

Student satisfaction on E-learning under the pandemic situation



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Introduction

The Corona Virus Disease 2019 (COVID-19) has infected millions of people worldwide and been declared as a global pandemic by the World Health Organization on March 2020. As a result of this all the schools, universities and educational institutes were closed in most of the countries including Sri Lanka. This decision was taken to break the covid-19 chain, but almost 80% of the world's student population of nearly 1.37 billion students of 138 countries and 60.2 million teachers were unable to be in the classroom due to the closure of schools and universities (UNESCO 2020).

Accordingly, Sri Lanka government announced nationwide lockdown to avoid the spreading of virus. In line with this action all the state and non-state universities have been closed and most of the universities decided to continue academic through online platform which is totally new form for most of the Sri Lankan universities as well as undergraduate students. Hence, this influences students' satisfaction towards learning in general as online learning differs from face-to-face lectures.

At the time of pandemic start, online learning has been regarded as a temporary solution. But most of the educational institutions in worldwide decided to offer online learning as alternative way for follow the academics. Consequently, in most of the Sri Lankan universities started to adapt this new form, since it provides multiple advantages for educators as well as students during the pandemic period. However, despite its multiple advantages as compared to physical class room, there some challenges, faced by Sri Lankan undergraduate students such as lack of strong connectivity of the internet, unable to get proper devices for learning, self-isolation, problem in face-to-face interaction with lecturers, and few others are among the issues related to online learning.

Thus, predicting the satisfaction of students on E-learning under pandemic situation will be important for effective implementation of online learning program in future. Throughout this study intends to seek whether the current online learning has an effect on students' satisfaction and below four factors will be considered mainly in this research.

1. Students' learning skills
2. Technology
3. Lecturer/Teachers' teaching techniques
4. Students' Background

Methodology

This survey was done for conducted to explore Sri Lankan undergraduate student satisfaction under the pandemic situation. 40 undergraduate students from different universities of Sri Lanka were participated to this survey. The students were from various major including science, technology, engineering and economics. Since covid-19 restrictions are still regulating in Sri Lanka, these all students supposed participate online learning for their all subjects.

As mentioned in the introduction this questionnaire include question from 4 sections which are student's learning skills, technology, lecturer/teachers' techniques and students background. The questionnaire was distributed using Google forms and every question contain four answers which are strongly agree, agree, disagree and strongly disagree. Students should select one option from the answers based on their satisfaction on relevant factors.

The figure displays three screenshots of a Google Form questionnaire. Each section contains a title, a set of response options, and a list of questions with corresponding radio buttons.

7. Students' learning skills *

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you feel confident while using online learning system? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you able to spend good energy to engage in online learning class? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you enjoy using the online platform application for learning? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

9. Technology *

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you have stable internet connection at home? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you have stable power connection at home? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you updated with the latest technology in online platforms? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

10. Lecturer/Teachers' teaching techniques

| | Strongly Agree | Agree | Disagree | Strongly Disagree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you feel that your lecturer's have good content knowledge? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| .Do your lecturers provide opportunities to ask questions? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you satisfied with the lecturers in providing clear instructions? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Figure 1: Sample photos from google form

Based on the answers they provided score was assigned as mentioned in below

| | |
|-------------------|---|
| Strongly Agree | 4 |
| Agree | 3 |
| Disagree | 2 |
| Strongly Disagree | 1 |

Table 1: Scale Interpretation

As the final interpretation mean score were calculated for each question. The level of satisfaction was decided based on the below table.

| | |
|--------|----------|
| High | 3.0 -4.0 |
| Medium | 1.5 -3.0 |
| Low | 0.0 -1.5 |

Table 2: Mean Score Interpretation

Results and Discussion

This section presents the demographic information of the respondents participated in the study. Out of the 40 respondents 67.5 % were from state universities, 27.5 % were from degree awarding institutions and 5 % from other government universities. Most of the respondents participated for this survey are major in technology field with 30 % and others are from Engineering 25%, Design and Science with 17.5% students and 10 % from other streams. Majority of the students 87.5% have WIFI at their homes that they use for online classes and 12.5 % of the students use mobile data.

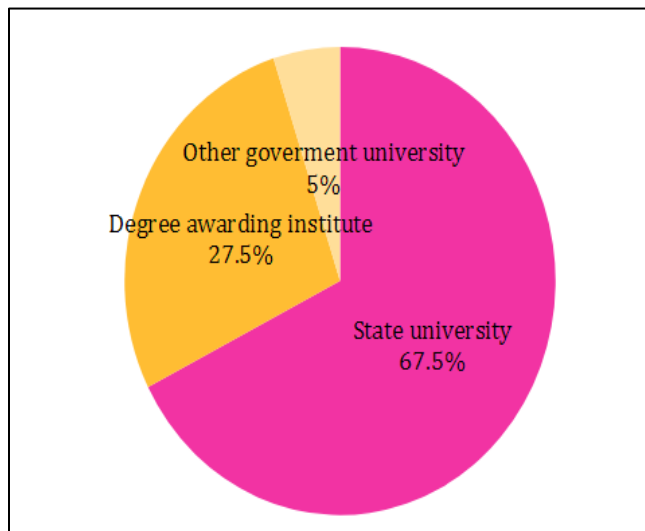


Figure 2: University type

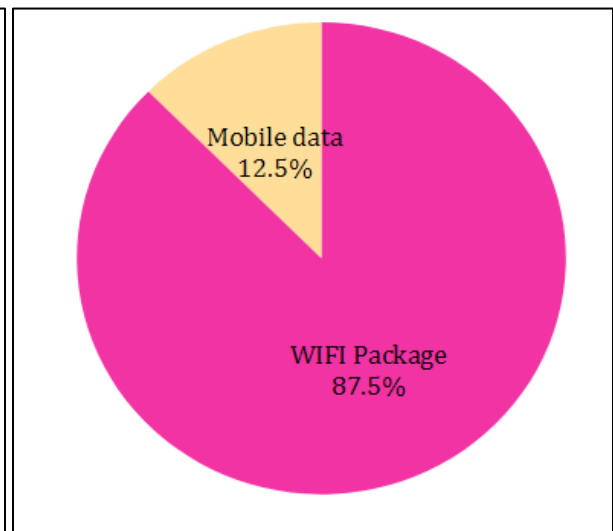


Figure 3 : Internet facility

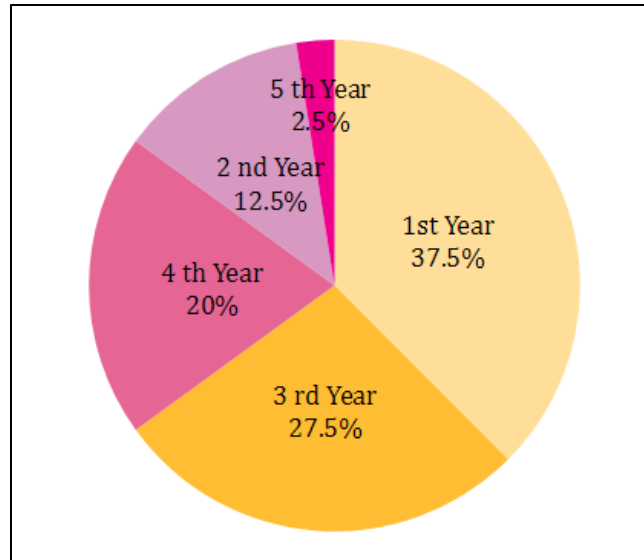


Figure 4: Academic year

In this section student learning skills will be discussed. Out of 8 parts of this section only one section shows really low mean score which is “Have you used any online learning platform before covid-19 pandemic?” with 0.45 mean score. From this value, it can be concluded that the most of the undergraduate student’s haven’t use any online platform before the pandemic. Three of the items shows high mean score and remaining part displayed intermediate scores.

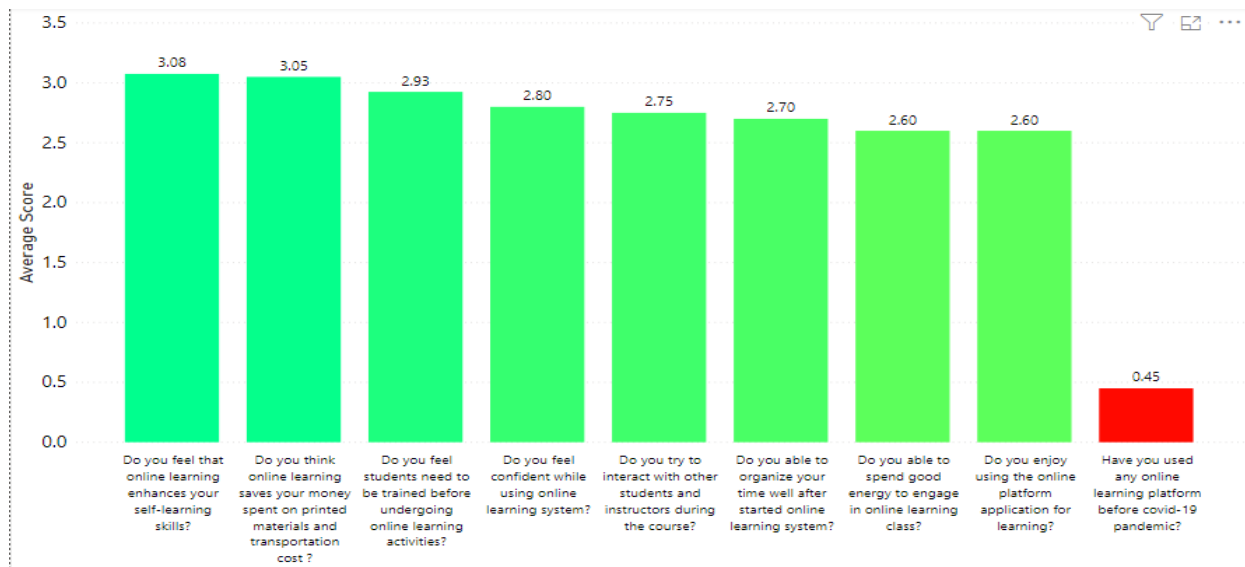


Figure 5: Responses of student learning skills

Overall mean score of this dimension is 2.55 and standard deviation is 1.0. From this value, we can conclude that satisfaction for online learning on student learning skill is in intermediate level.

This domain discusses the technological characteristic which include 7 sections. In here only 2 sections display a high mean score which are “Do you feel internet connection strength determines our effective learning opportunity” and “Do you updated with the latest technology in online platforms”. Roaming parts displayed medium mean score for all sections.

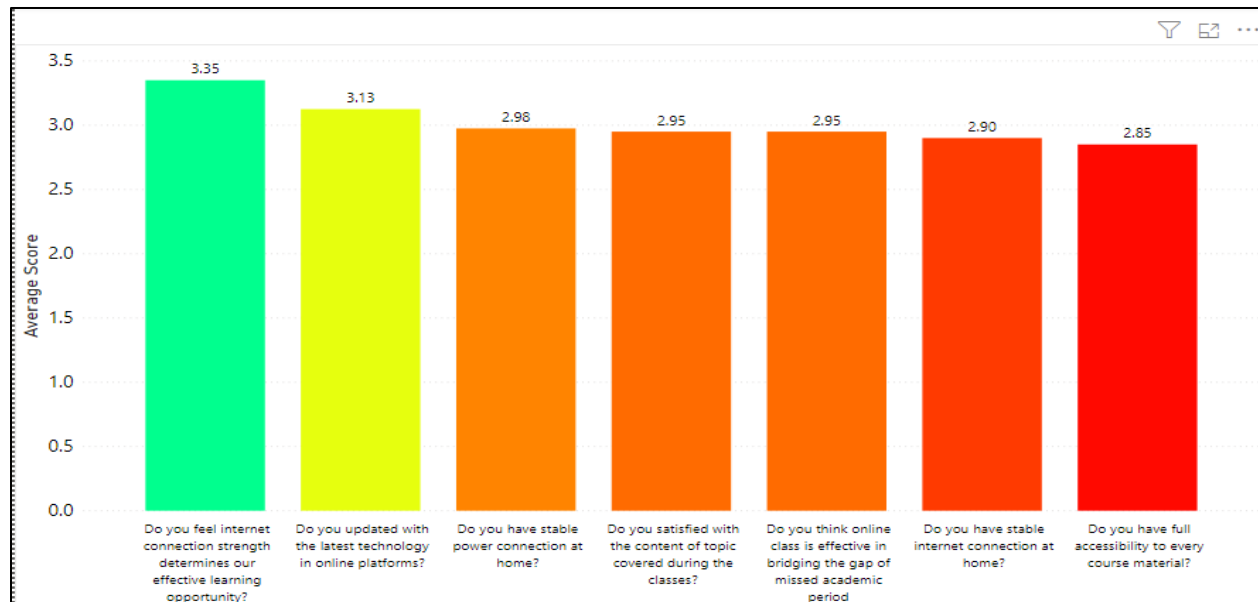


Figure 6 : Response of technological factors in online learning

As a overall, this domain ranked 3.01 mean and 0.78 standard deviation which can be conclude that satisfaction of the technological factors for online learning is good.

The last domain discusses about the teachers’ /lecturers’ teaching skills. Surprisingly, every section of the domain ranked high mean score which conclude that students are really satisfied about the lecturers’ teaching skills on online learning platform.

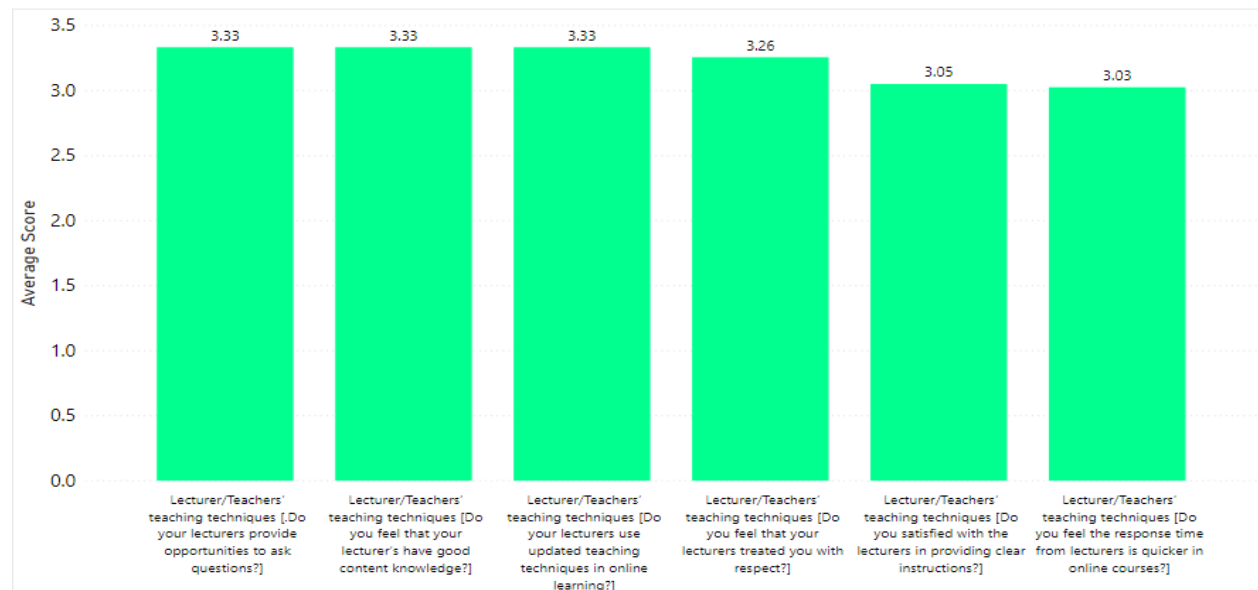


Figure 7 :Lecturer’s teaching skills

Based on the above sample statistic, satisfaction on the technological factors for large population were predicted.

Hypothesis testing

$H_0 : \mu = 2.99$ (students satisfaction on the technology is equal not high)

$H_1 : \mu > 2.99$ (students satisfaction on the technology is high)

$\bar{X} = 3.01$ $n = 40$ $std = 0.78$ $\alpha = 0.05$

$$t\text{-test} = (3.01 - 2.99) \div (0.78 / \sqrt{40}) = 0.162$$

This is a one tailed test, so we can go to our t -table with 39 degrees of freedom to find that 1.68. Since $0.162 < 1.68$, we can reject the null hypothesis and conclude that students' satisfaction on the technology is high

All the relevant documents can be find out in the below link.

<https://github.com/Nimesha-Hansani/StatisticalInference.git>