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Students' Perception on Online Learning During the Covid-19 Pandemic

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Abstract

This paper focuses on students' perception of the effectiveness of online vs onsite learning within two faculties (Arts and Science) of the University of Colombo, Sri Lanka. Furthermore, the results of this study are compared to those of similar studies conducted in several other countries. The research problem addressed in this study is: What is the impact of ICT knowledge, digital infrastructure, classroom environment, and policy support on undergraduates' perception of online teaching and learning? The primary data for the study was collected using a structured questionnaire. The objective of the questionnaire was to measure the impact of ICT knowledge, digital infrastructure, classroom environment, and policy support on undergraduates' perception of online teaching and learning. A questionnaire was made available through an online platform to two hundred undergraduates of the two faculties, Arts and Science, of the University of Colombo, and the one hundred eighty (180) responses received were analysed using SPSS. The neutrality of the impact of ICT knowledge, digital infrastructure, classroom environment, and the policy framework on the participants' perception of the online teaching/learning process can be interpreted as the non-existence of a significant difference between online and onsite classes. However, the additional comments provided by the same respondents at the end of the questionnaire indicate opinions contradictory to the above finding.

Keywords: Online Learning, Classroom Environment, Digital Infrastructure, Policy Structure, Impact on Performance

Introduction

When COVID-19 started spreading around the world in early 2020, all the countries faced problems of finding ways of providing essential goods and services to their citizens while battling the pandemic. One of the top priorities was to find innovative ways to minimize the physical and mental impact of the pandemic on the youth and children. Almost all the countries explored feasible ways of continuing their formal education systems (Lucas, 2020). The right of children to go to school was restricted due to the global pandemic. It also impacted both the health of the people and the global economy. In that context, words such as ‘global’, ‘digital’, and ‘online’ became household terms. The COVID-19 pandemic forced individuals and organizations to take their businesses and education online. Due to global quarantine orders, consumers were restricted and retailers began searching for change (Qian & Vader, 2021). Similarly, educational institutions soon adapted themselves and became more flexible and optimistic. They faced challenges in restricting physical interactions between students and teachers, addressing financial hardships encountered by the families of students and teachers, and supporting students and teachers undergoing emotional distress due to illness and deaths in their families. Returning to pre-COVID educational procedures was possible only with successful remedies to fight the disease and nurse the global economy (Sahin & Shelley, 2020). Students, academic staff, parents, and policy makers were concerned about the transition from physical classes to classes conducted via online platforms, wondering whether they would achieve the same goals as they did prior to the pandemic. Though ‘distance education’ had been in existence for decades, the pandemic presented the best time to critically examine its effectiveness (Gunawardena & McIsaac, 2013). Most institutions had to not only develop their own online teaching/learning portals using commercially available platforms suitable to their needs, but also introduce amendments to their policies regarding evaluation methods and other requirements in order to facilitate online education under emergency conditions. As with any new concept, method or remedy, improvements or necessary adjustments to the online teaching/learning process can be made only if its effectiveness can be evaluated and measured in a tangible way. It is not an easy process as online teaching and learning has a relatively short history and diverse forms of implementation (Oliver, 2000).

Rationale of the Study

The impact of digitalization on education is threefold. It calls for:

- i) the curriculum within the formal education systems to be rearranged so that learners will clearly understand all different aspects of the effects of digitalization on their learning process and on the society in general.
- ii) the teaching/learning methods to be redesigned so that the transformation of knowledge becomes more efficient through the usage of appropriate digital technologies.
- iii) the infrastructure to facilitate all the digital communications needed for teaching, learning, evaluation, counseling, and mentoring to be introduced.

When new teaching methods or technologies are introduced into an existing teaching/learning process, it is very important and helpful to know the students' perception on these changes (Van Wart et al., 2020). This paper particularly focuses on the students' perception of the effectiveness of online vs onsite learning within two faculties of the University of Colombo, Sri Lanka. The study further compares its results with those of similar studies conducted in several countries. This study would inform educationalists to create and implement appropriate strategies to develop more efficient and effective teaching learning environments.

Objectives

This study aims to investigate the impact of ICT knowledge, digital infrastructure, classroom environment, and policy support on undergraduates' perception of the effectiveness of online teaching and learning.

This study has two objectives. They are;

1. To assess the impact of ICT knowledge, digital infrastructure, classroom environment, and policy support on undergraduates' perception of the effectiveness of online teaching and learning.

2. To discuss undergraduates' perception of online teaching and learning starting from the way the courses are selected all the way to the level of their satisfaction in achieving what they expected from those courses.

Methodology

The following model of factors (see flow chart below) impacting the perception towards online learning was used in analyzing the responses to a questionnaire which used the psychometric 5-level response scale (Likert Scale) in which respondents specified their level of agreement to a statement typically in five points: (1) strongly disagree; (2) disagree; (3) neither agree nor disagree; (4) agree; (5) strongly agree.

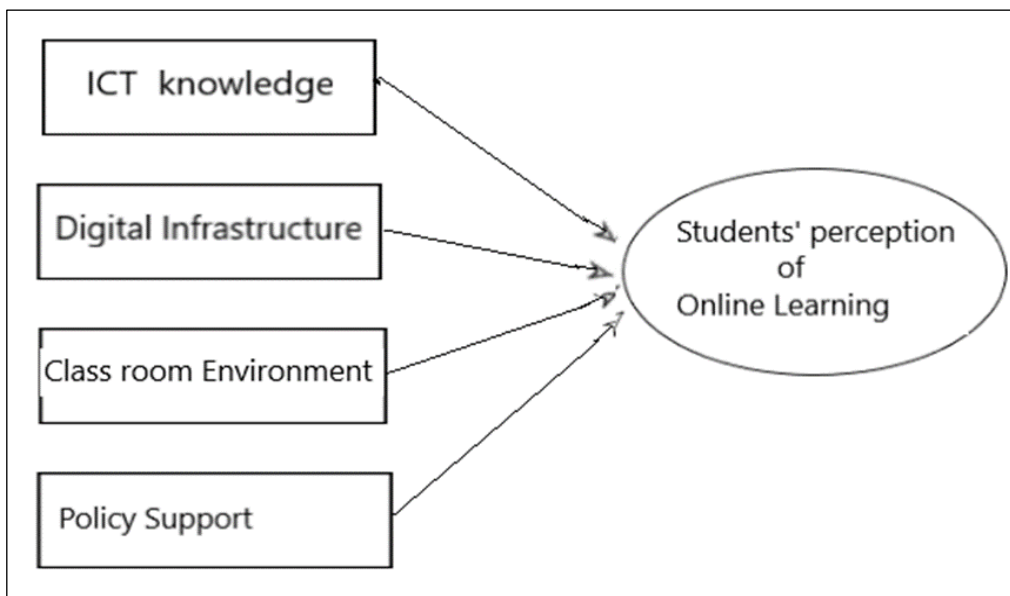


Figure 1: Flowchart based on the factors

The model has four scales of independent factors, as shown in the flowchart above, with 24 observed variables and a dependent factor scale with 6 observed variables built into each factor on a theoretical basis. Responses to the questionnaire were analyzed using SPSS to explore the statistical implications regarding the impact of those factors on students' perception of the effectiveness of online teaching/learning.

The study is based on primary data collected through a structured questionnaire to measure the impact of ICT knowledge, digital infrastructure, classroom environment, and policy support on undergraduates' perception of the effectiveness of online teaching and learning.

A pilot study was conducted to examine the reliability and validity of variables and the questionnaire. The initial questionnaire was improved and modified by removing measuring indicators which were shown to be ineffective. Thereafter, the questionnaire was made available through an online platform to two hundred (200) undergraduates of the two faculties, Arts and Science, of the University of Colombo. One hundred eighty (180) responses were received and were analyzed using SPSS.

Results and Discussion

Descriptive statistics show that from the 180 responses (90% out of a total of 200) received, nearly 78% were from the Faculty of Science and about 63% were females. About 83% were studying in the English medium while 16% and 1% were studying in Sinhala and Tamil mediums respectively.

Figure 1 shows that the mean, median, and mode of the responses to the questions on the impact of ICT knowledge on students' performance were approximately 3, representing the neutrality of their perception. However, as figures 2 and 3 show, in responses regarding students' ICT knowledge and classroom environment, the medians and modes have shifted to the right of 3, indicating a positive effect on the overall perception.

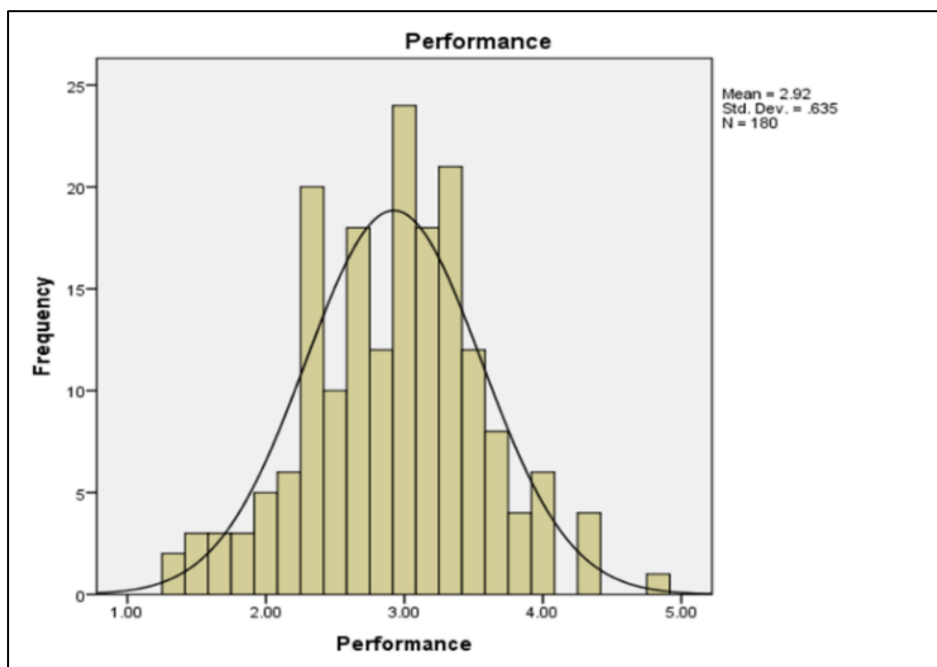


Figure 2: Frequency distribution of dependent variable

Source: Survey findings

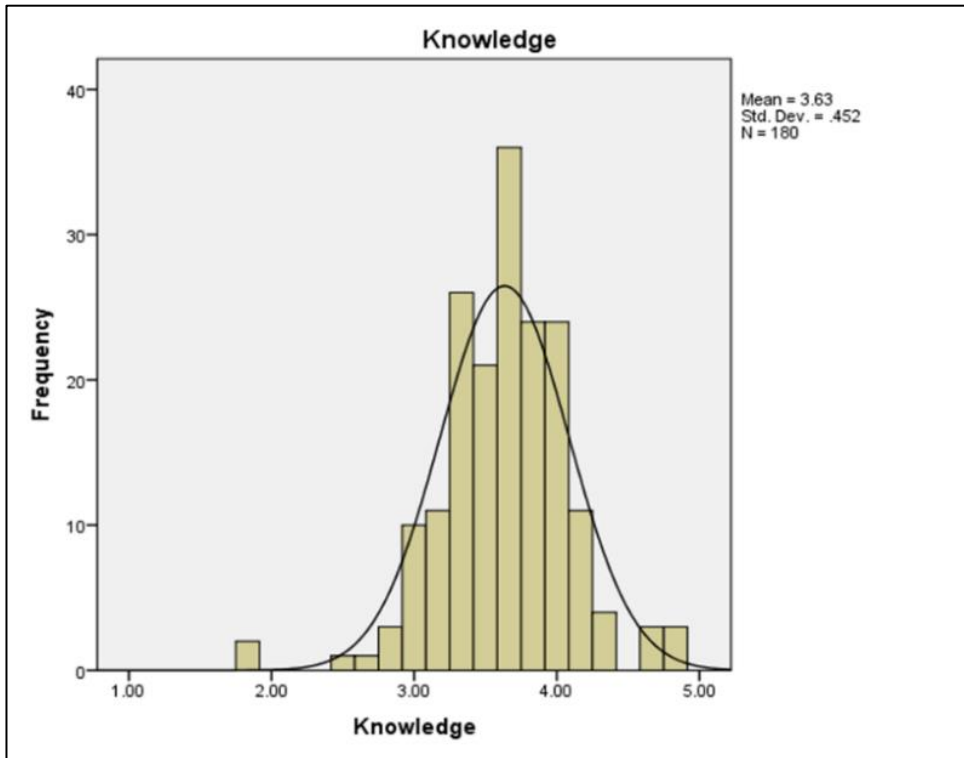


Figure 3: Univariate normality of independent variable

Source: Survey findings

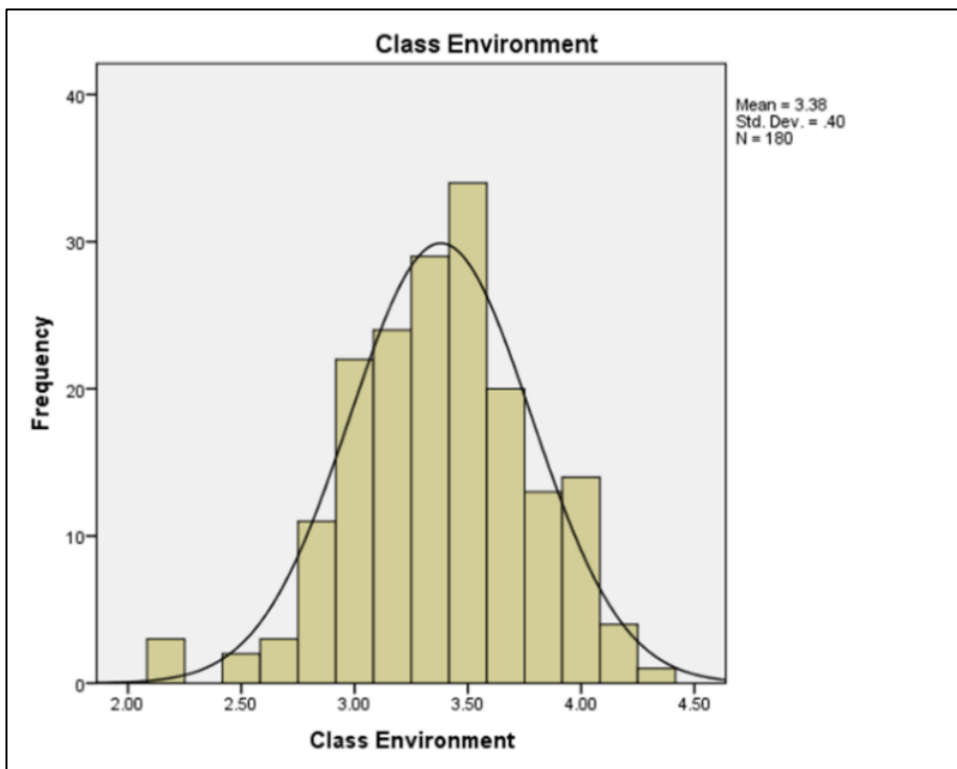


Figure 4: Univariate normality of independent variable

Source: Survey findings

As table 1 shows, there is a negative correlation between 'infrastructure' (availability of infrastructure) and 'overall perception' indicating that the difficulty in accessing the necessary devices and the unavailability of network facilities have a negative impact on undergraduates' overall perception of online learning.

Table 1: Correlations

		Correlations				
		Knowledge	Infrastructure	Class Environment	Policies	Performance
Knowledge	Pearson Correlation	1	.258*	.119	.248*	.206*
	Sig (2-tailed)	180	180	180	180	180
	N					
Infrastructure	Pearson Correlation		1	.217*	.017	.116
	Sig (2-tailed)		180	180	180	180
	N					
Class Environment	Pearson Correlation			1	.397*	.277*
	Sig (2-tailed)			180	180	180
	N					
Policies	Pearson Correlation				1	.309*
	Sig (2-tailed)				180	180
	N					
Performance	Pearson Correlation					1
	Sig (2-tailed)					180
	N					

* Correlation is significant at the 0.01 level (2-tailed)

Source: Survey findings

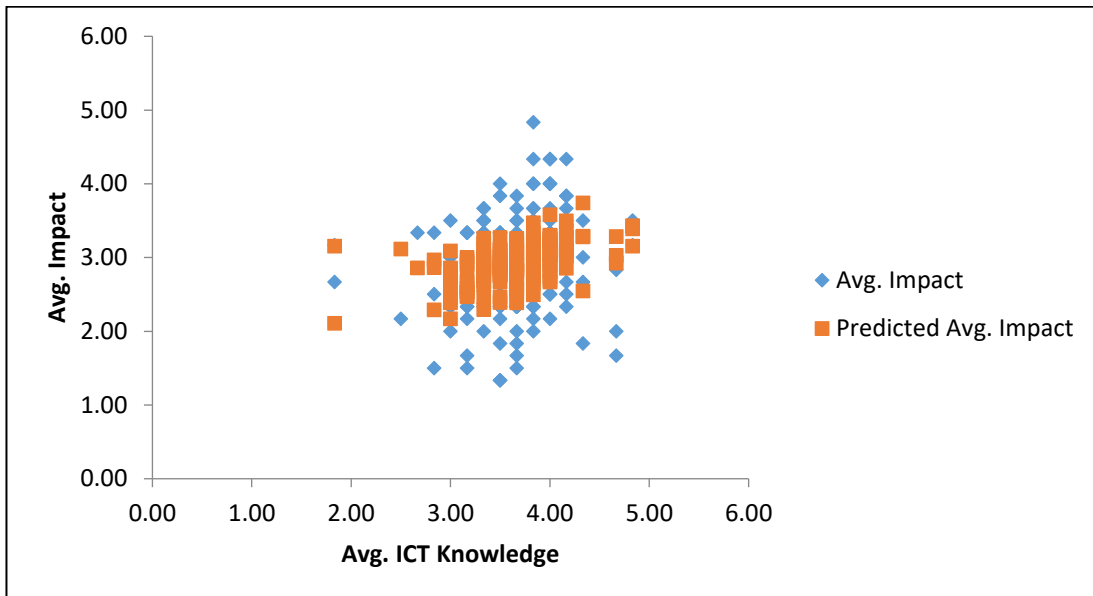


Figure 5: Avg. ICT knowledge against avg. impact on performance

Source: Survey findings

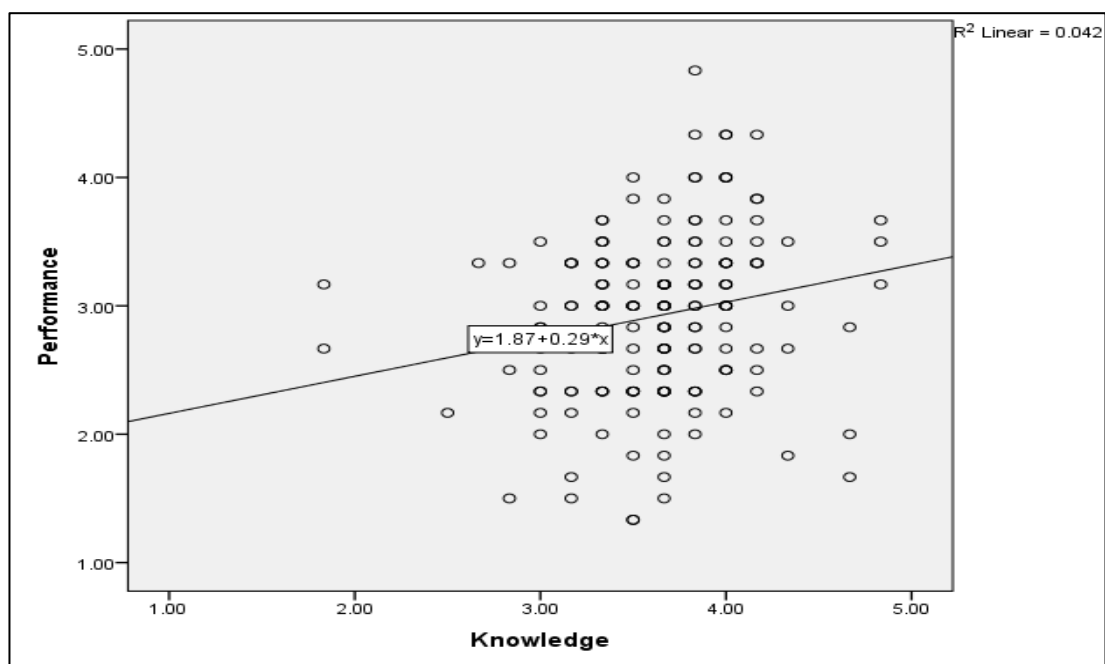


Figure 6: Avg. ICT knowledge against avg. impact on performance line fit

Source: Survey findings

As figures 4 and 5 show, the average impact on performance tends to increase with an increase in the average scores to the questions on the students' ICT knowledge.

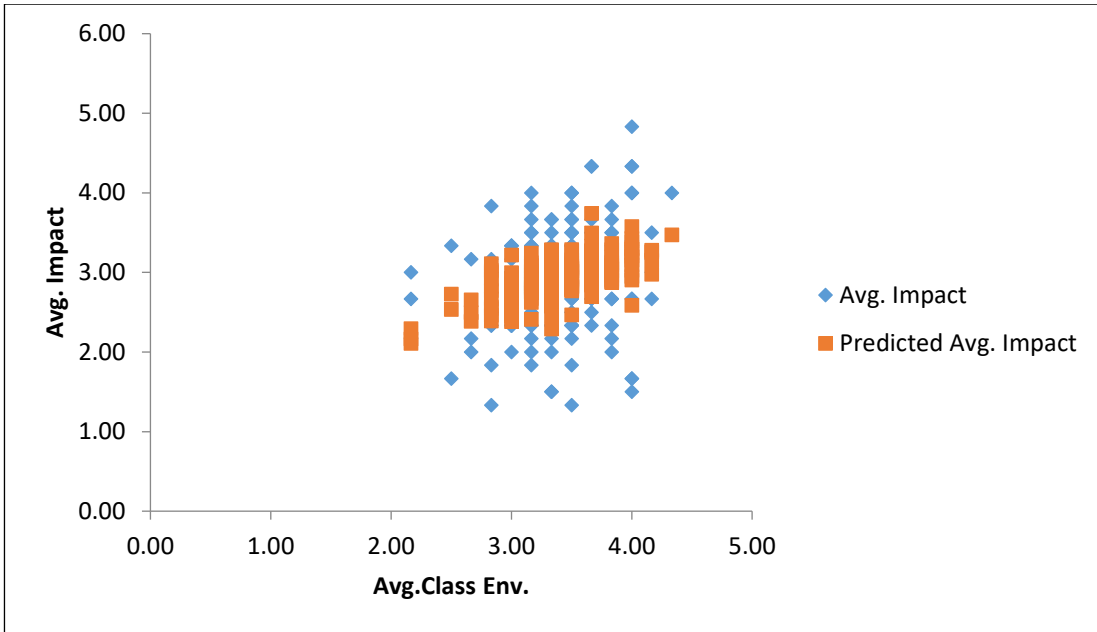


Figure 7: Avg. classroom environment against avg. impact on performance

Source: Survey findings

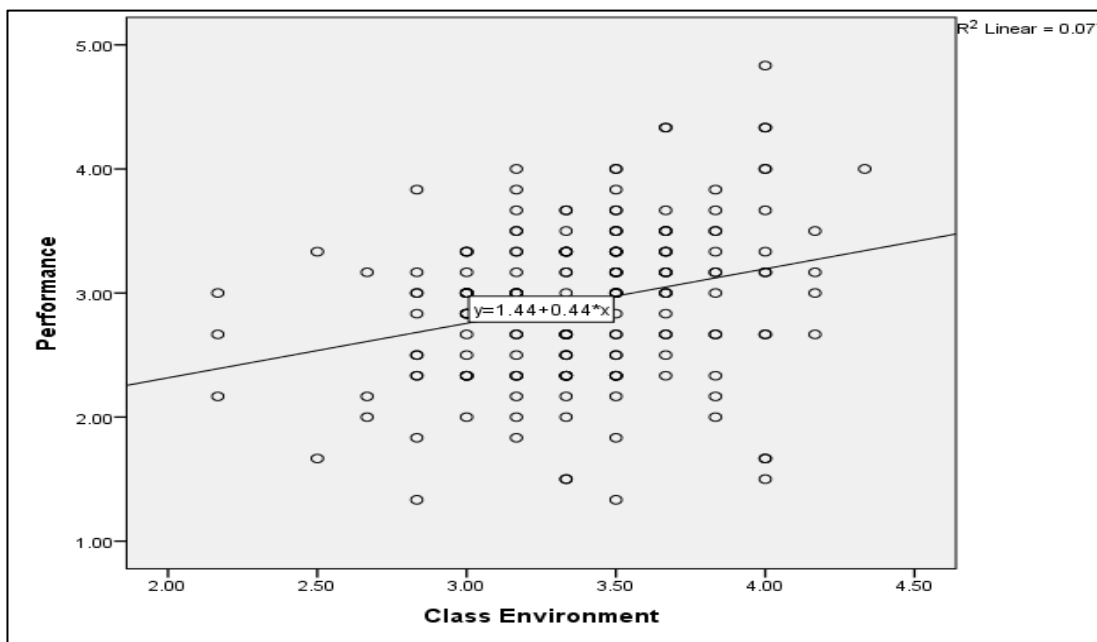


Figure 8: Avg. class environment against avg. impact on performance line fit

Source: Survey findings

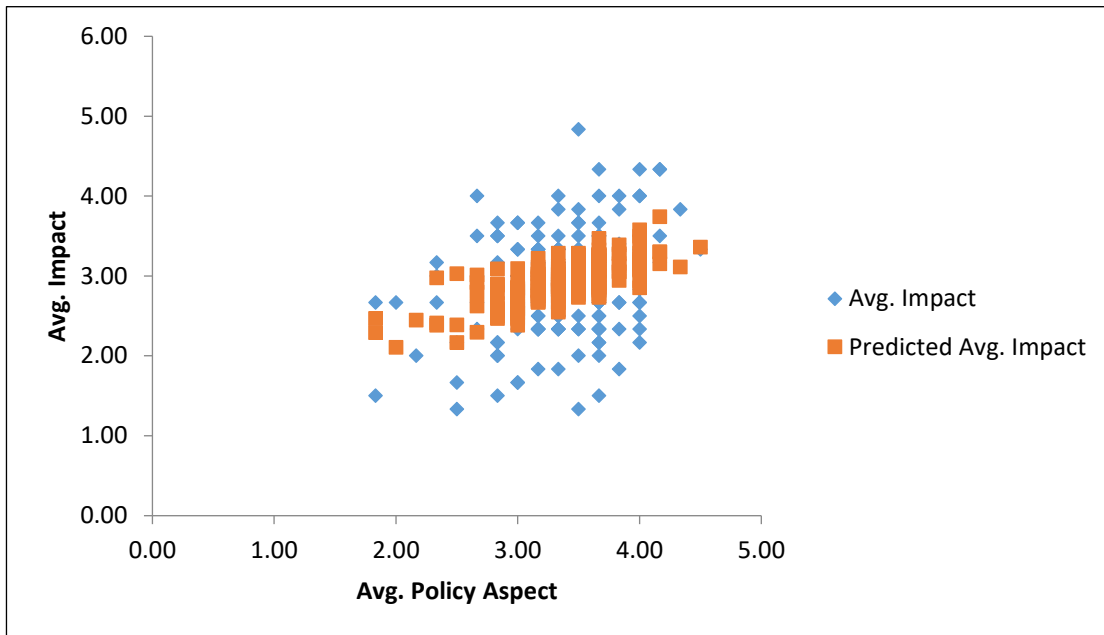


Figure 9: Avg. policy aspect against avg. impact on performance

Source: Survey findings

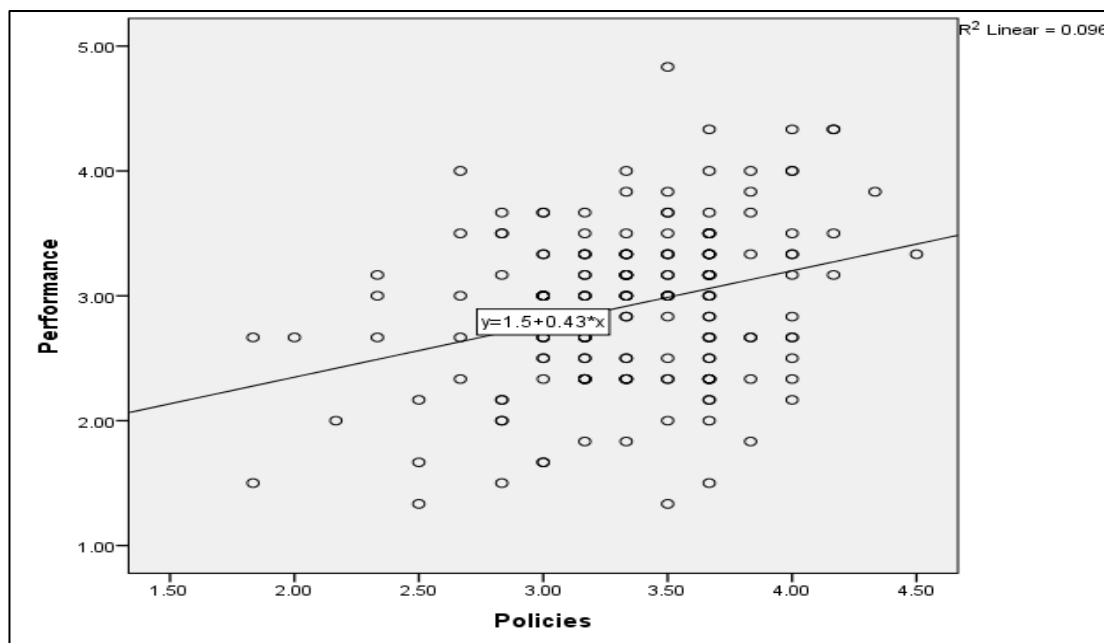


Figure 10: Avg. policy aspect against avg. impact on performance line fit

Source: Survey findings

Figures 8 and 9 show an increase in the average impact on performance with an increase in the respondents’ average score to policy structure. This is similar to the line plots indicating

the relationships between ICT knowledge and its impact on performance and the classroom environment and its impact on performance.

Discussion

Since the students from the Faculty of Science study in the English medium, they are more familiar with the language and are usually not hesitant to respond to questionnaires that are in English compared. That could be one of the reasons for the high rate of responses (nearly 78%) received from the students of the Faculty of Science.

As figure 1 shows, the mean, median, and mode of the responses to the questions on impact of ICT knowledge on students' performance is approximately 3, implying the neutrality of students' perception. This is similar to the findings of several studies (Nguyen, 2015) that highlight that there is no significant difference between online and onsite classes.

In the questions about students' ICT skills, the average score of the responses increases as the number of answers in the categories 'agree' and 'strongly agree' increase. Some of the detailed comments received for the questions on ICT knowledge were as follows:

"I had enough ICT knowledge to learn the subjects in online classes"

"There was enough training provided by the university about how to get the maximum out of online classes"

"I use ICT regularly to gather information about current affairs in the world"

"I have a fairly good idea about the impact of ICT knowledge on career opportunities, for example, future jobs"

As seen through these responses, an increase in the average score of the responses to queries about ICT knowledge causes and increase in the average score of the impact on performance.

As figures 6 and 7 show, the average impact on performance tends to increase with an increase in the average score of the classroom environment. Some of the responses to the queries about classroom environment were:

"Evaluation methods used in online classes were satisfactory."

"There was no activity in the class that needed technology other than listening to the lecture from a remote location."

"Lecturers were efficient in using ICT in explaining the concepts and motivating the students."

“Lecturers and the technical staff promptly responded to emails and messages”,

The indication is that many of the respondents were satisfied with the classroom environment, which had had a positive impact on their learning process. This is compatible with the findings of Luo et al. (2022), who indicate the importance of establishing positive student-teacher and student-student relationships for motivating students to engage in online learning activities.

Some of the responses to the queries about policy structure were:

“School and university education systems facilitate the use of IT in education.”

“Current policies in Sri Lanka support the use of IT in state sector services including the services rendered by the university system.”

“Alternative methods to cater to the students having trouble with the online platform offered through current policies of the university are satisfactory.”

“Current policies in the university such as providing free access to computer labs with Wi-Fi facilities support the use of IT in our classes.”

“Research and development and training by the university and private sector are adequate to narrow the gap between the IT literates and the others.”

The increased average score of such responses indicates that a large number of responses were in the categories of ‘agree’ and ‘strongly agree’. That is an indication that accommodative and inclusive policies would help students to effectively engage in online learning. These results are compatible with the findings of Pedro and Kumar (2020), who highlight the importance of implementing policies geared towards providing support for online learning, with skill development, peer support, and operational support. Pedro and Kumar (2020) further indicate the importance of providing online student support in administrative and academic processes, institutional guidance on policies in online education, and student counselling. Individual queries and responses received in Pedro and Kumar’s study (2020) are also valuable in enhancing the performance of teachers and students in an online or hybrid teaching/learning environment.

Out of the responses we received under queries about the impact of the classroom environment, only 11% disagreed with the statement “evaluation methods used in online classes were satisfactory”. This can also be interpreted as 89% agreeing with the statement

(though nearly half of those responses were in the neutral category). Students may have felt that the evaluation methods were satisfactory due to the high degree of flexibility given during testing procedures or the lower expectations by the instructors as a way of compensating for the difficulties faced by instructors and students. If the online evaluations were not as rigorous as evaluations in the regular face-to-face class setting, then students would complete the courses or the degree program with satisfactory grades but with low level of knowledge and skills. This negatively impacts the students who want to enroll in graduate studies as well as those who want to join the workforce (Hailikari et al., 2008).

Further analysis has to be done to understand the basis for the 10% disagreement with the statement “school and university education systems facilitate the use of IT in education” or 22% disagreement with the statement “current policies in Sri Lanka support the use of IT in the state sector services including the services rendered by the university system”. Students’ limited knowledge on the existing policy structures could be a factor influencing their responses. There is limited exploration into the impact of policy structures, institution wide or countrywide, on the perception of different groups of stakeholders on online teaching and learning throughout literature. Even the most widely used theoretical framework in online literature, the Community of Inquiry (CoI) explores only the aspects of teaching and cognitive and social presence in the online teaching learning process (Garrison et al., 2003).

Responses received in the present study are similar to those received in studies done in other countries. A study done in University of Malaga, Spain in 2020 shows that a little over 50% of the students did not have good enough internet access to follow all the online classes they needed while 35% had said that the learning process was disturbed often since they had to share devices with other family members (Sahin & Shelley, 2020). However, a similar study done in Bhutan shows that 80% of the students favoured online learning through Google Classroom since that was the platform supported by the government policies (Sahin & Shelley, 2020).

Conclusion

In the present study, the neutrality regarding the impact of ICT knowledge, digital infrastructure, classroom environment, and the policy framework on the perception of online teaching/learning process, shown by the participants of the survey can be interpreted as the

non-existence of a significant difference between online and onsite classes. However, their additional comments tend to reveal a different perception. It may be an indication that information gathered through detailed answers or even through one-on-one interviews may reveal a better picture of students' perception.

Though the survey does not show a significance in the impact of infrastructure, classroom environment, and the policy framework on the perception of the students on the effectiveness of the online teaching/learning process, the additional comments provided by them mainly indicate their dissatisfaction with online classes. This could be a result of the lack of planning and knowledge of academics who had to make a sudden switch to online instruction.

Studies done in other parts of the world have also shown that the perceptions about online teaching and learning and reactions and feelings of stakeholders about the process have been a mix of positives and negatives. As Otter et al., (2013) indicates, though online teaching and learning has attracted attention since the beginning of the COVID-19 pandemic, it has received mixed responses depending on factors such as the inclusiveness and flexibility of the education system, the expectation of accreditation bodies in the country, and expectations of parents, employers, and the society at large. Therefore, further analyses of stakeholder perceptions, factors affecting the process of online teaching and learning would be helpful in improving the process.

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