

Students Satisfaction with Online Learning during the COVID-19 pandemic: A first-round analysis of Diploma Program in Library and Information Science

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Abstract

The Sri Lanka Library Association (SLLA) has transitioned from conventional teaching-learning to online education. However, no further research has been conducted to assess the successfulness of this online learning from the students' perspective. Addressing this issue, the objectives of the study were to measure the satisfaction, successfulness and challenges faced by diploma students with online learning at SLLA during the pandemic. The survey was conducted using Google Forms and WhatsApp, with approximately 225 students approached and 194 (88.5%) responding. Data analysis was performed using SPSS software, and statistical tests were applied using the Wilcoxon signed-rank test and Rosenthal r value. Results regarding students' successfulness indicated that more than 70% agreed with online education during the lockdown. Additionally, students expressed that the online mode was more secure for their health 152(73%) and for transportation 129(66.49%) compared to face-to-face classes and distance mode classes. Concerning satisfaction, 97(50%) students were either highly satisfied or satisfied with online teaching, Regarding the devices used, majority of students (78.9%) used smartphones; whereas the use of laptops, desktops, and tablets was less commonly used (17.5%).

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Challenges identified were recorded as, clearly hearing the lectures 88(45.4%), expensive equipment requirements 85(43.8%), poor internet connection and difficulty in logging on in a timely manner 84(43.3%) each, and a feeling of isolation while attending class 82(42.3%). Overall, the majority of students were satisfied with online learning and they are moving towards the health security, transportation convenience, and ability to attend classes from home, despite the challenges faced. It is recommended to enhance student interaction and improve the practical effectiveness of the online course. Additionally, action should be taken to address the challenges faced by the students, redesign the online course to improve practical effectiveness, and implement best practices in online education.

Keywords: Online Learning, Diploma, Library & Information Science, Satisfaction, Association, Sri Lanka

Introduction

The COVID-19 pandemic has had a radical impact on nearly all countries. Though the pandemic has reshaped many of the entrenched habits, behaviors and approaches life, education sector has been the most severely affected by this pandemic situation. Consequently, numerous students have been compelled to discontinue their educational programs and institutions. The massive disruption in education involved the abandonment of face-to-face (F2F) teaching and the implementation of physical distancing measures to prevent the transmission of the virus ([Hettiarachchi et al., 2021](#); [Verma et al., 2021](#); [Riyath et al., 2022](#); and [Abuhmaid & Jarrah, 2022](#)).

In response to the severity of the COVID-19 pandemic, UNESCO recommended adopting online teaching and learning through new technologies for the higher education sector ([UNESCO Report, 2020](#)). During this period crisis period, lecturers and students transitioned to online teaching and learning from early 2020 to mid-2021. This approach, also known by terms such as e-learning, blended learning, online education, web-based education, web-based instruction, and online courses, has proven to be a vital resources, regard as the ideal solution for maintaining continuous and uninterrupted education ([Bao, 2020](#); [Hettiarachchi et al., 2021](#); [Urme & Barua, 2023](#)). This transition presented challenges compared to conventional face-to-face teaching, including for the Sri Lanka Library Association (SLLA). The shift to online learning posed significant challenge for both students and lecturers at the SLLA. During this exceptional time, the education committee of the SLLA had to explore various novel and unconventional educational and teaching methods. As a result, substantial efforts were made to develop effective online teaching methods that are both affordable and satisfactory for the SLLA students.

Statement of the problem

The rapid spread of the COVID-19 pandemic has significantly disrupted traditional learning methods, affecting students' education worldwide. Its impact has been affected by all students in education worldwide. Many higher education institutes and universities conducted surveys to assess the effectiveness of online teaching and learning platforms during the COVID-19 pandemic. Like most universities, the Sri Lanka Library Association (SLLA) also heavily invested in developing online teaching capabilities during this pandemic period. Despite the fact that, the Sri Lanka Library Association has transitioned from conventional teaching-learning to online education, no research has yet been conducted to evaluate the effectiveness of this online learning from the students' perspective. Therefore, this study aims to provide a comprehensive overview of the students enrolled to the Diploma course at SLLA for the academic year 2021/2022 who were compelled to switch to online classes due to the pandemic.

Objectives

In this environment the following objectives have been set for the study;

- To investigate the students' successfulness with various teaching methods
- To measure the level of satisfaction with online education
- To gather information on the challenges encountered by students in online education

Contextual Background

The Sri Lanka Library Association was established in 1960 as the Ceylon Library Association. In 1961, SLLA began offering library education ([Lankage, 1989](#)). In 2021, SLLA celebrated its 60th year of providing

education, with significant improvements in the library science courses offered by the Library Association. SLLA is the only national body in Sri Lanka that provides education for public librarians and library assistants, and the government recognizes these professional qualifications for relevant recruitments. Though the diploma courses are conducted by using two teaching methods; face-to-face and distance learning, with lecture notes provided to distance students- the global pandemic necessitated a shift in the education program to suit an online environment by adopting ZOOM. Awareness programs were conducted to familiarize student with Zoom and online education. While SLLA had previously conducted both face-to-face and distance education programs, e-learning has become the primary solution during this global pandemic, despite the challenges it poses to both educators and students.

Literature Review

Online learning, adopted by all kinds of institutes, was perceived as the only safe and viable choice to continue teaching and learning during the lockdown ([Abuhmaid & Jarrah, 2022](#), [Verma et al., 2021](#)). With the emergence of the pandemic in April 2020, 90% of the world's student population was affected ([UNESCO, 2021](#)). In this crisis, online learning become the lifeline and was considered the best option to ensure uninterrupted education. Consequently, the government and the Ministry of Education and Higher Education in Sri Lanka introduced alternative teaching-learning opportunities as online solutions.

Online learning during the pandemic

Various researchers and scholars have provided different definitions for the term “Online learning”. The Commonwealth of Learning defined e-

learning in 2015, emphasizing its foundation in digital technology. [Maddison et al. \(2017\)](#) defined *Online learning* as “instruction that is delivered electronically through various multimedia and Internet platforms and applications”. This term often used interchangeably with others such as *web-based learning*, *e-learning*, *computer-assisted instruction*, and *Internet-based learning*. With these definitions in mind, this review aims to assess the success of online education as indicated in research articles. For instance, [Riyath et al. \(2022\)](#) suggest in their study that students with a positive perception of Zoom have a strong intention to use it for their online classes.

Student Satisfaction

Whether learning occurs online or in a face-to-face classroom, one measures of educational effectiveness is student satisfaction. Many researchers have identified student satisfaction with online learning in various ways. Some have assessed the tools and facilities used for online learning. For instance, [Gamage & Zaber \(2021\)](#) conducted a survey among teachers in Sri Lanka and Bangladesh and found that 90% of teachers in Sri Lanka used WhatsApp technology, while teachers in Bangladesh, particularly those from schools with better facilities, tended to use a variety of more advanced products. A survey conducted at the South Eastern University of Sri Lanka ([Nafrees et al., 2020](#)), revealed that more than 50% of the students were satisfied with online education during the lockdown period. The reason for this satisfaction included the ability to continue academic work safely despite limited experience and conveniences of accessing course materials at any time. This suggests that undergraduates prefer to use the online education system ([Selvaras, 2020](#)).

A study conducted on online learning in Sri Lanka’s Higher Education Institutions during the COVID-19 pandemic indicated that nearly 90% of

students were highly or moderately satisfied with online education. According to [Hayashi et al. \(2020\)](#), there were no significant differences in the adoption of online learning by gender or between state and non-state institutions. The study also reported that while a large number of students owned smartphones, access to laptops and desktops with video cameras was insufficient. Specifically, around 90% of students reported owning a smartphone, but only 55% of students in state institutions and 66% in non-state higher education institutions owned a laptop. An African study on medical students' perception of e-learning during the COVID-19 pandemic revealed that only 32.1 % of subjects had laptops, while 88.5% had smartphones, which they used to access the internet. A noteworthy finding from this study, consisted with [Hayashi et al. \(2020\)](#), was that there were no significant differences in perceptions of the educational impact or effectiveness of online learning based on their sex, academic ranking, or position.

Problems/ Challenges

Many researchers have identified several factors that affect access to online education. According to a study conducted by [Hayashi et al. \(2020\)](#) in Sri Lanka, 70% of students faced challenges due to poor internet connectivity during their online learning. [Riyath et al. \(2022\)](#) suggested that students' negative attitude toward Zoom led to poor attendance in Zoom classes. This negativity often stems from a lack of self-efficacy in using computer/digital devices and applications, as well as a lack of awareness, unfamiliarity, and difficulty in understanding Zoom. However, various challenges remain including insufficient infrastructure, a shortage of well-trained instructors, limited financial support, government policies, and low student readiness ([Oliveira et al., 2020](#)). Another significant issue is the lack of resources, such as unstable internet connections, technical issues, and limited internet access.

[Madhubhashini \(2021\)](#) found that these issues-such as technical difficulties, ethical concerns, unstable coverage, background noises, limited face-to-face interactions, and high internet charges-affected students across different specializations. Specific issues for students outside Colombo and adult learners included the unavailability of laptops, mobile phones, or internet connections as well as limited IT knowledge and English barriers. [Rameez \(2020\)](#) also notes that a lack of online teaching and learning skills among both staff and students was a critical factor that disrupted the smooth functioning of the teaching and learning process in many of the state universities in Sri Lanka during the COVID-19 pandemic.

Materials and Methods

The study specifically analyzed first-year Diploma in Library and Information Science (DLIS) students because they were the first cohort to face the immediate and sudden transmission to online lectures. To reach the target population, Google form and WhatsApp groups were the only solutions used to distribute the questionnaire. A total of 219 new students were registered in the group ([Annual Report 2020/2021](#)). As a result, the entire student population was considered for the survey, and 194 students participated, resulting in a response rate of 88.5%. The data were imported into SPSS V. 23 analysis software for further examination. The categorical data were analysed using SPSS to provide a descriptive summary of the data according to the objectives.

In addition to the categorical data, the ordinal data were analysed using one-sample nonparametric test, specifically the Wilcoxon Signed-Rank test, and Rosenthal's correlation interpretation was applied for further analysis. This test was used to analyse median differences in the paired data to determine whether the observed differences between paired groups were

statistically significant. Rosenthal's test results provided the effect size (r value) related to specific comparisons, offering insights into the practical significance of any observed effects in the data set.

Significance of the study

The results of the study will enhance the blended approach in the Diploma and Higher Diploma programs. Furthermore, by examining students' perceptions, the study can identify the challenges in online teaching and learning for the course, as well as any practical difficulties that may arise. This information could help to mitigate such problems in future teaching and learning of the courses at SLLA. During the coronavirus-19 pandemic, no research was published on students' use of Zoom for online classes within the context of the Sri Lankan Library Association, which adds to the originality value of the study.

Results and Discussion

Demographic characteristics

The demographic profile of the 194 students who participated in the study is presented in Table 1. As the table indicates, the majority of the survey participants were female, comprising 171 (88.3%), while male participants made up only 23 (11.7%). This reflects the gender distribution among students in the Diploma in Library and Information Sciences course conducted by the SLLA in 2022. Regarding age, participants ranged from 20 to 40 years, with nearly 30% falling within the 26 - 30 age range. The second largest age groups were 21–25 and 31 – 35, each making 29.3% of the sample. The GCE (A/L) (General Certificate of Education (Advanced Level)) examination determines students' eligibility for the Diploma program at the Sri Lanka Library Association. Table 1 indicates that most of the students came from the Arts

stream, with 145 (74.7%) applicants, followed by the Commerce stream with 34 (17.5%) applicants.

Table 1

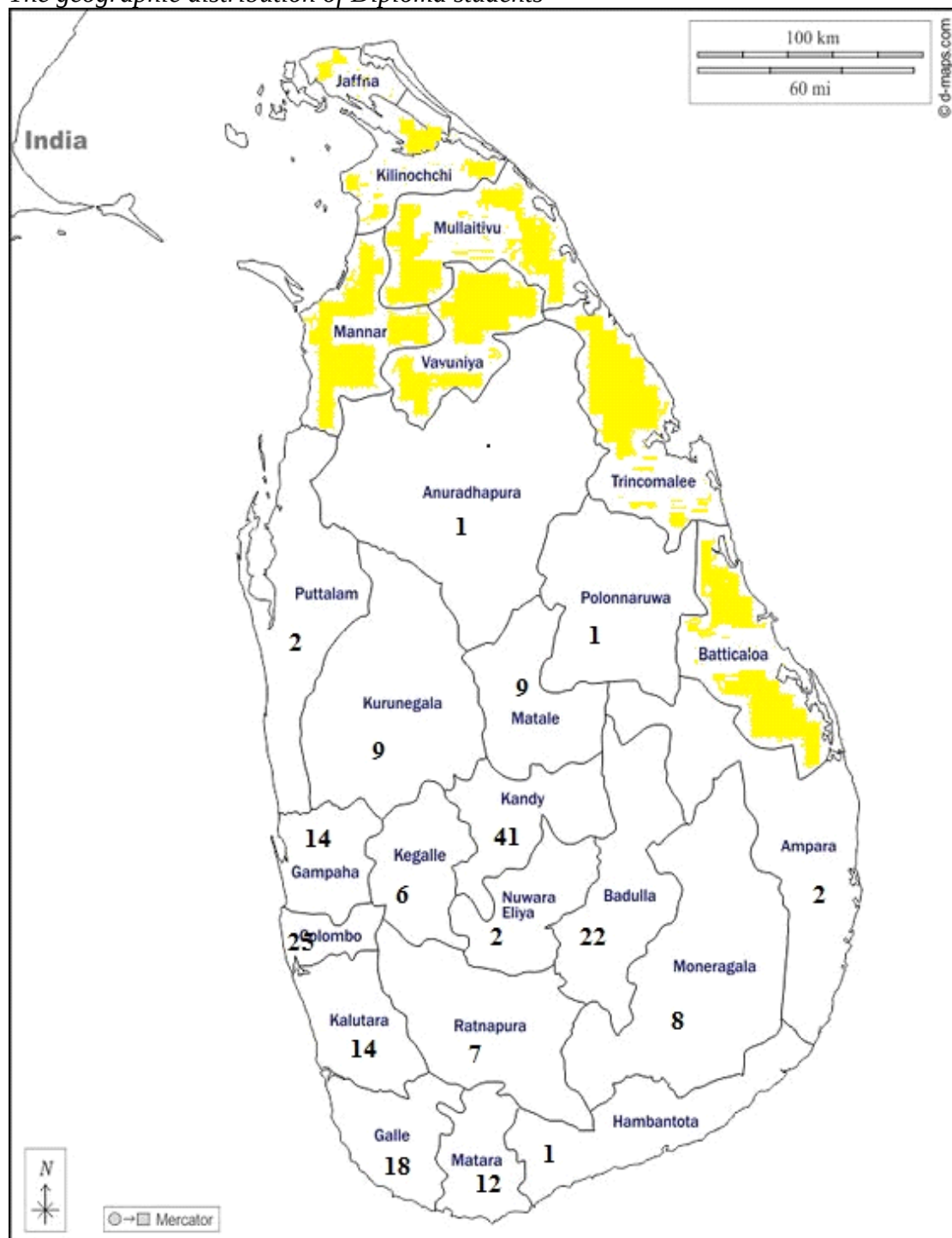
Demographic Profile

Characteristics	Attribute	Frequency	Percentage
Gender	Female	171	88.3%
	Male	23	11.7%
	Total	194	100
Age	21 – 25	57	29.3%
	26 – 30	58	30%
	31 - 35	57	29.3%
	40>	22	11.3%
	Total	194	100
GCE (A/L) Subject Stream of the students	Arts	145	74.7%
	Commerce	34	17.5%
	Science	11	5.7%
	Mathematics	-	-
	Technology	3	1.5%
	Agriculture	1	0.5%
	Total	194	100
Registered Method	Face-to-Face	123	63.40%
	Distance	71	36.59%
	Total	194	100
Learning Mode	Face-to-Face	129	66.49%
	Distance	65	33.50%
	Total	194	100
Employed candidates	Public Librarian	26	13.4%
	Loc. Govt. Library	23	11.8%
	School Assistant	18	9.2%
	Academic Library	13	6.7%
	Special Library	7	3.7%
	University Library	2	0.6%
	Other	23	11.85%
	Not Employed	82	42.26%
Total		194	100

In terms of the learning mode, most first-year students showed a strong preference for Face-to-face learning with 123 (63.40%) initially registering for this mode, while the remaining 71 (36.59%) students chose distance learning. However, this preference slightly shifted as the course progressed. Consequently, 129 (66.49%) students participated in Face-to-face classes, while 65 (33.50%) students followed the distance learning course for the Diploma in Library and Information Sciences at the SLLA. The geographic distribution of the survey participants is depicted in Figure 1. As shown in the map, the participants are registered in various regions of the country, excluding the Northern and Northern Easter regions for the diploma course. Further, from the study sample of 194 candidates, it was found that only 112 (57.7%) students were employed in various positions, while 82 (42.26%) students were not employed.

Figure 1.

The geographic distribution of Diploma students



Students' successfulness regarding various modes of teaching methods

The SLLA Diploma course was delivered using various teaching methods, including Zoom, face-to-face and distance learning. The study aimed to assess the student success in relation to these different teaching modes employed by SLLA during the pandemic lockdown. To achieve this objective, the questionnaire included three sets of Likert scale questions related to the three modes of lecture delivery; Zoom, face-to-face and distance learning. A significant number of students indicated satisfaction with the zoom lecturing mode, as reflected in their responses on the five-point Likert scale. Table 2 shows the levels of happiness and satisfaction regarding the online delivery mode.

Table 2

Successfulness of participating of online classes

Successfulness of the participation of Online Classes	Agree	Neutral	Disagree	P value	R value
1. All students can learn through one zoom class	136 (70.10%)	15 (7.7%)	43 (22.16%)	0.576 NS	NS
2. Lecture and the presentation is clear	104 (53.61%)	47 (23.9%)	43 (22.16%)	0.229 NS	NS
3. Can discuss the problems with the lecturer	112 (57.73%)	38 (22.3%)	44 (22.68%)	0.189 NS	NS
4. Ability of take part from home	139 (71.65%)	13 (8.5%)	42 (21.64%)	0.000 S	0.253
5. Totally secure than Face-to-Face mode	152 (78.35%)	01 (1.1%)	41 (21.13%)	0.033 S	-0.153
6. No expenses for transport and food etc	129 (66.49%)	21 (12.4%)	44 (22.68%)	0.001 S	0.228

NS= Not Significant S=Significant

According to Table 2, more than 70% of the students agreed to engage in online education during this lockdown, indicating a preference for this mode of learning. This finding supports the results obtained by [Nafrees et al. \(2020\)](#) and [Gismalla et al. \(2021\)](#). Additionally, 78.35% students reported that online learning was safer for their health during the pandemic lockdown compared to face-to-face classes, while only 22.13% disagreed with this statement. In contrast, [Fernando & Bandara \(2021\)](#) reported that online learning is not as effective as face-to-face learning. Furthermore, almost all students had only one-year of experience with online learning. On the other hand, the results also indicate that students are proficient in handling online platforms, with very few falling into the category of not-responding.

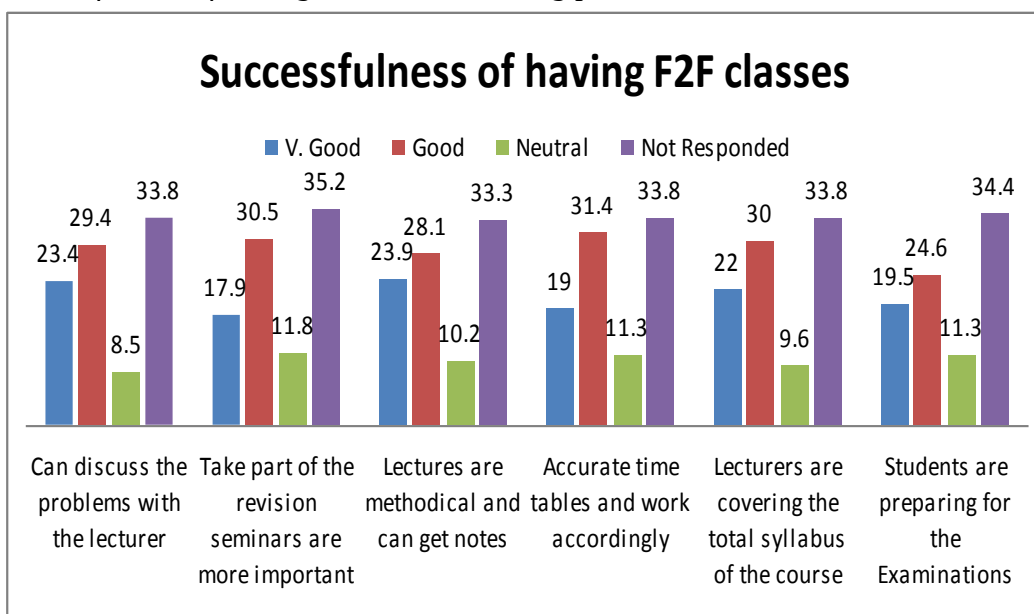
A one-sample Wilcoxon Signed-Rank test was conducted (see Table 2), using a hypothesized median of 3 (the value assigned for neutral). The medians for statements 4, 5, and 6 in Table 2 were significantly different ($p=0.000$, 0.033 and 0.001) with very low effect size ($r=0.25$, -0.15 and 0.22). This indicates that the majority of respondents significantly learned towards “agree” side. This further confirms that students were concerned about the mode of delivery, their health security and transportation during the pandemic, and that they adapted to the Zoom delivery mode. However, there were no significant differences for statements 1, 2, and 3 in Table 2.

Furthermore, the author analyzed the successfulness of Diploma students in both face-to-face and distance mode classes. Due to the pandemic lockdown, students were required to attend online classes and could not participate in face-to-face or distance mode lectures for their diploma course. Consequently, for the 5 point Likert scale questions, the options for ‘Strongly Agree’ and ‘Agree’ level were less prevalent as they many students lacked experience during this crisis period. Nevertheless, the survey result indicated that students were less responsive to the questions, with a higher ‘not

responded’ rate compared to Table 2 of above. Figure 2 shows the questions and the frequency of responses related to Face-to-face classes.

Figure 2

Successfulness of having F2F classes during pandemic lockdown



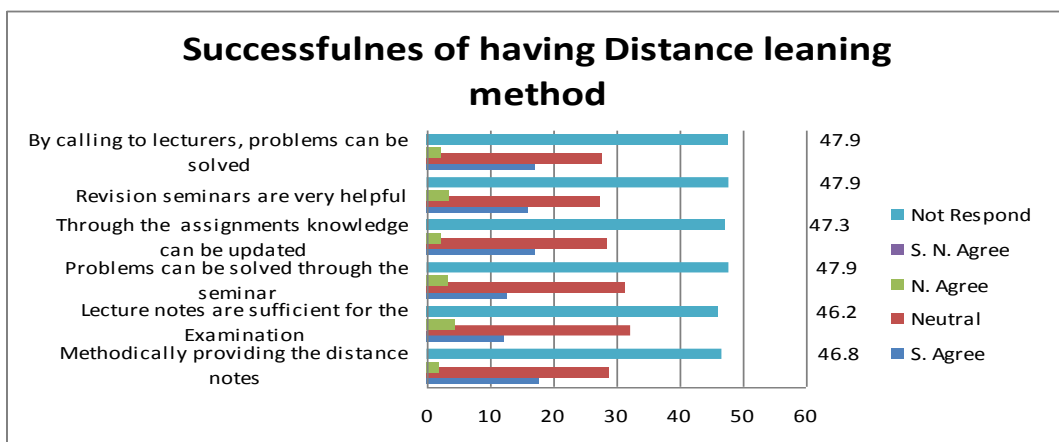
Specifically, the distance mode classes were also converted to online classes due to the absence of course-related workshops where students could discuss problems and subject matters. The responses were as follows; the ‘Not Responded’ rate was higher than the ‘Responded’ rate for these questions (see Figure 3). This further indicates that students attended online classes and were satisfied with this mode of education.

In the analysis of the successfulness of online education, it is evident that the majority of students-136 (70 %)- ‘Strongly agreed’ or ‘Agreed’ that physical lectures would help control the spread of the COVID-19 infection

(see Figure 3). They perceived that e-learning was the best solution during the COVID-19 lockdown. These findings are supported by previous research as well ([Gismalla, 2021](#); [Hayashi et al., 2020](#); [Selvaras, 2020](#); and [Abuhmaid & Jarrah, 2022](#)).

Figure 3

Successfulness of having distance classes during pandemic lockdown



The level of satisfaction with having online education

The satisfaction level of online education also needs to be measured as this change has occurred worldwide, and its impact on Sri Lankan education needs to be assessed. Therefore, the question was paused using the Likert scale method, and the results of the students are presented in Table 3.

The results of the study shown in Table 3, indicate that 97(50%) of the students are satisfied with online teaching, corroborating the findings of [Hayashi \(2020\)](#). [Nafreez et al. \(2020\)](#) reported that a study conducted at South Eastern University revealed that more than 50% of students were happy with online education during the lockdown. This study similarly yielded the results which achieved by [Nafrees et al. \(2020\)](#) indicating that 50% of students satisfied with online education, while only 10% expressed dissatisfaction,

indicating they were either not satisfied or highly not satisfied. Additionally, all of these students had less than 1-year of experience with this online-learning process, which further demonstrates that they are becoming familiar with online learning.

Table 3

The level of satisfaction

Satisfaction level of Online Teaching	Frequency	%
Satisfied	97	50
Neutral	71	36.60
Not Satisfied	22	11.34
Not Replied	4	2.0
Total	194	100

Data relating to the devices used by the students, as presented in Table 4, reveal the online survey results regarding the devices available for accessing the internet. The majority of students (78.9%) used smartphones for online education, while the usage of other devices such desktops, laptops, and tablets was not much utilized (19%) for online learning. This result is consistent with the percentages reported by [Arachchige et al. \(2021\)](#), who found that students favored laptops, desktops, and smartphones but not tablets. Additionally, in line with [Hayashi \(2020\)](#), a higher percentage of students used smartphones and laptops for online learning, a finding also supported by [Nafreez et al. \(2020\)](#).

When the students were unable to access the lectures through the aforementioned devices, alternative methods that they used to follow the course were identified. The analysis of these results is presented in Table 5.

Table 4

Devices used by students

Devices used by students for online learning	Frequency	%
Smart Phones	153	78.9
Laptops	29	14.9
Desktops	5	2.6
Tabs	2	1.0
Other	1	0.5
Not Respond	4	2.1
Total	194	100

Table 5

Alternative methods used to follow lessons

Method of following lessons without devices	Frequency	%
Getting notes	81	41.8
Ask from friends	46	23.7
Exchanging recordings	37	19.1
Other	12	6.2
Not Responded	18	9.3
Total	194	100

The students who could not attend the lectures used alternative methods to access the course materials. In that process, 41.8% made an effort to find notes through the web page and WhatsApp groups since all the lecturers uploaded their lectures to the SLLA website or WhatsApp groups. Consequently, 23.7% of students sought help from friends to cover the course

materials. Even through this method, they showed enthusiasm for learning and were very supportive.

Difficulties encountered by students in having online education

Students faced several challenges when transition to online education. Teaching remotely is still a relatively new concept and it can be particularly challenging for those who have not experienced it before. The study identified the problems encountered by the diploma students during online classes, and Table 6 explains the challenges faced in Zoom classes.

According to Table 6, almost all students either ‘Strongly Agree’ or ‘Agree’ with the responses to questions addressing the challenges of online learning. The highest problem reported was the technical difficulties in learning such as; difficulty hearing the lecture (indicated 88 - 45.4%), and the expense of equipment (85 - 43.8%). Additionally, 43.3% of students reported issues related to ‘poor internet connection’ and ‘cannot timely log on’ similar to the statements provided due to the signal issues by [Arachchige et al. \(2021\)](#); [Hayashi et al. \(2020\)](#); [Fernando & Bandara \(2021\)](#); [Hettiarachchi et al., \(2021\)](#); and [Yan et al. \(2021\)](#). Another challenge faced was the cost of data and mobile phones, reported by 85(43.8%) students. Isolation or loneliness during participation in lectures was also problematic for 82(42.3%) students. This may be attributed to their first-time experience with online education as noted by [Hettiarachchi et al. \(2021\)](#). [Nafreez et al. \(2020\)](#) supports this statement by indicating a low percentage (12.6%) for the statement of Interaction among students.

Additionally, another problem identified by students was the lack of attention from online lecturers, which was seen as a barrier to e-learning 77(39.7%). [Fernando & Bandara \(2021\)](#) argued that online learning promotes more self-paced learning and can be more effective than face-to-face learning.

Table 6

Challenges face by Online Class Students

Problems related if participated to Zoom Classes	Strongly Agree	Agree	Neutral	Not Agree	Strongly Not Agree	P value	R value
Poor Internet connection	84 (43.3%)	47 (24.2%)	12 (6.2%)	33 (17.0%)	18 (9.2%)	0.000 S	0.316
Cannot timely log on	84 (43.3%)	49 (25.3%)	13 (6.7%)	33 (17.0%)	15 (7.7%)	0.000 S	0.283
Not Clearly hear the lecture	88 (45.4%)	61 (31.4%)	6 (3.1%)	25 (12.9%)	14 (7.2%)	0.001 S	0.243
No smart mobile phone	2 (1.0%)	11 (5.7%)	49 (25.3%)	90 (46.4%)	42 (21.6%)	0.019 S	0.168
Not easy than participate for F-2-F Classes	71 (36.6%)	56 (28.9%)	17 (8.8%)	23 (11.9%)	27 (13.9%)	0.000 S	0.291
Feeling alone (isolation)	82 (42.3%)	37 (19.1%)	22 (11.3%)	38 (19.6%)	15 (7.7%)	0.000 S	0.592
Have to go for another place for signals	58 (29.9%)	72 (37.1%)	9 (4.6%)	20 (10.3%)	35 (18.0%)	0.002 S	0.218
Difficult to learn practical subjects	64 (33.0%)	35 (18.0%)	26 (13.4%)	58 (29.9%)	11 (5.6%)	0.16 S	0.173
More expensive equipment	85 (43.8%)	60 (30.9%)	6 (3.1%)	15 (7.7%)	28 (14.4%)	0.000 S	0.341
Not Attention to the lecture	77 (39.7%)	48 (24.7%)	12 (6.2%)	43 (22.2%)	14 (7.2%)	0.002 S	0.227

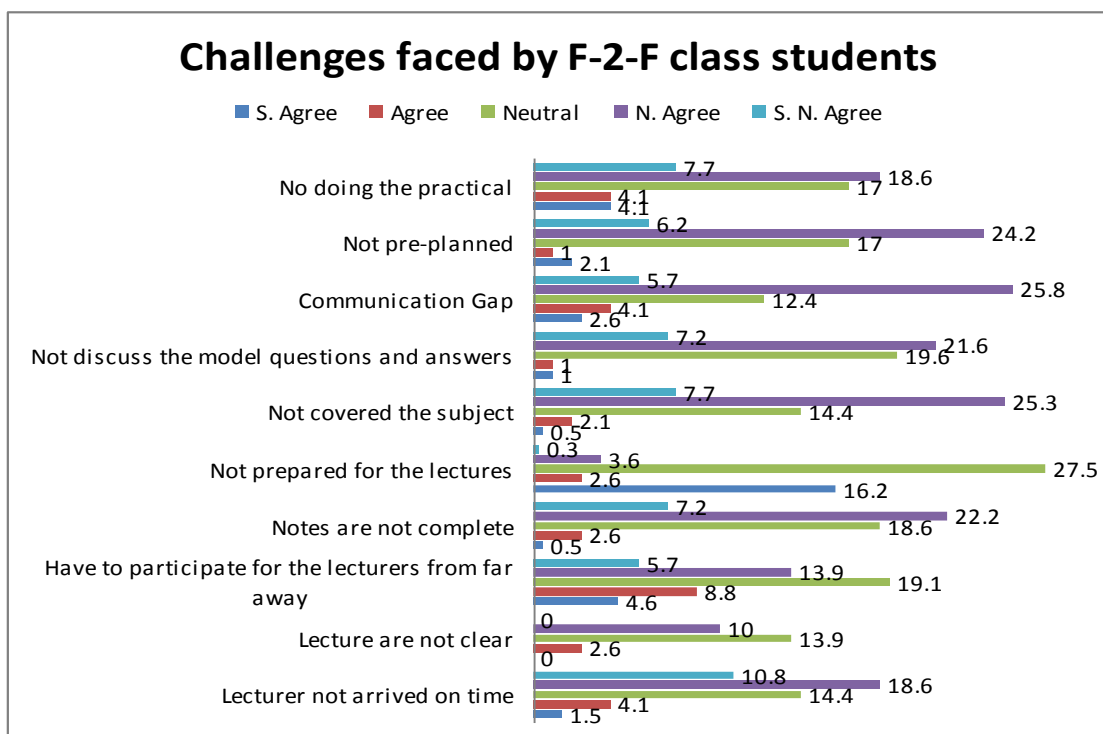
NS= Not Significant S=Significant

One sample Wilcoxon Signed-Rank test was run (Table 6), taking 3 (value assigned for neutral) as hypothesized median. The median of the statements of 1 - 10 of the Table 6 were significantly different from ($p = 0.000 - 0.598$). Among that a very low effect size ($r = 0.16$ and 0.17) indicated in items 4 and 8 of Table 6. A low effect size ($r = 0.32, 0.28, 0.24, 0.29, 0.21, 0.34$ and 0.22) indicate in the items of 1, 2, 3, 5, 7, 9, and 10th of Table 6. A moderate effect size ($r = .59$) indicate in item 6 of Table 6. As such all the responses are significantly moved towards strongly agree and agree side.

The research also examined the challenges of the f-2-f classes, and the statements prepared were for these classes were different from those prepared for online classes, depending on the requirements and facilities provided by the SLLA for Diploma students. As depicted in Figure 4, the students expressed a sustained level of 'Neutral' and 'Not Agree' level as same as the Table 6. Although the students are unfamiliar with the F-2-F classes, they did not indicate any difficulties with the physical classes conducted at SLLA.

Figure 4

Challenges faced by Face-to-face students



Due to the ongoing pandemic situation, the distance mode classes were conducted by the SLLA provided students with the opportunity to participate in online learning classes to receive clearer lectures. This was necessary, as it was not possible to hold workshops, which are typically conducted after each session of distance mode students. Table 7 indicated that distance students also expressed fluctuations between ‘Neutral’ and ‘Not Agree’ levels similar to the pattern observed in online and f-2-f classes.

Table 7

Challenges faced by Distance students

Problems related if participated to distance Classes	S. Agree	Agree	Neutral	N. Agree	S. N. Agree	Not Respond
Not explain the subject	3 (1.0%)	14(7.2%)	33(17.0%)	23(11.9%)	3 (1.5%)	119(61.3%)
Not organized well	6 (3.1%)	14(7.2%)	32(16.5%)	19 (9.8%)	5 (2.6%)	118(60.8%)
Not received notes	6 (3.1%)	6 (3.1%)	39(20.1%)	22(11.3%)	4 (2.1%)	117(60.3%)
Not discuss the model questions and answers	4 (2.1%)	15(7.7%)	32 (16.5%)	19 (9.8%)	5 (2.6%)	119(61.3%)
Have to go to a library	2 (1.0%)	6 (3.1%)	32(16.5%)	27(13.9%)	8 (4.1%)	119(61.5%)
Not enough workshops for the subjects	9 (4.6%)	25(12.9%)	22(11.3%)	13 (6.7%)	8 (4.1%)	117(60.3%)
Communication Gap	10(5.2%)	16 (8.2%)	30(15.5%)	15 (7.7%)	6 (3.1%)	114(58.8%)
Have to do Assignments	6 (3.1%)	12 (6.2%)	28(14.4%)	15 (7.7%)	12(6.2%)	121(62.4%)
Notes are not updated and not clear	4 (2.1%)	15 (7.7%)	26(13.4%)	22(11.3%)	10(5.2%)	117(60.3%)

Conclusions and Recommendations

The preliminary analysis of data on students' satisfaction with online education during the COVID-19 pandemic revealed varying opinions regarding Zoom, face-to-face, and distance learning modes.

The Sri Lanka Library Association made a remarkable and swift transition to online tertiary education after all educational institutions were

forced to close due to the COVID-19 pandemic. The first objective of the study was to investigate the students' successfulness with various teaching methods. During the pandemic lockdown, diploma students engaged in online learning, and survey clearly indicates that more than 50% of students participated in online education. They agreed to attend online lectures despite the barriers they faced during the lockdown period. Moreover, the students were able to transition to online learning for the first time in the Sri Lanka Library Association and managed their classes using their own equipment. They were particularly concerned about 'public and individual safety', 'the security of participating in online classes', and 'the expenses incurred for transport and food'. These concerns were significantly reflected in the 'strongly agree' and 'agree' responses of the study. Based on these findings, it can be concluded that the students successfully attended online classes. In contrast, the analysis conducted of face-to-face and distance learning modes indicated that these were not successful.

The study also aimed to measure the level of satisfaction with online education as its second objective. After an extensive analysis of student satisfaction, the study revealed that nearly 50% of students were satisfied with online education. This is a positive sign that indicates that students were willing to engage in this e-learning method. Despite their limited experience, many students preferred online education to postponing their studies, as it allowed them to continue their academic work while staying safe. Moreover, they were equipped with the necessary tools to participate in online lectures, with 93.8% using smartphones and laptops.

Further analysis showed that 164 (86.4%) students mentioned that if they couldn't attend classes; they used alternative methods to catch up, such as obtaining notes, asking friends, or getting notes from others. This demonstrated their enthusiasm for the diploma course and their satisfaction

with being able to access course materials even when they were unable to attend classes. Overall, a positive of the online learning experience was observed among students.

As reported in the literature on online learning, the third objective of this study identified that student demonization was linked to poor Internet connectivity, difficulty in hearing lectures clearly, feelings of loneliness, higher costs associated with data packages, less learner-friendly environments, and challenges in learning the practical subjects. However all the statements indicated in Table 6 showed a significant and positive trend towards ‘strongly agree’ and ‘agree options’.

As mentioned earlier, this was the first experience in delivering online education during the COVID-19 pandemic. Therefore, it is recommended to conduct multi-group analyses, (MGA) based on levels and modes of study for future research. This study contributes only to the preliminary level analysis of first-year Diploma-level students who had no prior experience with face-to-face and distance-mode education at the SLLA. Hence, a comparative study could be conducted in the future to assess the same objectives with higher levels of education in the higher diploma program at SLLA.

The study recommends that more interaction be maintained, considering the levels of student dissatisfaction with online learning. The findings indicate that, despite a few positive aspects, there have been many barriers to online learning. Therefore, this research recommends a thorough evaluation of the challenges faced by students while studying through more effective online learning techniques. Re-designing online courses using constructive alignment would enhance the practical effectiveness. Special attention should be given to creating a good learning environment with minimal barriers considering the students’ online learning methods. This will help promote students’ professional success. Moreover, exploring the factors

that influence students' successfulness and satisfaction with online-learning is vital for improving the quality of online education. It is also imperative to continue studying best practices in online learning for students of different ages and socioeconomic statuses.

Limitations of the study

The study has several limitations. The small sample size, limited to diploma students, restricts the generalizability of the results, and the data should be interpreted with caution. Additionally, the sample may not be representative of all diploma students. In this study, data were collected at only one point in time (cross-sectional design), and the researcher could not manipulate the variables. Therefore, longitudinal research is required to enhance the understanding of correlations and interrelationships among other levels of higher diploma students at SLLA.

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