

Satisfaction among the Students on Online Learning under the Pandemic Situation

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Abstract—Online learning has become the new standard in many universities around the island because of COVID-19. Satisfaction with online learning is critical for developing effective educational processes. The purpose of this research was to identify the elements that influence student satisfaction with online learning during the COVID-19 pandemic. We shared an online questionnaire with undergraduate students ($n = 156$) engaged in online learning throughout the epidemic. The surveys had closed and open-ended questions. The answers to the satisfaction measures were analyzed using descriptive statistics. The replies of students to open-ended questions were analyzed thematically. Students responded at a rate of 98.8%. Overall satisfaction among undergraduate students was 53.9%. Students expressed the most satisfaction with communication and flexibility, while lecturers expressed pleasure with students' passion for online learning. Technical difficulties affected student satisfaction, while increased workloads and the time necessary to produce teaching and assessment materials harmed universities. The factors that emerged from the analysis as impacting student was study load and workload caused to stress, increasing engagement, and technological problems. Using a mix of synchronous and asynchronous methods, adding a variety of apps to interest students, and providing fast feedback is critical for enhancing student satisfaction.

Index Terms—online learning, student satisfaction, COVID-19

I. INTRODUCTION

Online learning has become a valuable and practical resource for curriculum delivery globally as a consequence of safety precautions mandated by COVID-19. Numerous benefits of online learning have been documented in the literature for learners, including quick access to information, appropriate content distribution, content standardization, personalized training, self-pacing, interaction, and enhanced convenience. During the COVID-19 epidemic, online education enabled universities to keep their doors open to students during the lockdown, therefore reducing the spread of the virus. Dataset¹ and the outcomes of the survey is presented with this paper.

II. BACKGROUND

Online education is the only option possible during the COVID-19 epidemic, student happiness is critical to a successful and effective learning experience. Student satisfaction may be defined as an attitude formed in response to an assessment

of the educational experience, facilities, and services. Faculty satisfaction, or lecturer satisfaction, is described as a student's and faculty's assessment of the online teaching process as efficient, successful, and useful. Student happiness, on the other hand, is connected to the perceived value of learning events [1].

Satisfaction with online learning is a complicated and multifaceted concept that encompasses a variety of aspects, including communication, student engagement in online discussions, flexibility, workload, technical assistance, teacher pedagogical abilities, and feedback. Satisfaction with online learning is predicated on three theories of learning: social cognition theory, interaction equivalence theory, and social integration theory. Students acquire knowledge in a social setting via interactions with people, participation in activities, and feedback. Student happiness is significantly influenced by their interactions with other students, teachers, and course content. Thus, when numerous modes of engagement are included into the learning environment, satisfaction with the learning experience rises [2]. Student happiness is increased when students participate in formal extracurricular activities in addition to their academic curriculum.

There is a growing number of research demonstrating a beneficial association between satisfaction and student involvement and academic success. Learning quality is determined by staff and student satisfaction, as well as instructional efficacy, accessibility, and institutional cost-efficiency. A prior research revealed no significant differences between well-designed online and face-to-face learning [3]; however other studies suggested that participants preferred face-to-face learning [4]. According to other research, assessing student satisfaction with online learning is a critical component of effectively promoting educational processes for institutions, staff, and students [18]. Satisfaction with online learning is a contentious subject; although one research found no difference in satisfaction between genders [5], another study discovered that female students were happier with online learning than male students [6].

COVID-19 came abruptly with little or no preparation in place in many countries. Online learning has been utilized to supplement the traditional manner of teaching. COVID-19 is responsible for the abrupt change from face-to-face instruction to entirely online instruction. The purpose of this research was

¹https://github.com/HMDSachin/si_project_e_learning

to determine the elements that contribute to student satisfaction with online learning during the COVID-19 pandemic.

III. RESEARCH OBJECTIVES

Objectives of the research can be listed as below:

- Generating a sufficient data set for measuring students' satisfaction with e-learning.
- Making statistical inferences from data.
- Presenting the research's findings and conclusions.

IV. METHODOLOGY

We collected data for this research using Google forms. The form was distributed on social media networks and among the universities' student chat groups. The form was designed to be simple and brief in order to encourage students to think and respond honestly without rushing.

We asked students to score their experiences with e-learning and on-premise learning and intended to compare students' satisfaction with e-learning and on-premise learning. Concerns about internet connectivity, geographical and intuitive dependencies were gathered in order to conduct comparative analyses of the dependencies.

V. QUESTIONNAIRE

The following questions were included in the questionnaire for students to respond.

- 1) What is your gender?
- 2) Where do you live?
- 3) What is your university?
- 4) What is your academic year?
- 5) Is your university providing online lectures in the current academic semester?
- 6) How much time do you spend each day on an average on online learning?
- 7) Do you have access to a device for learning online?
- 8) What device do you use for online learning?
- 9) Do you have uninterrupted internet access?
- 10) How do you access internet?
- 11) Do you have peaceful environment at home while learning?
- 12) Do you enjoy online learning?
- 13) How helpful your University has been in offering you the resources to learn from home?
- 14) How helpful are your lecturers while studying online?
- 15) How much you satisfied with the quality of teaching?
- 16) How often do you talk to your batch mates(Weekly)?
- 17) What is your level of satisfaction regarding online exams and assignments?
- 18) Is online learning stressful for you during the COVID-19 pandemic?
- 19) How effective has remote learning been for you?
- 20) How much you prefer e-learning over in-premises learning?
- 21) How do you feel overall about online learning?
- 22) Any other comments

VI. DATA

For the question "What is your gender?" responses are shown in Fig. 1

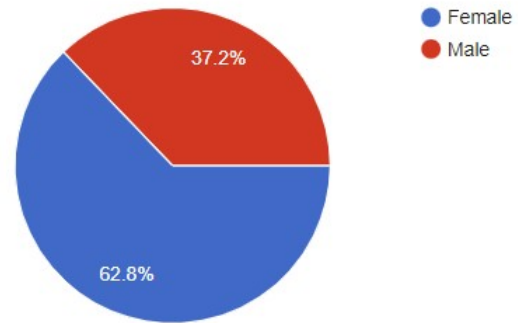


Fig. 1. Gender wise distribution

The data was entered into an excel sheet and 156 responses were obtained from undergraduates in the cities listed below.

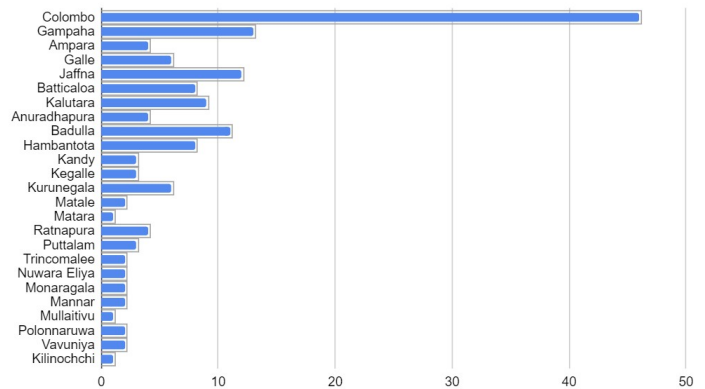


Fig. 2. District wise distribution

The study included students from the following universities.

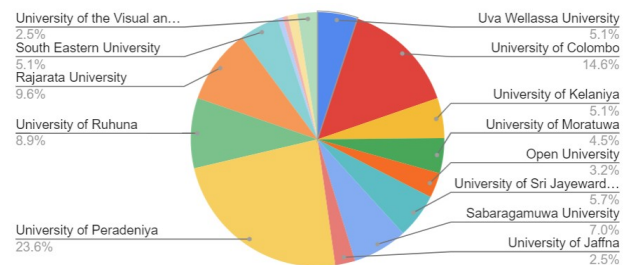


Fig. 3. District wise distribution

- University of Moratuwa
- University of Sri Jayewardenepura
- University of Colombo
- University of Kelaniya
- University of the Visual and Performing Arts
- Uva Wellassa University
- University of Jaffna

- Sabaragamuwa University
- University of Ruhuna
- South Eastern University
- Rajarata University
- University of Peradeniya
- Open University

For the question "What is your academic year?" responses are shown in Fig. 4

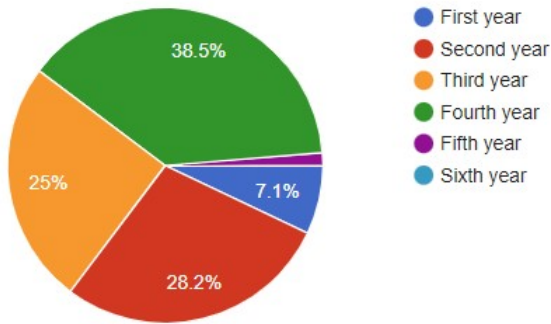


Fig. 4. Academic year wise distribution

For the question "Is your university providing online lectures in the current academic semester?" responses are shown in Fig. 5

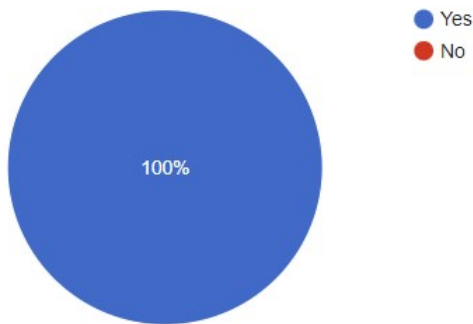


Fig. 5. Having online lectures

For the question "How much time do you spend each day on an average on online learning?" responses are shown in Fig. 6

For the question "Do you have access to a device for learning online?" responses are shown in Fig. 7

For the question "What device do you use for online learning?" responses are shown in Fig. 8

For the question "Do you have uninterrupted internet access?" responses are shown in Fig. 9

For the question "How do you access internet?" responses are shown in Fig. 10

For the question "Do you have peaceful environment at home while learning?" responses are shown in Fig. 11

For the question "Do you enjoy online learning?" responses are shown in Fig. 12

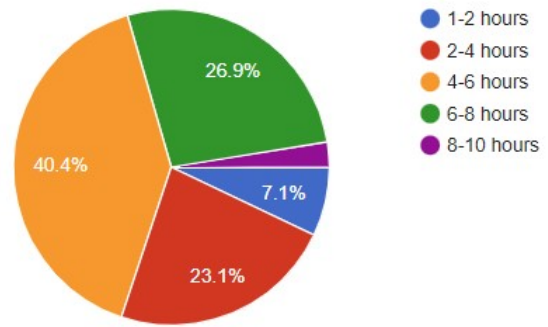


Fig. 6. Daily time spent on online learning

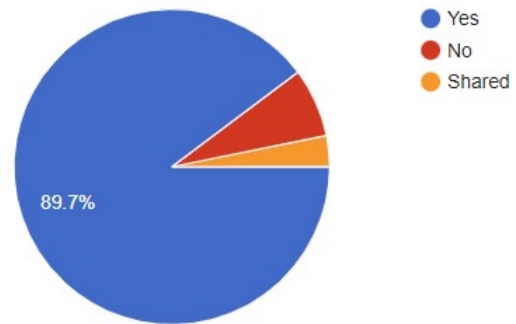


Fig. 7. Faced device accessing problems

For the question "How helpful your University has been in offering you the resources to learn from home?" responses are shown in Fig. 13

For the question "How helpful are your lecturers while studying online?" responses are shown in Fig. 14

For the question "How much you satisfied with the quality of teaching?" responses are shown in Fig. 15

For the question "What is your level of satisfaction regarding online exams and assignments?" responses are shown in Fig. 16

For the question "Is online learning stressful for you during the COVID-19 pandemic?" responses are shown in Fig. 17

For the question "How effective has remote learning been for you?" responses are shown in Fig. 18

For the question "How much you prefer e-learning over in-premises learning?" responses are shown in Fig. 19

For the question "How do you feel overall about online learning?" responses are shown in Fig. 22

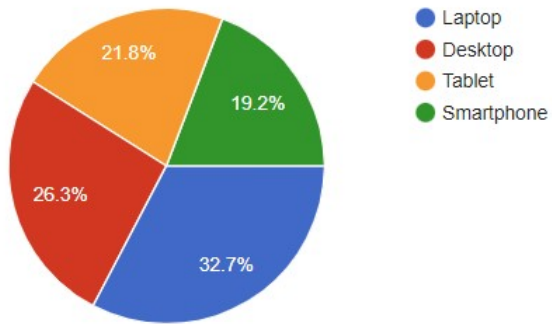


Fig. 8. Device wise distribution

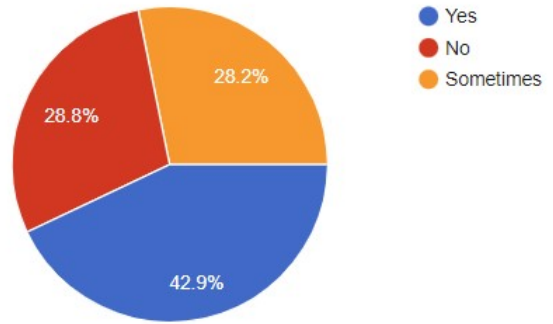


Fig. 12. Enjoyment of online learning

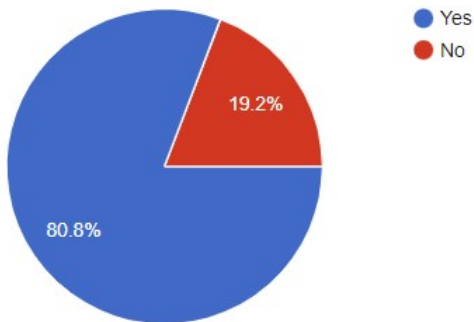


Fig. 9. Internet connection reliability

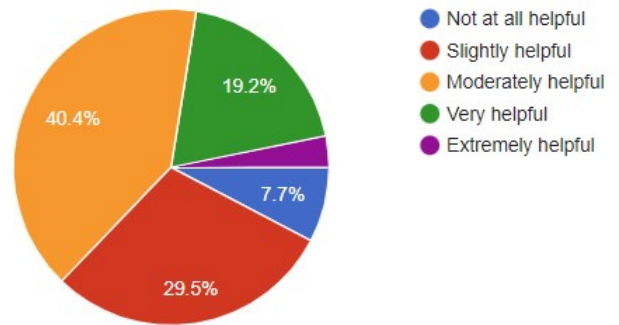


Fig. 13. University helpfulness

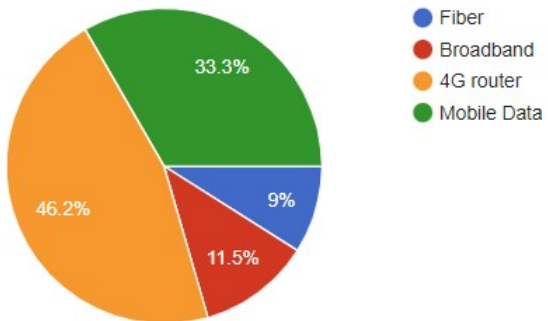


Fig. 10. Internet access

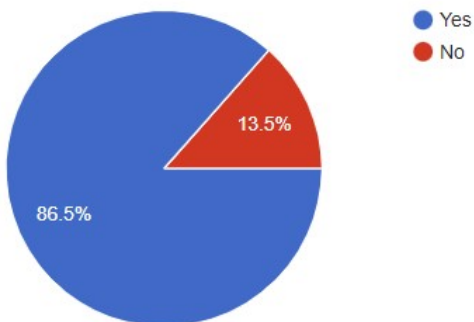


Fig. 11. Peaceful environment

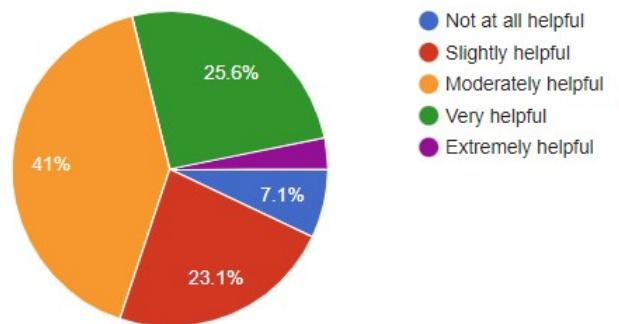


Fig. 14. Lecturer helpfulness

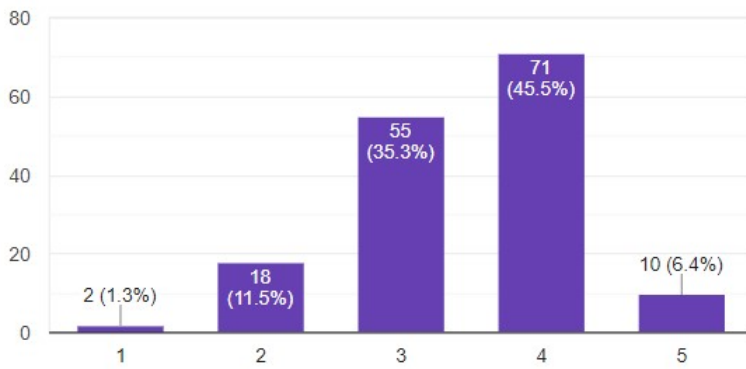


Fig. 15. Quality of teaching

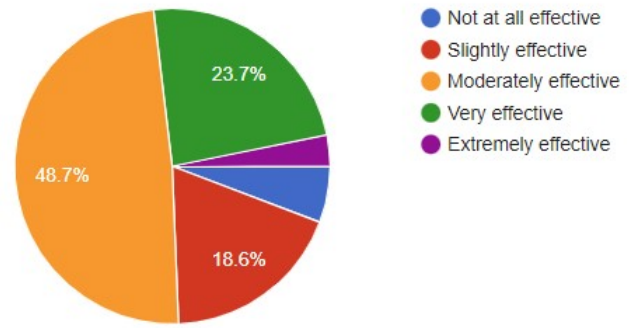


Fig. 18. Effectiveness of online learning

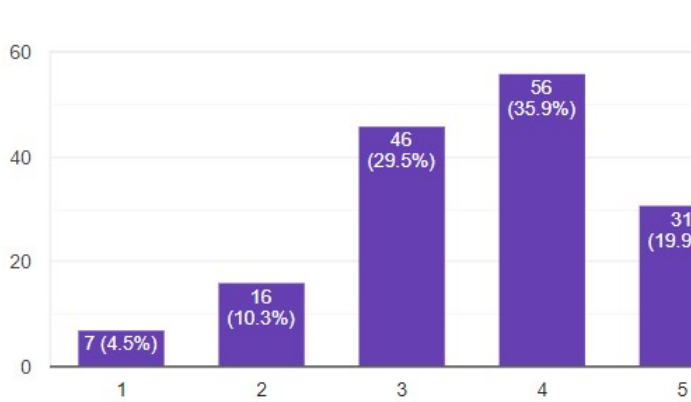


Fig. 16. Satisfaction regarding online exams and assignments

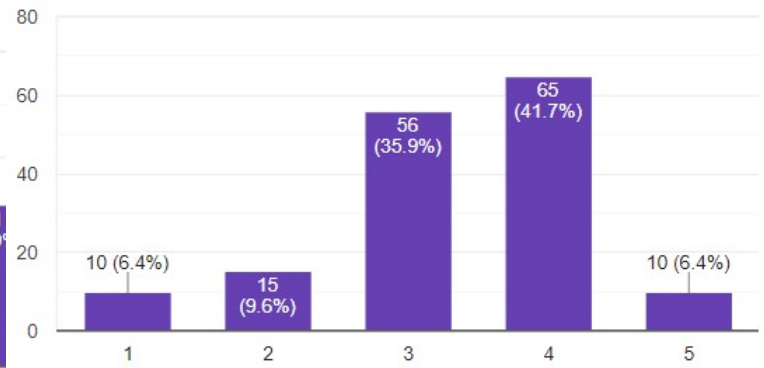


Fig. 19. E-learning over in-premises learning

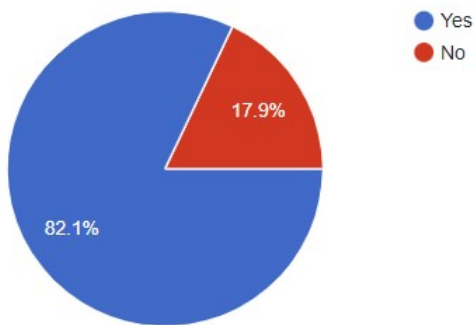


Fig. 17. Stressfulness during the COVID-19 pandemic

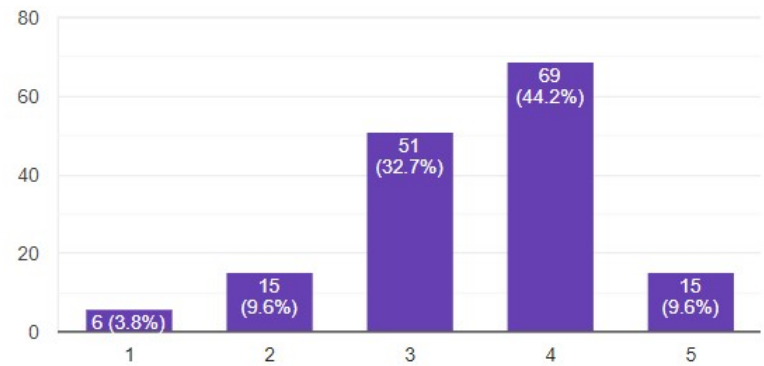


Fig. 20. Rating of e-learning

VII. ANALYSIS

Two hypothesis tests were done on the data answering these questions.

- 1) Does dissatisfaction towards e-learning not cause by students dissatisfaction with the quality of teaching?
- 2) Does dissatisfaction towards e-learning not cause by students' stressfulness?

A. Test 1

In test one question "Does dissatisfaction towards e-learning not cause by students dissatisfaction with the quality of teaching?" was analyzed.

P_e = proportion of student dissatisfied with elearning = 0.135

P_a = proportion of student dissatisfied with the quality of teaching = 0.128

$H_0 : P_e = P_a$

$H_a : P_e \neq P_a$

TABLE I
ASSOCIATION BETWEEN STUDENTS' DISSATISFACTION WITH THE QUALITY OF TEACHING AND E-LEARNING DISSATISFACTION

Group	Count	Sample Size	Proportion
E-learning dissatisfied	21	156	0.135
Teaching dissatisfied	20	156	0.128

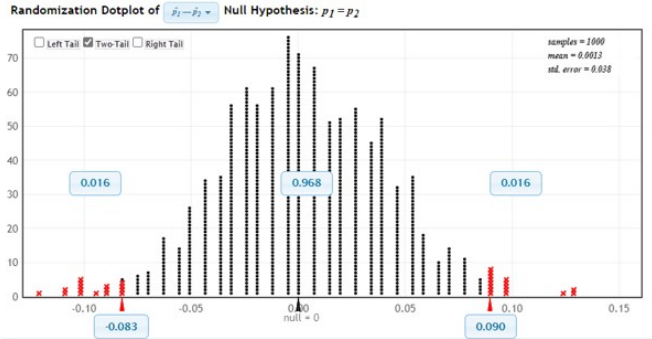


Fig. 21. Hypothesis Testing

Confidence interval (α) = 0.05

P-Value = 0.044 (<0.05)

Since p-value is smaller than α , we reject H_0 and conclude that "Dissatisfaction towards e-learning is not cause by students dissatisfaction with the quality of teaching"

B. Test 2

In test one question "Does dissatisfaction towards e-learning not cause by students' stressfulness?" was analyzed.

P_e = proportion of student dissatisfied with elearning = 0.135

P_a = proportion of stressed students = 0.821

$H_0 : P_e = P_a$

$H_a : P_e \neq P_a$

TABLE II
ASSOCIATION BETWEEN STRESS AND E-LEARNING

Group	Count	Sample Size	Proportion
E-learning dissatisfied	21	156	0.135
Teaching dissatisfied	128	156	0.821

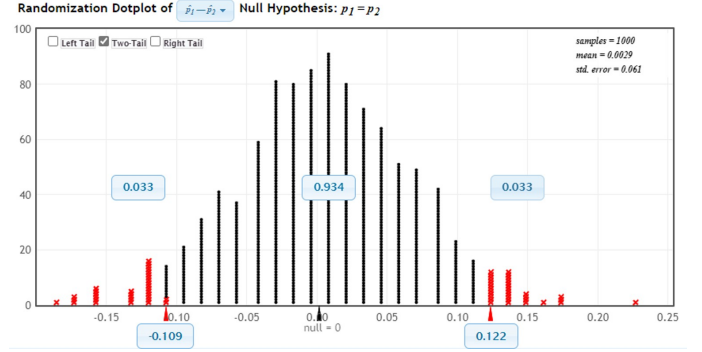


Fig. 22. Hypothesis Testing

Confidence interval (α) = 0.05

P-Value = 0.066 (>0.05)

Since p-value is greater than α , we do not reject H_0 and conclude that "dissatisfaction towards to e-learning may be caused by students' stressfulness"

VIII. CONCLUSION

According to data we can say there is no association between dissatisfaction towards quality of teaching and e-learning dissatisfaction. Also we can say there is an association between getting stressed by e-learning.

When data gathering mechanisms rely on volunteer data, they exhibit volunteer bias. Additionally, the dataset is not generalizable to the whole of Sri Lanka due to the data distribution being skewed toward a few regions and colleges. The next effort of this study will aim to adjust for these biases and to gather further data that can be generalized to the whole country.

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