Satisfaction Among the Students on E-learning During the Pandemic Situation

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Abstract— **Under the Covid-19 pandemic, e-learning is a highly valuable tool for students to do their studies without having to travel to universities, and it is becoming increasingly popular as an educational system in light of the current global circumstances. Despite the fact that e-learning platforms have been built for students, some students are concerned about newly adopted platforms in the country. As a result, it is a critical component in assuring the quality of education under these unique conditions. A survey was conducted with undergraduate students who use an e-learning platform as respondents, and the results were analyzed to determine student satisfaction with e-learning in the context of the pandemic, as well as the main reasons for some students' dissatisfaction with e-learning in Sri Lanka.**

Keywords—e-learning, pandemic, satisfaction

I. Introduction

The term "e-learning" refers to a learning system that uses formalized teaching and electronic resources. With the emergence of the Covid-19 epidemic, this system became the most popular educational medium in the globe. The Sri Lankan government has also decided to provide education via e-learning rather than face-to-face traditional schooling in order to avoid the spread of the Covid-19 virus. As a result, evaluating a recently implemented e-learning method inside the country is critical to ensuring the effectiveness of students' education. As a result, one of the primary research concerns nowadays is forecasting student satisfaction with e-learning in a pandemic condition.

The quality of e-learning will be dependent on many factors like age group, internet facilities, etc. This research was conducted by targeting university undergraduate students who are currently studying through the e-learning platform. As a result, this questionnaire is based on university undergraduate students' expectations and satisfaction with the educational system in university life. The methods section will go over all of these elements in greater depth.

The survey questionnaire was issued via an online Google form to undergraduates in Sri Lanka who use the online education system as their primary mode of instruction. A total of 71 replies from university students from various parts of the country were obtained. This survey is conducted on undergraduate students willingly, with their full consent, by providing an overview of the survey. The students were not asked for any personal information. In addition, the questions were chosen for their simplicity and understandability. As a result, only multiple-choice responses, multiple-choice grids, dropdowns, and linear scales were offered as replying modes throughout the questionnaire.

Some relationships between various parameters were discovered through the examination of the collected data. Taking these criteria into account, higher authorities can take the required steps and actions to ensure that the most suitable educational medium is available throughout the country.

II. Methodology

Based on the factors connected to e-learning satisfaction, a questionnaire was built using a Google form. First, it was given to three of my friends, who provided input on the questionnaire. Then, through my relatives, acquaintances, and coworkers, I distributed it to college students.

A. Questionnaire

The questionnaire gathered some demographic information as well as additional information such as students' internet access, satisfaction with lecture teaching techniques and availability, student interaction, and so on. The following are the factors that are taken into account during the questionnaire:

1. **What is your gender?**

   A multiple-choice answer was given to select whether male or female

2. **What is your university?**

   Names of the Sri Lankan universities were listed down in a drop-down

3. **What are your areas of expertise?**

   Names of the fields of specializations were listed down in a drop-down

4. **What city do you call home?**

   Names of the districts were listed down in a drop-down

5. **What is your family's monthly income?**

   Five income level ranges were provided as a multiple-choice answer

6. **How many hours a week do you devote to e-learning?**

   Four hours ranges were provided as a multiple-choice answer

7. **What is the name of the internet service provider you use?**

   The list of internet providers was listed down in a drop-down

8. **What about internet access?**

Four satisfaction statuses were given as a multiple-choice grid for the internet connection.

9. **How long have you been studying via e-learning?**

Three months ranges were given as multiple-choice answers

10. **The amount of practical information you get as a result of your e-learning. (For example, lab sessions)**

Five agreement level status was given as a multiple-choice grid for the aspects of presentations that were clear and organized, stimulated student interest, effectively used time during online lectures and lecturer was available and helpful.

11. **How satisfied are you with your involvement in extracurricular activities (e.g., Gavel Club, AIESEC, Chess, etc.)?**

Five levels of linear scale were used by mentioning 1 as least satisfied and 5 as most satisfied.

12. **Level of satisfaction with batch mates' interactions?**

Five levels of linear scale were used by mentioning 1 as least interaction and 5 as frequent interaction.

13. **The degree to which you are satisfied with the quality of your education?**

Five levels of linear scale were used by mentioning 1 as least interaction and 5 as frequent interaction.

14. **The degree to which you are satisfied with the quality of your education?**

Five levels of linear scale were used by mentioning 1 as least satisfied and 5 as most satisfied.

15. **Satisfaction with the way online tests and assignments are conducted. (For example, a lost Internet connection, a document that isn't in your hand, a backdrop distraction, or the use of web cameras)?**

Five levels of linear scale were used by mentioning 1 as least satisfied and 5 as most satisfied.

16. **Do you have sufficient time to complete online examinations or assignments?**

Two multiple-choice answers were given as "Yes" and "No"

17. **Do you get what you anticipate from e-learning as an undergraduate?**

Two multiple-choice answers were given as "Yes" and "No"

18. **Are you familiar with the e-learning implementation process?**

Two multiple-choice answers were given as "Yes" and "No"

19. **How pleased are you with the e-learning platform as a whole?**

Two multiple-choice answers were given as "Yes" and "No"

20. **Do you prefer e-learning to traditional means of learning (such as attending university)?**

Two multiple-choice answers were given as "Yes" and "No"

B. Data Collection

The total number of responses was 71, and all of the responses were gathered and saved to a CSV file utilizing the Google form responses. There were no missing values identified because all of the questions were marked as needed. The acquired data were evaluated for additional predictions using the CSV file.

III. RESULTS

The graph below depicts a descriptive analysis of e-learning based on numerous criteria that influence student satisfaction with e-learning.
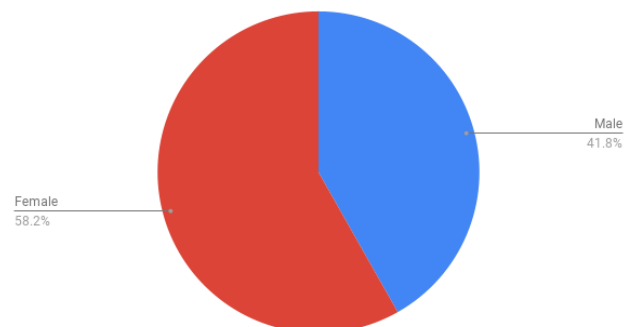
Count of Your Gender

Figure 1 - Gender distribution
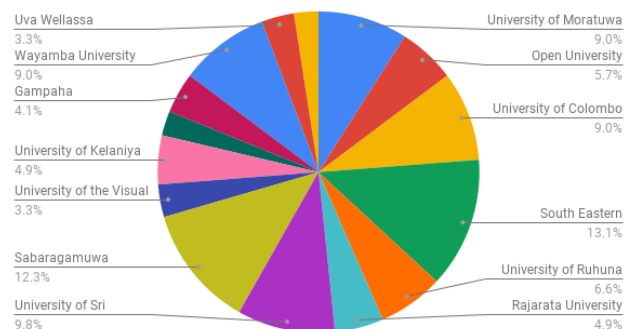
Count of Name of your University

Figure 2 - University distribution

Figure 6 - Time spent on e-learning distribution
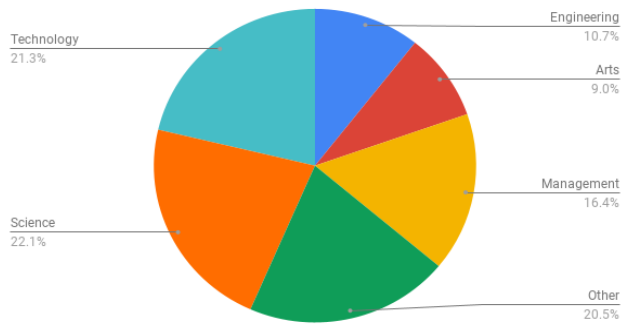
Count of What is your area of Specialization

Figure 3 - Field of specialization distribution

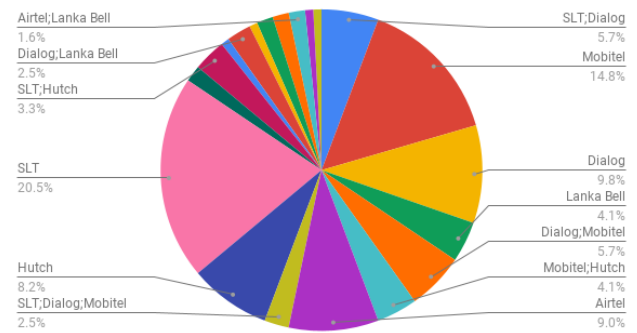Count of What is your ISP(Internet Service Provider)

Figure 7 - Internet providers distribution
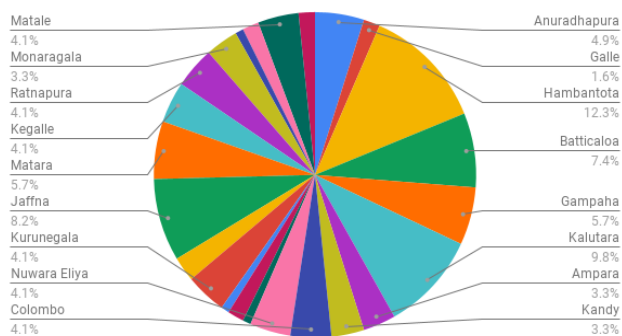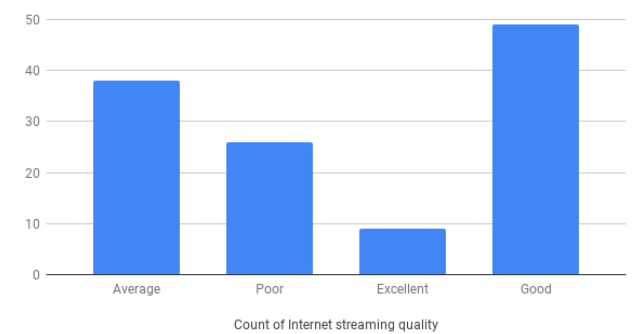
Count of City you are located during the Pandemic

Figure 4 - Living district distribution
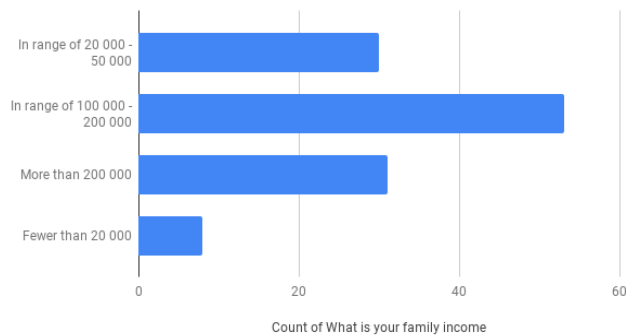
Count of Internet streaming quality

Figure 8 - Internet connection distribution

Count of What is your family income

Figure 5 - Income level distribution

Count of How long have you been studying via E - Learning

Figure 9 - Months studying through e-learning distribution
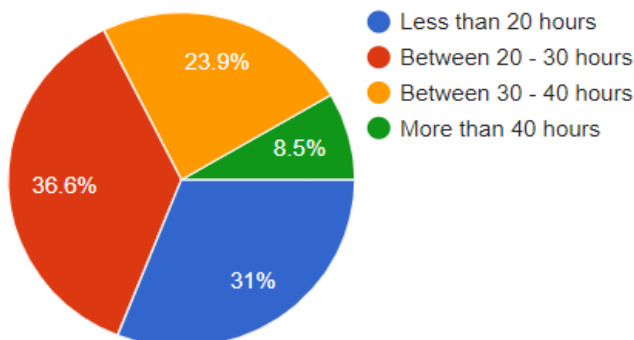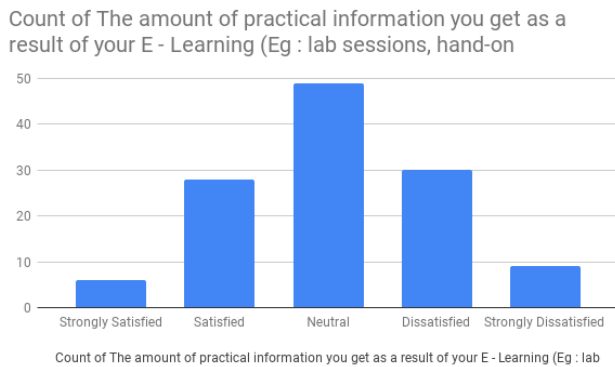
Figure 10 - The amount of practical information gained during the sessions.
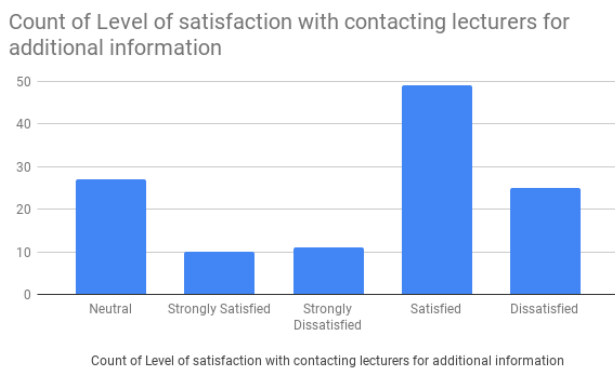
Figure 11 - Satisfaction with contacting lecturers for additional information.
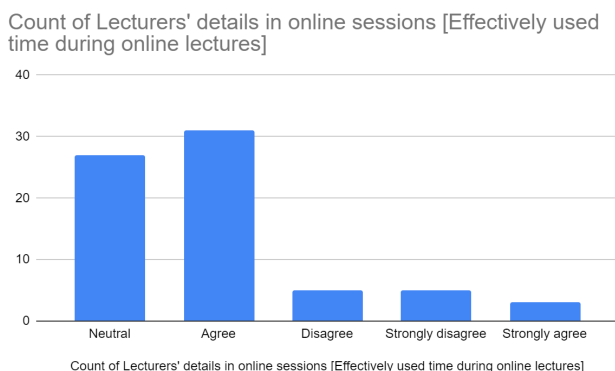
Figure 12 - Lecturers' details in online sessions distribution - Effectively used time during online lectures
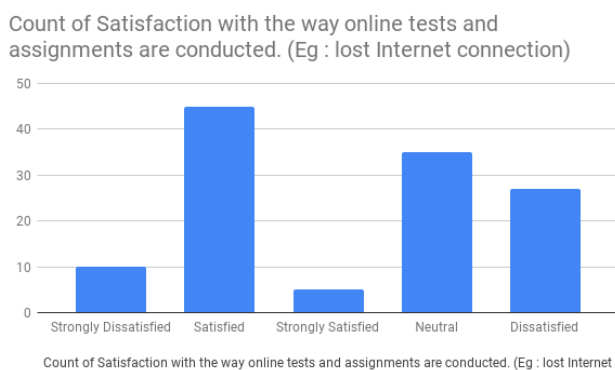

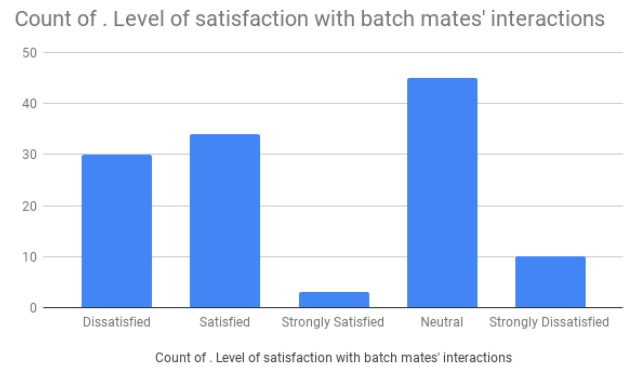Figure 13 - Satisfaction of the way online tests and assignments were conducted.

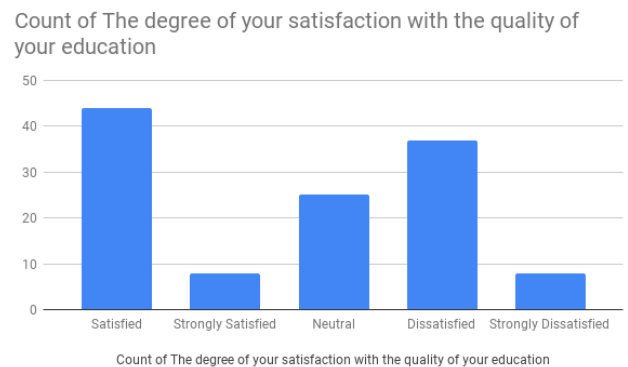Figure 14 - Satisfaction with batch mate's interactions.

Figure 15 - The degree of your satisfaction with the quality of your education.
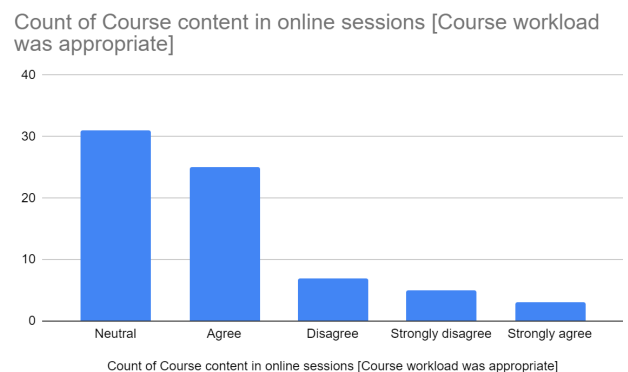

Figure 16 - Course content in online sessions distribution - Course workload was appropriate
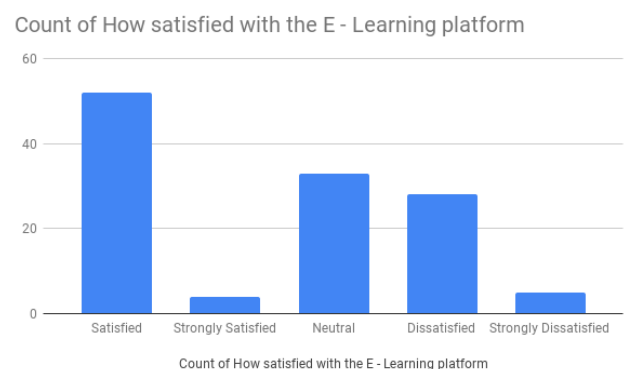

Figure 17 - Level of satisfaction with E - Learning platform.
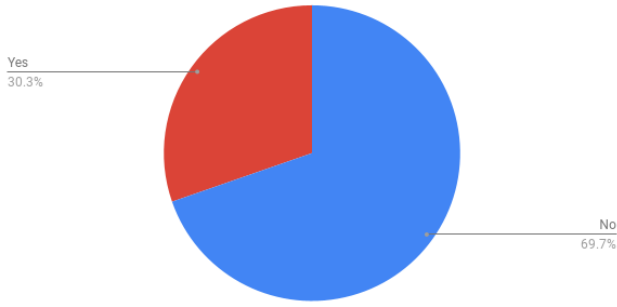
Figure 18 - Satisfaction of the given time to complete online exams and assignments.
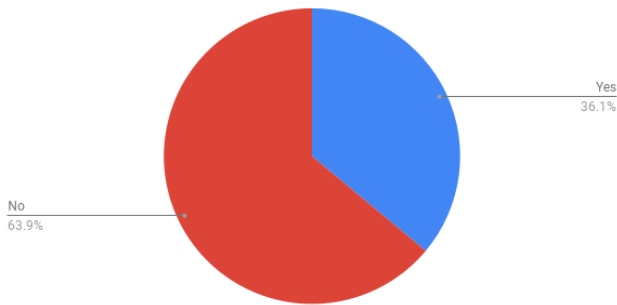
Figure 19 - Satisfaction about the expectation from E-Learning as an undergraduate.
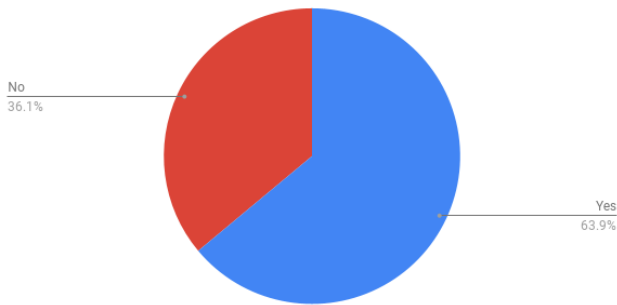
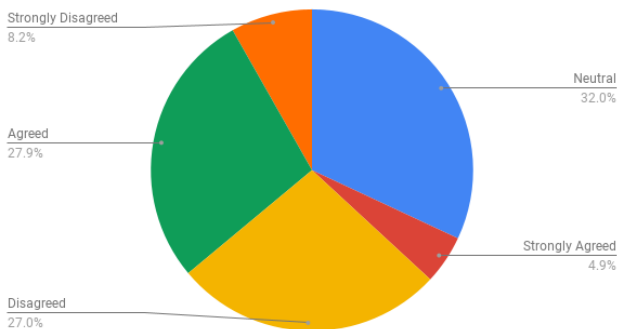Figure 20 - Level of familiarity with E-Learning platform

Figure 21 - Level of satisfaction about the E-Learning.

IV. ANALYSIS

Interesting patterns and correlations could be identified among satisfaction with batch mates' interactions and satisfaction towards e-learning from the conducted analysis.
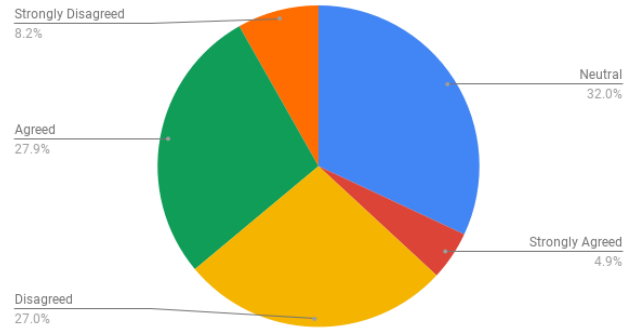
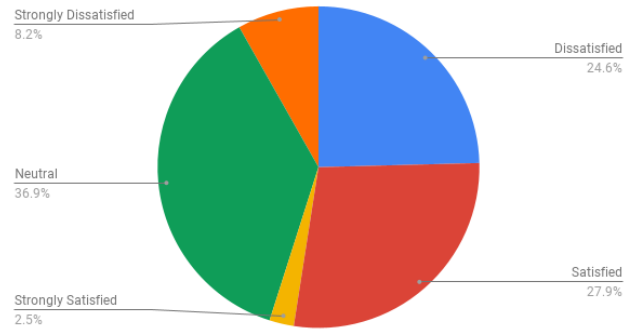Figure 22 - Level of satisfaction about the E-Learning.

Figure 23 - Level of satisfaction with batch mates' interactions.

A. Hypothesis Testing

For the analysis, hypothesis testing was conducted on the alternative hypothesis "Does dissatisfaction towards e-learning not cause by students' Level of satisfaction with batch mates' interactions?". Null and alternative hypotheses are defined as follows.

p_e: proportion of students dissatisfied with e-learning over in-premises learning = 0.541

p_o: proportion of students interaction with batchmates to an unsatisfactory level = 0.697

$H_0 : p_e = p_o$

$H_e : p_e \neq p_o$

$p_e - p_o = -0.156$

Original and randomized samples were taken for the analysis as follows.

TABLE I. ORIGINAL SAMPLE FOR HYPOTHESIS TESTING

Group	Count	Sample Size	Proportion
G1	85	122	0.697

G2	66	122	0.541
G1 - G2	-19	n/a	-0.156

TABLE II. RANDOMIZED SAMPLE FOR HYPOTHESIS TESTING

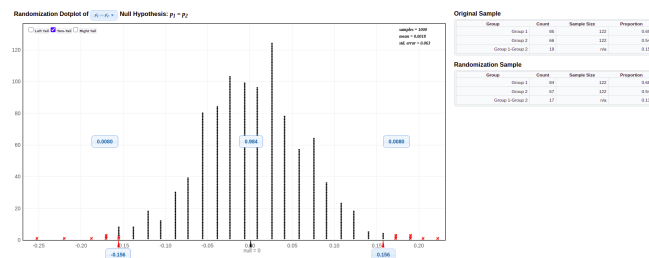| Group	Count	Sample Size	Proportion
G1	84	122	0.689
G2	67	122	0.549
G1 - G2	17	n/a	0.139

Figure 24 - Randomized dot plot for null hypothesis

As p-value is 0.016 for the tested hypothesis which is lower than the significance level, here we can reject the null hypothesis and accept the alternative hypothesis that we assumed as shown in the dot plot of figure 24.

V. CONCLUSION

The goal of this study was to predict student satisfaction with E-learning in the face of the Covid-19 epidemic. Student satisfaction could be influenced by a number of factors. We were able to establish a link between student satisfaction on e-learning and satisfaction of batchmate's interaction, based on the findings of data analysis performed on completed online survey responses. According to the findings of the hypothesis test, student satisfaction with e-learning is dependent on their satisfaction with the batch mate's interaction with them.

REFERENCES

The template will number citations consecutively within brackets [1]. The sentence punctuation follows the bracket [2]. Refer simply to the reference number, as in [3]—do not

[1] G. Eason, B. Noble, and I. N. Sneddon, "On certain integrals of Lipschitz-Hankel type involving products of Bessel functions," Phil. Trans. Roy. Soc. London, vol. A247, pp. 529–551, April 1955. *(references)*

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