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Effectiveness of Rapid Transition to Online Learning During the Covid-19 Pandemic

S. S. M. Peramunagama* and R. Thusyanthini

Sri Lanka school of Agriculture, Department of Agriculture, Kilinochchi 44000, Sri Lanka

Email Correspondence; swarnamalitha@gmail.com (S. S. M. Peramunagama)

Abstract

COVID-19 is prevalent in almost every corner of the globe, meanwhile Sri Lanka is also experiencing it. Higher education providers of the department of agriculture (extension and training division) had to rapidly transition their teaching programs to online learning and assessment. The purpose of this study was to investigate the effectiveness of online learning during the COVID-19 period. Accordingly, students from four different schools of agriculture (Paranthan, Palamuna, Vavuniya, and Palwehera) were purposively selected (n=210). Google form was used to collect data. The results revealed that 53.3% preferred a combination learning system of both traditional learning and online learning. Advantages of online learning were the ability of recording lectures as video (51.7%) and learn in a comfortable place (42.1%). With regards to the obstacles to online learning during the COVID-19 technical problems significantly (91.9%) affected learning while reduced interaction with their teachers/instructors (43.8%) and poor learning environment at home (39%) also were considerable barriers. There was a statistical difference (p<0.05) between face-to-face and online learning in terms increase knowledge, practical skills, social competencies, and assessment methods. However, successful implementation of online learning into the curriculum requires a well-thought-out strategy and a more active approach.

Keywords: COVID-19, online education, schools of agriculture, Sri Lanka

Introduction

The COVID-19 pandemic has an impact on all across life (WHO Europe ,2019), especially in education. As a result of the COVID-19 pandemic, schools from kindergartens to universities have been closed globally [1]. UNESCO states that 290 million students are out of school due to COVID-19 worldwide, the crisis was a major fact in the implementation of online education [2,3]. Accordingly, educational institutions had to adopt a digital approach to instruction and student learning, dramatically transitioning traditional face-to-face classroom instruction to predominantly distance learning where teaching is provided remotely on digital platforms. Hence, to respond to COVID-19 education disruptions, the education sector of UNESCO firstly ensured effective distance learning by sharing teachers' guidance on digital learning with educational institutions globally [2]. Internationally, numerous studies also have been done. One of the student online learning experience surveys conducted by 118 Australian higher education providers in the first half of 2020 indicates that because of the rapid adoption of education institutes to online learning environments, students were facing the rage of pressures that impacted their everyday life [1].
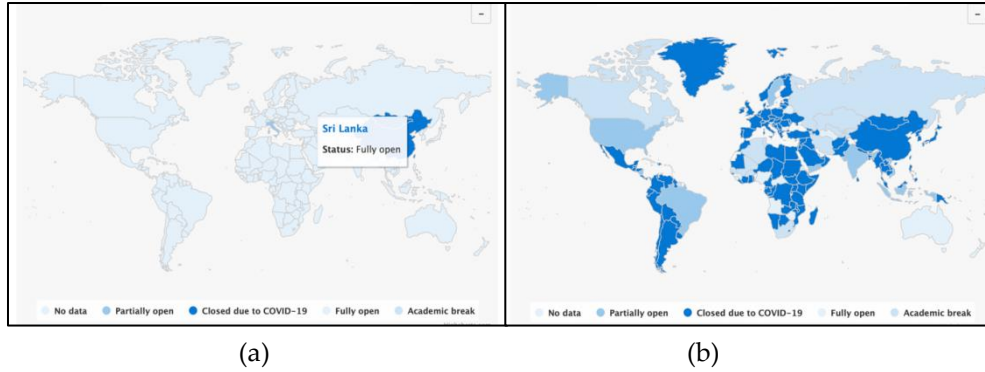
Figure 1 (a), (b). Global monitoring of school closures caused by COVID 19 [2]

Figure 1(a),(b) show that, until 2020 February 24, all the educational institutions were fully opened in Sri Lanka while figure 2 provides information that, educational institutions were completely closed due to COVID 19 in the following months.
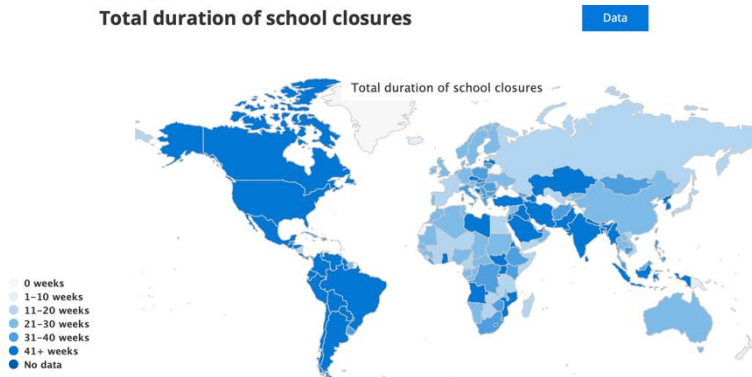

Figure 2. Total duration of school closures due to COVID 19 Source: [2]

Sri Lanka is no exception to these realities; the country closed schools and higher education institutes nationwide on 12 March 2020. Sri Lanka is one of the countries where education institutes were closed for more than 41 weeks from 2020 February to May 2021. Although a gradual reopening of education institutes was initiated from time to time, during this study, schools in Sri Lanka had been a temporary closure again, amidst concerns of a possible third wave. It proves that COVID 19 pandemic significantly affects students' learning.

The extension and training division of the department of agriculture Sri Lanka provides both national and higher national diplomas in agricultural production and technology (National Vocational Qualification level 5 and 6) courses at schools of agriculture (SOA). These schools are Paranthan, Vavuniya, Wariyapola, Kundasala, Palamunai, Angunukolapalasa, Pelvehera. Academic activities of these schools also were stopped due to the pandemic from the end of February 2020 to October 2020. However, with the lockdown situation, SOA had to move to online learning via MS Team to ensure continuity of quality education since November 2020 without getting interruption of students 'education. Meanwhile, there are positive aspects and negative aspects of these new technologies in terms of adaptation to innovation, ability to purchase necessary equipment, and availability of internet connection. It is a timely need to find out the present

situation of online learning and the attitudes of students toward online- learning. It is an interesting point to view whether the students contend with the present learning method. This study is conducted to investigate the effectiveness of online learning during the COVID-19 period in Sri Lanka schools of agriculture.

Methodology

An online self-administered survey questionnaire was designed using Google forms for a better understanding of student perceptions and experience of online learning undertaken during the COVID-19 pandemic and to assess what students thought had been successful and what had not worked in the transition regime. The survey was conducted from April to May 2021. Due to convenience for this study researchers had selected four schools (table 1) purposively. The survey was distributed to present students (National diploma and higher national diploma) studying at schools of agriculture under the department of agriculture, Sri Lanka.

Table 1. Sampling size of the study

School	Size of sample
Paranthan	35
Palamuna	47
Palwehera	58
Vauniya	67
Total	210

The questionnaire included three parts. The first part of the survey was students' demographic details and their early experiences with online learning. The second part of the questionnaire included the type of device and the internet connection they used, further advantages of online learning education, and barriers to usage. In the third part, students were asked to share their online learning experiences that, students thought had been successful and what had not worked in the transition regime. There were no exclusion criteria instead each student was allowed to complete the questionnaire once. All respondents were fully informed about the objectives of the study and agreed to voluntarily participate. Respondents had to compare, using the Likert scale from 0 (0 = extremely ineffective) to 4 (4= extremely effective), face-to-face learning with online learning in terms of the ability for directing the learning objectives (improvement of knowledge, social competencies, and evaluation methods; exam/ assignments). Collected data through Google form was imported to IBM SPSS and required statistical analysis was accomplished using this statistical tool. The descriptive statistics analysis of data was performed to determine the mean, frequency, and percentage. The non-parametric Wilcoxon signed-rank test was used to compare the perception of face-to-face and online learning. $P < 0.05$ was considered statistically significant.

Results and discussion

The personal demographic profile of the students is shown in table 2. A total of 210 students participated in the study. There were 85 first-year students (40.5%) and 125 second-year students (59.5%). The majority of respondents were females 132 (62.9%) while 78 (37.1%) were male. The age range of the students was 21

-31 years.

Table 2. Summary of variables

Variable		Frequency	Percent
Gender	Female	132	62.9
	Male	78	37.1
Study Year	2nd year	125	59.5
	1st year	85	40.5
Early experience of online learning	No	173	82.4
	Yes	34	16.2
	Maybe	3	1.4
Early experience of online questionnaire	No ,this is the first time	169	80.5
	Yes	41	19.5
Preferable software	Ms Team	200	95.2
	Zoom	9	4.2
	Google classroom	1	.6
Internet mode	Mobile data	159	75.7
	Wi-Fi and Mobile data	26	12.4
	Wi-Fi	25	11.9
Device use	Smartphone	166	79.0
	Laptop	21	10.0
	Laptop and phone	13	6.2
	Desktop computer	5	2.3
	Desktop computer and Phone	2	1.0
	Tablet	2	1.0
	Phone and Tablet	1	.5

Table 2 provides information about some variables used for the study. It is indicated that, out of 166 students, 79% of them had used smartphone as a connecting device for online lectures. In comparison with desktop, laptops, and tablets, the most popular device among students was smartphone for online learning. This finding is completely similar to the findings of Akuratiya and MedPage [4]. Which showed 43.8% of students preferred mobile devices for e-learning. Also, the majority (75.7%) had used mobile data as an internet mode to connect to the internet during online lectures. Most of the students pointed out that their weekly expenditure for data usage (74%) has increased by Rs.200.00 due to this online learning system. It evident that there is an increase in students' monthly expenditure due to online learning [5,6]. In terms of software, students mostly preferred software was MS team to attend online lectures, it was about 95.2% and other students preferred Google classroom and Zoom. Among the participants, 82.4% reported who had not experienced online learning before the Covid 19 pandemic it was their first experience. Existing literature also illustrate similar findings [7,8]. And this online survey also was 1st experience for more than 80% of the students.
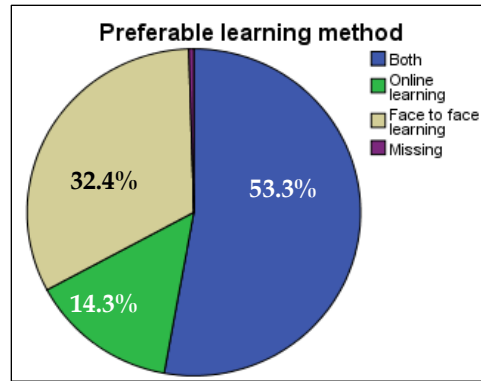
Figure 3. Preferable learning method of students

The given pie chart (figure 3) enumerates that among the students 112 (53.3%) preferred both online and traditional face-to-face classroom learning while 68 (32.4%) preferred only traditional face-to-face classroom learning, and 30 (14.3%) students preferred only online learning. Previous studies also revealed the same results that the majority of students preferred online learning to traditional face-to-face learning [9] [4]. Also, students are expected to continue their courses in online mode during covid 19 rather than postpone their academic activities.
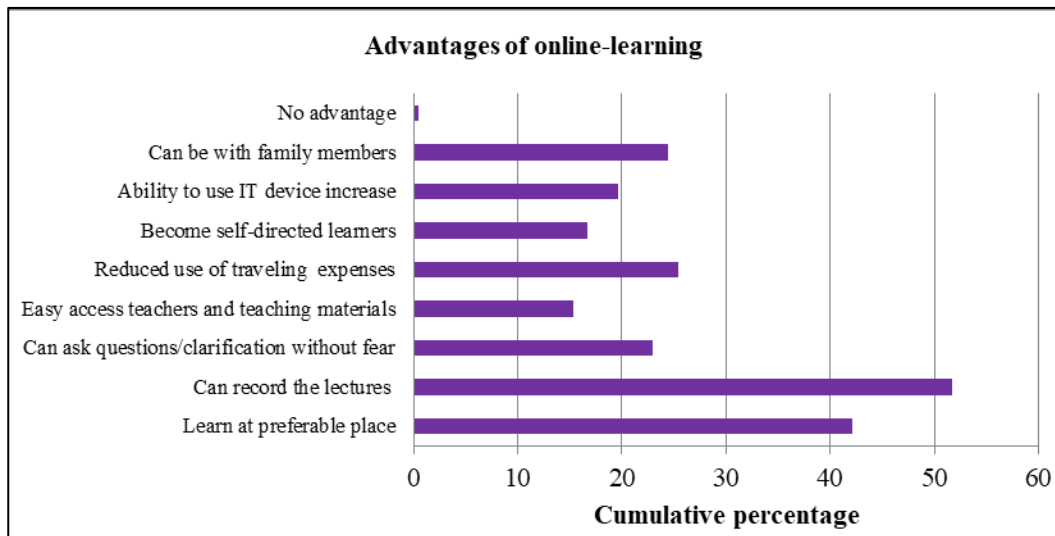

Figure 4. Advantages of online-learning Source: Author survey 2021

The bar chart (Figure 4) illustrates the advantages of distance learning. The analysis showed that online delivery could be recorded as a video and learning from preferable places/environments as major advantages which were 51.7% & 42.1% respectively. Further, students could ask questions/clarification without fear, easy access to teachers and teaching materials, which can also reduce the cost of accommodation and transportation. Becoming self-directed learners, improving the ability to use IT devices, and could be with family members were other advantages as well.
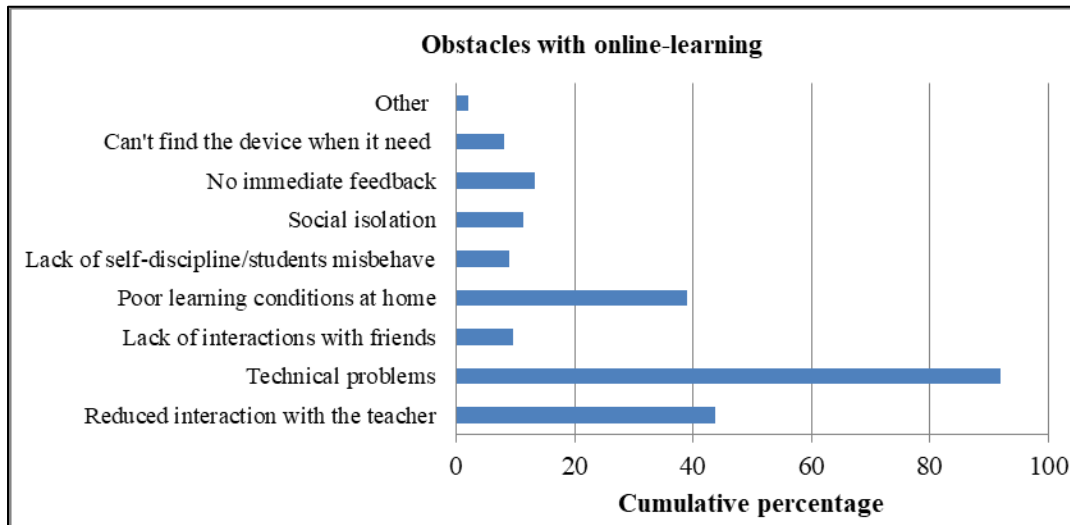
Figure 5. Obstacles (what did not work well) in online learning Source: Author survey 2021

Figure 5 shows problems encountered by students in terms of online lectures. Technical problems have significantly (91.9%) affected learning. While reduced interaction with their teachers/instructors (43.8%) and a poor learning environment at home (39%) also were considerable barriers. Other challenges were lack of interactions with friends, lack of self-discipline/students misbehaving, social isolation, no immediate feedback, no device when needed and headache and eye pain (small screen of mobile to see presentation) were recorded. Similar findings were presented by Verma [3,10].

Effective communication is essential at all levels of an organization. Communication barriers students faced during the online learning was bad weather conditions, regular power cut, and less signal frequency. In detail, students were from various parts of the country, and weather conditions also were not the same in all parts of the country therefore, all the students could not steadily attend lectures. Psychological barriers, reduced interaction with academic staff and peers, isolation, lack of engagement, and reduced motivation were commented. The Australian government, tertiary education quality, and the standard agency have surveyed 118 education providers which was the student experience of online learning in Australian higher education during the COVID-19 pandemic their findings also were the same as this study.
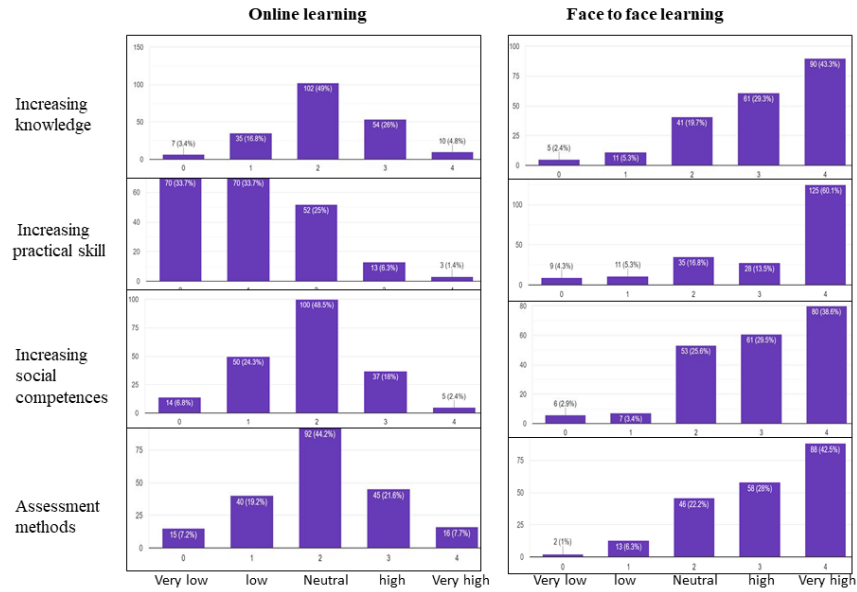
Figure 6. Effectiveness of online and traditional learning Source: Author survey 2021

There was a statistical difference between face-to-face (M = 3.06) and online learning (M = 2.12) in terms of opinions on the ability of the learning method to increase knowledge (p =.0.000). Online-learning was considered less effective than face-to-face learning in terms of increasing practical skills (M = 1.08, M = 3.2, respectively) (p<0.05) and social competences (M = 1.85, M = 2.98, respectively) (p<0.05). Students' assessment method that they were less active during online classes (M = 2.03) compared to traditional classes (M = 3.05) (p<0.05). In detail, online learning results revealed that around 50 % of them responded as a neutral contribution to developing their knowledge, social competencies, and evaluation methods. Which meant bel the shape curve (X-axis values indicate 0 = extremely ineffective to 4= extremely effective) because online learning was a new experience for them after schooling. In the meantime, online learning was significantly considered an ineffective method. Face-to-face learning concerning knowledge, social competencies, and evaluation methods highly contributed to their development. The analyzed data showed a right-skewed curve (the X-axis of the figures shows 0-4, 4 indicates very high). Students preferred in-person learning. Meanwhile, numerous advantages also were listed. Due to online learning students could not develop their practical skills. Contrarily, in-person learning led students to develop practical skills. The given figure explicitly shows that left-skewed and right-skewed respectively.
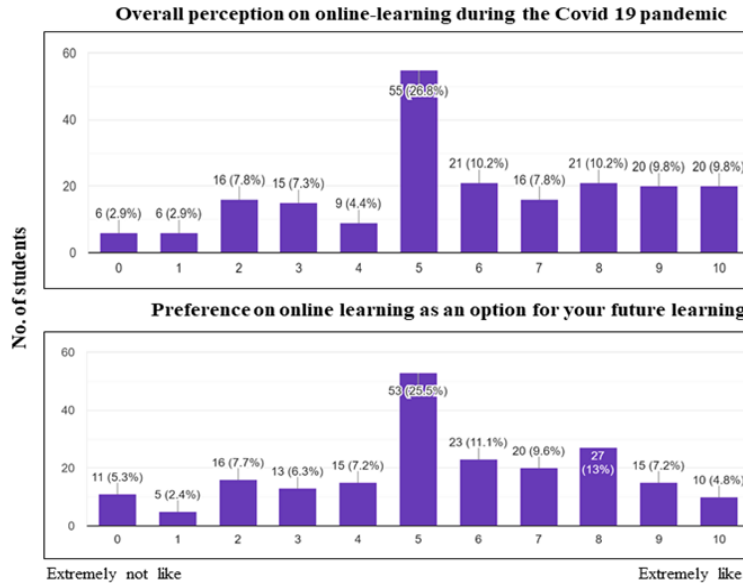
Figure 7. Student perception toward the online learning Source: Author survey 2021

The given column charts (figure 8) illustrate the overall perception of online learning and their preference for online learning in the future. Overall positive perception of the students regarding online learning during COVID-19 is remarkably high (47.8%) while 25.4% of students had negative perceptions and 26.8% of students had neutral perceptions. The students' responses explained that students were interested in combining both learning methods such as in-person and online (45.7 %) instead of either online or in-person learning in the future.

It is a well-known finding, that students completely opined with online learning due to ineffective communication. According to the communication barriers mentioned earlier in the discussion part, more than 80 % of the students suggested that to improve the communication process effectively by using feedback, motivation, individual attention of lecturers, and creating a sense of community. Out of the total sample, 82 % of the students use mobile to attend lectures. As it is known, mobiles get heat quickly and drain phone battery, meantime mobiles were needed to charge while lectures were going on, for that student used headphone /earphone when it connected to electricity which may harmful (brain damage, electrocution, etc.) to them. Indeed, limited access to technology is a serious barrier in developing countries [11]. The study found that the students had very limited access to computers and the internet within their destination. Unlike in developed countries, computers are still a luxury in the developing world.

 In detail, Students discussed that online learning did not motivate them, no personal communication with lecturers if they had questions about the modules, only during lecturing hours students were able to access lecturers that also was limited time, and no time allocation for lectures to advise students except covering module content, very weak internet connection in some villages though, some packages have been introduced for work and study, economic problem due to several siblings who also studied same time, no continuous income due to temporary, one day laboring, contract basis type occupation (they were not paid during the pandemic), lack of exercises and health hazard by using devices long time and overall no happiness. Therefore, students were not confident about their performance in the examination. Though many circumstances were recorded by students due to online education, students' overall suggestion was

to conduct online lectures during the Covid pandemic rather than completely stop educational activities. There should be keen to assess how effective the rapid transition to online teaching and learning and different forms of assessment have been and what the student's experience was of the changed arrangements though this current research sets out a preliminary analysis. Furthermore, the promotion of innovative teaching and learning and the outcome-focused curriculum design must be at the heart of this process [12,13].

Conclusion

This study showed that only online learning is not an effective learning method teaching for agriculture diploma students. On the other hand, online learning should not only be based on the delivery of content, meanwhile, but students should also be able to work with it. However, it is important to note that in consideration of the improvement of agriculture practical knowledge there must be a combination system of both traditional and online learning methods. Furthermore, the government should consider providing internet connection free of charge to the students, and also internet providers should analyze the coverage issues in the rural areas. To recommend, the department should be keen to assess how effective the rapid transition to online teaching and learning and different forms of assessment has been and what the student's experiences were due to the changed arrangements to assure the quality of education through the authors' current research sets out a preliminary analysis. Further, these findings are important that can lead to effective policy decisions, to improve study programs offered in Agriculture School.

Conflicts of Interest

The authors declare no conflict of interest.

Acknowledgment

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