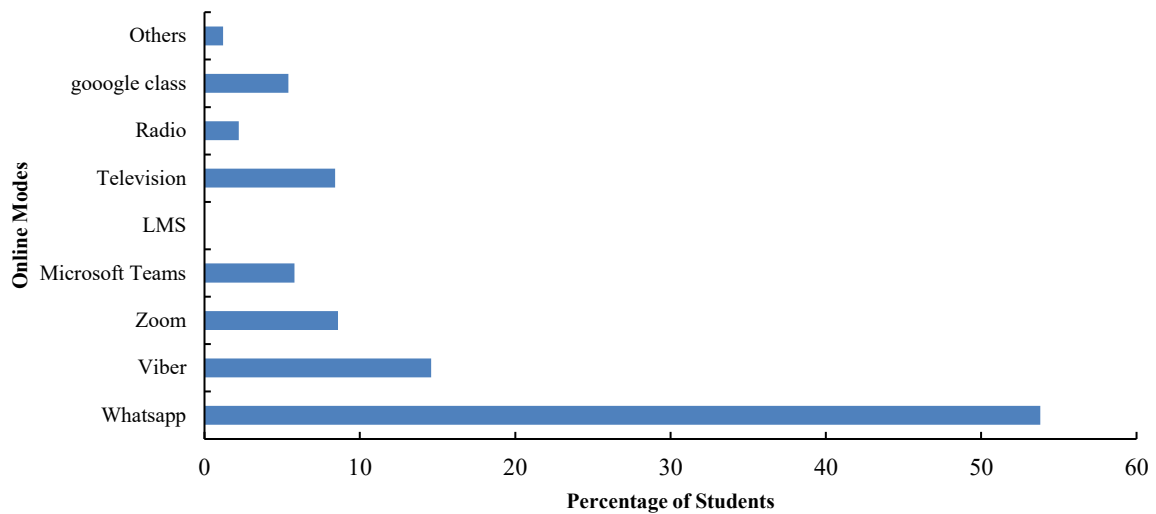
Fig 3: Trend of Online Mode of Learning

Accordingly, figure - 3 depicts that the higher proportion (55%) of students using WhatsApp, and the rest of the methods less than 10% except Viber 15%. Entry to online learning is accessible in several ways. The higher number of students who use WhatsApp. It seems like because they use a smartphone with an internet connection, it is much more familiar than other modes. It is evident from the literature that LIRNE Asia[1] detailed smartphone use survey in Sri Lanka illustrated that just 34% of households in Sri Lanka with children aged five to 18 had internet access in 2018. Around 90% of these links are accessed via a handset through mobile networks (Gamage, 2020). Nearly 34% of families with internet access collect reminders or assignments over smartphone applications such as WhatsApp and Viber as the predominant form of distance education. For those families for whom a smartphone is the only computer connecting to the internet, one or more teenagers, with or without adult supervision, are committed to using it. Mainly WhatsApp was used by the instructor at the high school to communicate with its pupils (Gallaway, Rigler, Robinson, Herrick, Livar, Komatsu, & Christ, 2020). These findings confirm each other in relation to the studies.

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[1] LIRNE asia is a think-tank working across Asia-pacific on regulatory and policy issues in the ICT sector and others such as agriculture and health which can benefit from ICT.

b.   *Weaknesses*

Users of e-learning will face several technological challenges that obstruct and slow down the process of teaching-learning (Favale et al., 2020). The flexibility of time and place, while it is the power of online learning, these elements are delicate and cause issues.

Understanding subject knowledge of lessons: Math is a topic that children will lose more if they have less education; as individual subjects are elementary to learn online, the full emphasis during a pandemic-induced distance education will be on that topic. In contrast, other issues are blended into a lesson plan where core ideas are woven around one or more cases.
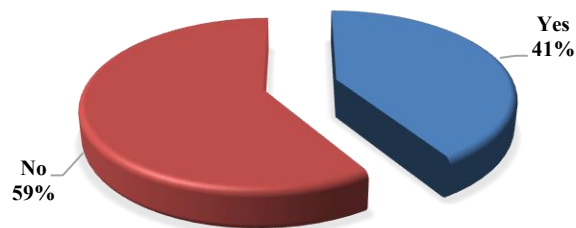

Fig 4: Understandable of subject knowledge of lessons

The following figure - 4 clearly shows the subject-wise weakness in online learning of students during the COVID-19 pandemic period. Accordingly, the majority (59%) of the students negatively responded about the suitability of e-learning to Maths and Science subjects. Teaching Math and Science should concentrate on valuable interaction time and content distribution methods. Students have textbooks; any new material would be additional, supplying children with fun opportunities to learn hard to understand topics.

Easy to Handle the Electronic Devices: Figure - 5 illustrates that the easiness of students in handling electronic devices for educational purposes.
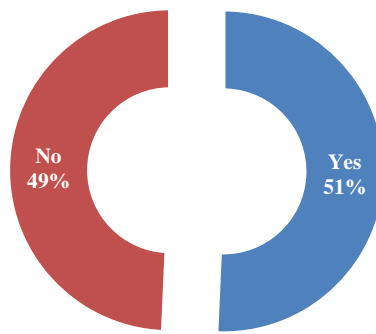
Fig 5: Easy to handle the electronic devices

Accordingly, in less same response among the students, respectively 51%, yes, and 49% no. Parents can't replace teachers for them. It's hard sometimes for parents who are teachers to educate their children at home. Notes and tutors cannot build an education without input from parents. Additionally, when parents are finding out. The largest deterrent to distance education is teaching in Sri Lanka, where vast volumes of information are transmitted to children in preparation for examinations. This checking of evidence by tests is often related to students getting accustomed to spoon-feeding.

c. *Opportunities*

This crisis will be a new step of online learning that will enable individuals to look at the fruitful side of e-learning technology. Online learning usually has several resources available, but this moment of recession will cause online learning to boom when more schools and organizations have moved to this model. This is when there is a lot of opportunities to carry out surprising technologies and digital advancements. During the eruption of the COVID-19 crisis, online schooling, remote jobs, and e-collaborations erupted (Favale et al., 2020). Online access has lots of resources to bring about fundamental improvements in virtually all areas of education. Furthermore, this fig 6 shows that the willingness of usage significantly high, around 60%. It seems that most of the students have been encouraged and adopted this sophisticated technology.

Future Usage of E-learning: The following figure – 6 illustrates the usage and benefits of e-learning.
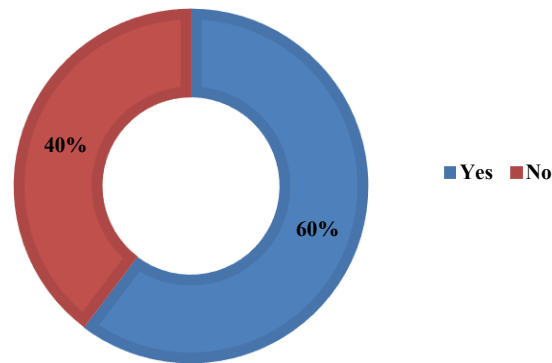

Fig-6: Future usage of e-learning

The majority (60%) of students foresee and appreciate this access to e-learning. There is no need to go to school, decrease commuting costs and time, and access new technologies and home environments. In such extreme cases, the reliability and adequate functionality of the networks of information communication technologies, learning facilities, interactive learning services in the form of Vast Open Online Classes, e-books, e-notes, and so on are of utmost importance. Furthermore, these writers also see support for those points (Huang et al., 2020). The finding shows the similarity of the present study.

Trend of ICT Skills: Any online forum can never replace the lively classroom dynamic. The classroom is not only a place for studying, but it is also a location where students connect through the social and cultural barriers that divide them and create lifelong relationships, friendships, and solidarities. LIRNE Asia's new study notes that only 34% of Sri Lankan households with children who have any kind of internet computer connectivity can access e-learning, ranging from online schools to social media site tutorials. However, the number of households with access to internet connections fell dramatically to 21% among the lowest socio-economic groups. This suggests that the vast majority of learners after the COVID-19 school closures were unable to use e-learning. Also, figure-7 explains the ICT skills comparatively getting improve after COVID-19 wheras very poor before COVID-19.
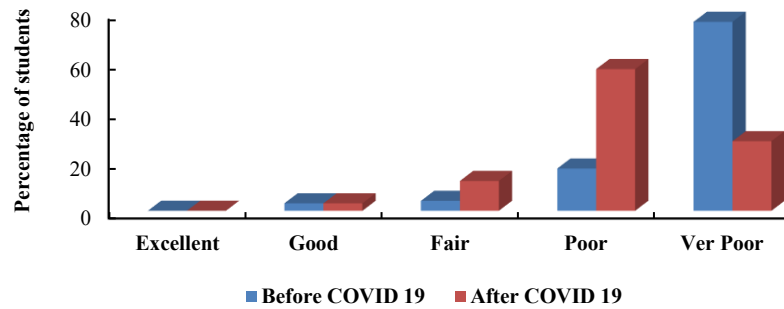
Fig-7: Improvement of ICT skills

Access of ICT Tools: Further, figure - 8 depicts the tools' utilization, brilliant phone of more than 90% compared with other devices.
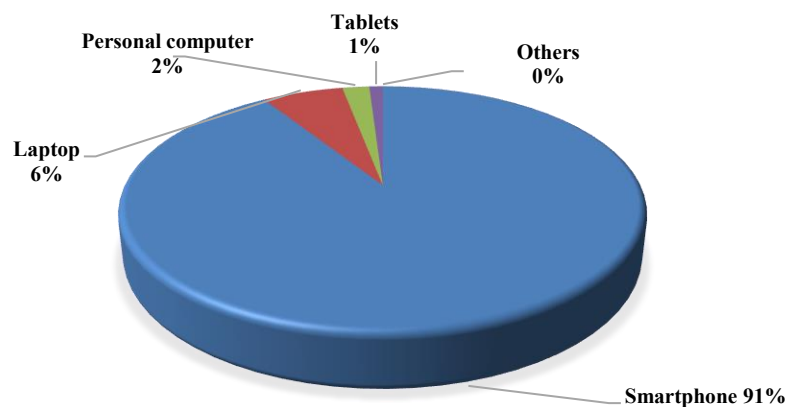

Fig 8: Access of ICT Tools

Everyone has a mobile, which is an easy way to connect and update applications for any reason. During this pandemic era, demand for smartphones grew dramatically in two-way simultaneous audio and video communication processes, allowing communication between groups of people situated in separate physical spaces, such as teleteaching, where there is only audio and voice. Various technology such as computer-mediated communication, digital Internet, Internet, applications, and virtual networks are also included in the perspective of the study (Rani and Surana, 2015). The above-mentioned findings are more similar about the access to ICT tools.

d. *Challenges*

Online learning faces multiple obstacles, ranging from problems for educators, educators, and content issues. For institutions, it is a struggle to involve students and make them participate in teaching. It is a struggle to transition from offline to online mode for teachers, adapt their teaching methodologies, and control their time. Developing material that encompasses the program and involves students is complicated (Kebritchi, Lipschuetz & Santiague, 2017). There is a lack of consistency, quality management, e-resource creation, and e-content distribution norms. In e-learning, a lot of time and expense is involved. It is not as simple as it seems; to have the computers and equipment, manage the equipment, train human resources, and create the online content, a substantial amount of investment is required. Therefore, to provide education through the online mode, an effective and efficient education system needs to be created.

While online learning provides more benefits for uses, it sometimes causes a lot of problems. These challenges and concerns related to digital technologies vary from installing errors, installation problems, login issues, audio and video issues, and so on. Students often think that online teaching is dull and uncompromising. There are so much time and versatility for online learning that students never have time to do it. Personal focus is a significant challenge facing online education as well. Students want two-way communications that are difficult to enforce at times. Until students practice what they learn, the learning process cannot achieve its full potential. Often, online material is all academic and does not encourage students to practice and study efficiently. Students believe that the biggest challenge to online learning is the lack of culture, technological challenges, and difficulties in interpreting instructional objectives (Song, Singleton, Hill, & Koh, 2004). It was also found that students were improperly trained for many competencies in e-learning. There is also a low degree of student preparedness for the use of Learning Management Programs (Parkes, Stein, & Reading, 2014). It's hard even to use online learning. The condition becomes unmanageable as vast numbers of notes are submitted.

Facing the Technical Challenge: Figure – 9 describes the technical challenges of more than 80% of responses. It indeed that usage of availability technology also will make some drawbacks during this pandemic.
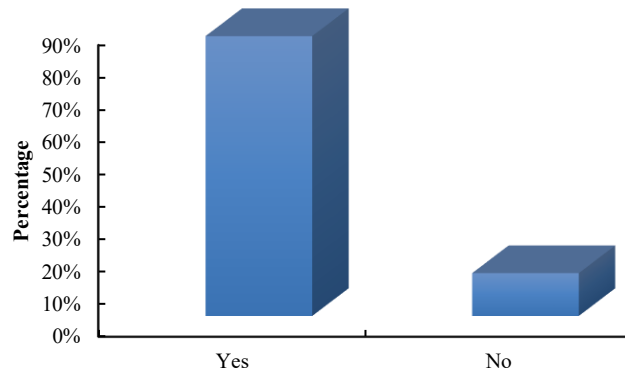
Fig-9: Facing the technical challenge

Types of Technical Issues: Educational technology start-ups are aiming for better results in this pandemic epidemic. Simultaneously, electricity supply and a reliable internet link are still a bigger problem in their way, as many cities, tiny towns, still face regular shortages of electricity.
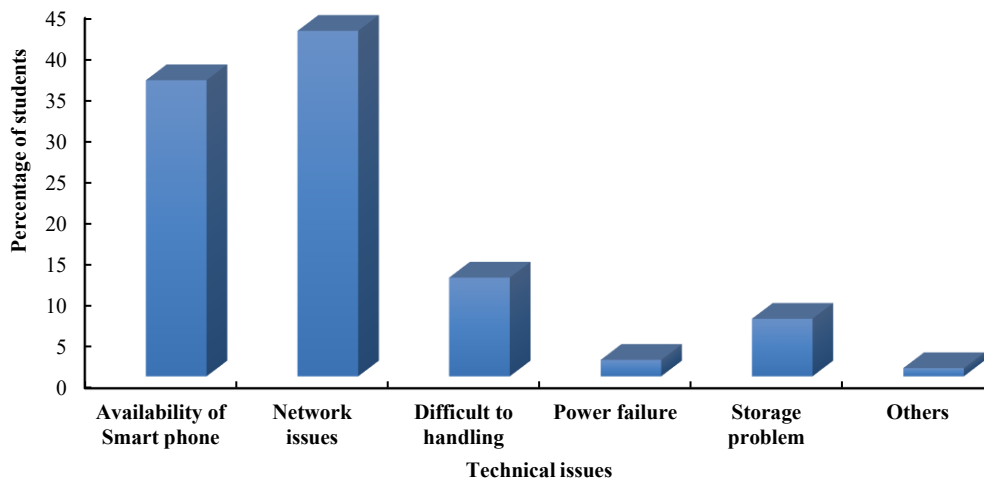

Fig-10: Types of technical issues

Figure – 10 clearly explains that type of challenges 45% in-network issues and 40% of availability of smartphones issue. In contrast, difficulties in handling devices, lack of storage, power failure are a minor issue. Andersson (2008) revealed seven major challenges in the following areas: student support, flexibility, teaching-learning activities, access, academic

confidence, localization, and attitudes. This finding confirms the finding of the present study there are challenges in relation to the e-learning system in Sri Lanka.

Types of Other Practical Issues: The online education system removes students who do not have the financial resources to afford the requisite equipment to engage with their classmates and instructors. (Kadirgamar, 2020). If the government sees online education as the only way out, it can take action to eliminate the costs for both students and teachers by supplying equipment and access. At the very least, the transition to online education does not make the differences currently ingrained in our educational systems worse. The crippling economic difficulties of thousands of impoverished household families must be resolved, and their schooling continued. Accordingly, figure – 11 depicts that the other types of issues, meagre income above 57% of the students, are facing. It indeed that mostly this kind of significant challenges available in reformate area.
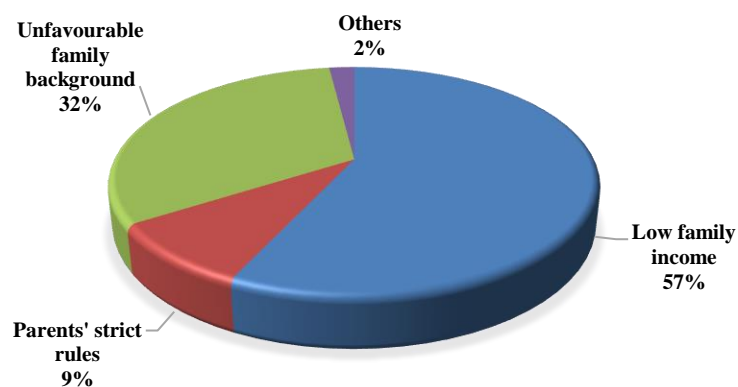

Fig 11: Types of other practical issues

e. *Impact on Student Lifestyle Due to COVID-19*

Frequency of Usage: The frequency is often given preference due to prior COVID-19 since this proposition is also marginally declining. In comparison, because of the sharing of online learning, regular use is marginally clustered after COVID-19. It is highlighted in figure-12, which shows the usage of ICT that, more than 60% of students use sometimes before COVID-19; likewise more than 40% use sometimes, and 37% use often after COVID 19.
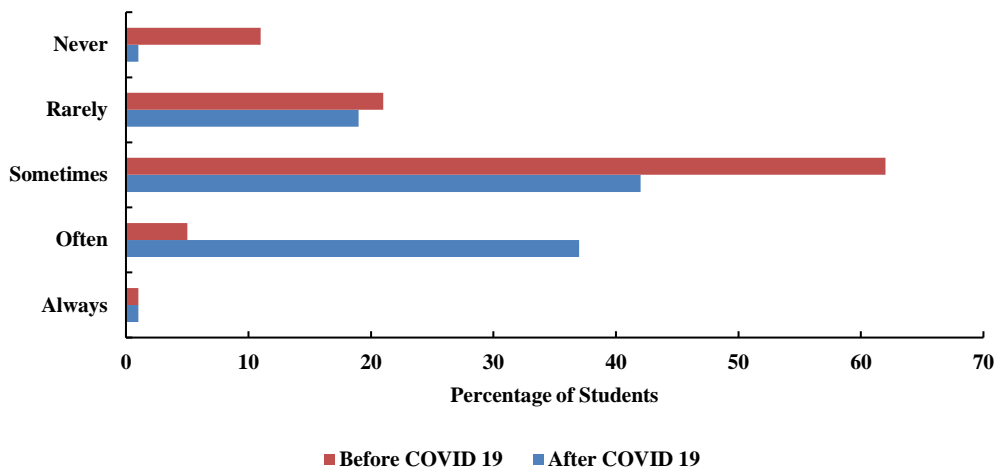
Fig-12: Frequency of Using ICT Tools

Availability of Smartphone: Figure – 13 illustrates that the availability of smartphone Suddenly goes up 80% after COVID-19 it seems that the mode of education turned to be from traditional face to face into online due that most of the students purchased smart mobile phone moreover if one family has more than two-three schooling children, who needed separate because different grades due to so many reasons involved gradually increase demand and price for smartphones have been increased
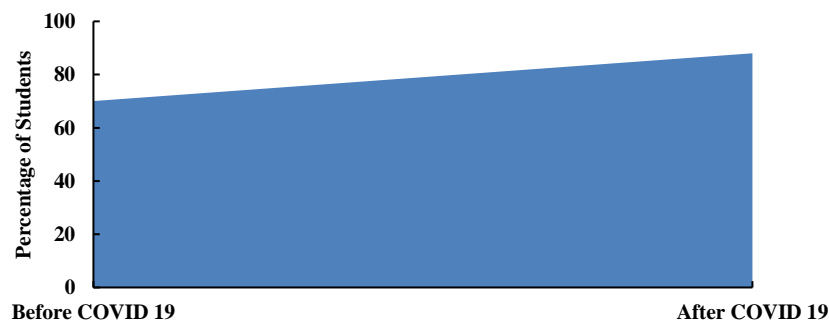
Fig-13: Availably of Smartphones

The Critical Purpose of ICT Tool Usage: Figure – 14 depicts that the usage of smartphones for e-learning purposes gradually increases above 40% compared with after COVID 19. While the percentage trend for e-learning purposes is increasingly growing relative to communication, entertainment is steadily declining. This is a robust online signal, at least during this pandemic, which plays a vital role. Teachers are often shamed for not being tech-savvy about moving into online learning as if the problem at hand is simply about gaining new technology skills. Distance learning does not need to be confined solely to digital channels. Students are individualized by the pedagogies embraced by some web platforms, their perception of nuanced socio-political problems is oversimplified, students are slaves to technology, and, above all, knowledge is reduced to an ability that can be bought online.
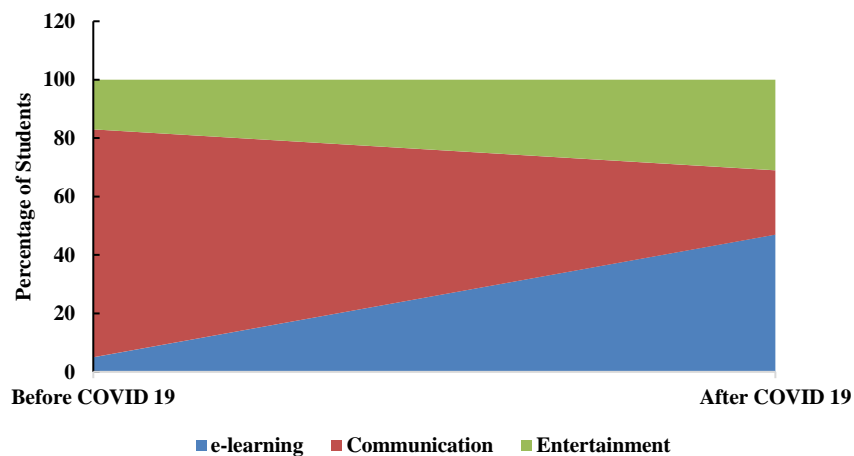
Fig-14: Purpose Using ICT Devices

V.   CONCLUSION

Eventually, in those tough times, innovations helped them conquer the obstacles. However, they say that a stable ICT infrastructure is a requirement for studying online. The system needs to be so powerful that it can offer unhindered services before and during the crisis. This study's key finding showed that most students used the WhatsApp platform, lack of managing knowledge and comprehension of ICT skills online methods, and low-income family history. But, in usual conditions, curricula intended for conventional schools should not be

superimposed on instructional activities conducted during a pandemic online. Instead of rushing to complete the syllabus, it should be urged to dedicate time to addressing the pandemic, its effect on our socioeconomics and the state, and the steps that can resolve the post-pandemic environment. Therefore, a high degree of planning was required to quickly respond to environmental changes and adapt to multiple distribution mechanisms, such as remote learning or online learning, in pandemic circumstances such as Covid-19.

VI. RECOMMENDATION

In impacted neighborhoods, many that deal closely with youth. So, for all students, the government should strive to create a level playing field. For example, the government should disseminate printed hand-outs of educational materials directly to students, particularly those residing in remote areas that are otherwise difficult to access by online teaching, in addition to the ongoing online teaching methods. Moreover, the government needs to start the online education system from traditional education model through blended mode to fully online education system and it will be a fruitful strategy to gradually improve the online participation of the students in the e-learning mode. Also, the Ministry of Education needs to consider providing e-learning tools and materials for students under the free and compulsory education system in Sri Lanka. Teachers' competencies in ICT need to be developed through conducting workshops and training programmes.

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