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Mean Differences in Student Dimension, Technology Characteristic, Instructor Characteristic Based on Demography Factors

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Abstract

The worldwide COVID 19 epidemic that occurred in 2019 had a huge impact on everyone's lives. Nearly all sectors and industries have experienced a substantial impact as a result of the pandemic. The Movement Control Order was put into effect by the government in March 2020, which caused a disruption in people's routines. Higher education is one of the industries that have undergone significant overall change. The teaching and learning process continues throughout MCO, shifting from in-person instruction to online distant learning (ODL). Regardless of demographic differences, family economic circumstances, or unsuitable and uncomfortable learning conditions at home, all students are compelled to participate in ODL learning sessions. Examining the variations in student dimensions, technology characteristics, and instructor characteristics based on demographic factors is the main objective of this work. Gender, the student's current location (campus or hometown), the area (urban or rural), and the student's response to the question "Do you have a proper study area?" are all examples of demographic factors. The study's findings show that the area for instructor characteristic satisfaction score and respondents' gender only differ by a statistically significant result. Gender, respondent area, and study area conditions all varied significantly in terms of the student dimension satisfaction score. The technology characteristic satisfaction score did not show any notable variations for any of the categories.

Keywords: Covid-19, Online Distance Learning, Students' Satisfaction

Introduction

In March 2020, the WHO Director General designated Covid-19 a pandemic and announced societal segregation as a strategy to slow the spread of the deadly virus after evaluating its rapid global expansion and severity (WHO, 2020). Movement Control Orders were implemented globally as a result of the Covid-19 epidemic, which struck at the end of 2019. (MCO). In March 2020, one additional Asian nation participated in the MCO. As a result of this move, an educational facility was abruptly closed (Shaid et al., 2021). Online disputes are an amendment to all the usual activities including face-to-face sessions. The field of education is not an exception. Wherever that face-to-face and physical distribution of teaching and learning methodologies has historically occurred. However, due to the emergence of Covid-19 interference measures, this system evolved into online distance learning (Alawamleh,

2020). These changes have significantly affected how learning methods have changed inside Education 5.0.

When the Online Distance Learning technique initially started, there were some problems, especially with the infrastructure of access, technology, and internet networking (Nambiar, 2020; Dawadi et al., 2020; Shaid et al., 2021; Mustapah & Rosli, 2021). In addition, social isolation, concerns with teacher-student face-to-face interaction, connectivity issues, and a few other problems are all related to online learning (Sa & Serpa, 2020). This problem is more likely to affect students than teachers. Students can take various precautions to ensure that the teaching and learning process proceeds well. This study was conducted to ascertain students' satisfaction with online distance learning (ODL) consequently. Due to these findings, this study encourages future research, particularly among UiTM students.

The main objective of this paper is to examine the mean differences of satisfaction score of students towards online distance learning based on demographic factors using compare mean independent t test analysis. In order to achieve the main objective, there are sub-objectives for this study:

a) To examine the mean differences of satisfaction score of students towards student dimension based on demographic factors
b) To examine the mean differences of satisfaction score of students towards instructor characteristic based on demographic factors.
c) To examine the mean differences of satisfaction score of students towards technology characteristic based on demographic factors.

Methodology

A hundred students from Part 1 Diploma in Statistics, Faculty of Computer Science and Mathematics are selected to participate in the study. Students are given an online questionnaire through Telegram and WhatsApp applications. The numbers of respondents are divided into several demographic categories, which are Gender, Current Location and Area of origin as in Table 1, Table 2 and Table 3, respectively.

Table 1
The breakdown of respondents' numbers by gender

Gender	Number	Percentage
Female	64	64
Male	36	36

Table 2
The breakdown of respondents' numbers by current location

Current Location	Number	Percentage
Hometown	75	75
Campus	25	25

Table 3
The breakdown of respondents' numbers by area

Area	Number	Percentage
Urban	67	67
Rural	33	33

The questionnaire was adapted from (Shaid et al., 2021). Three key components which are student dimension, technology characteristics, and instructor characteristics. All the components are examined in this questionnaire. All three measurements are important when assessing the satisfaction with ODL learning. There are 13 questions for measuring the instructor characteristics, 9 questions for measuring the technology characteristics, and 15 questions for measuring the student dimensions. Using a 5-point Likert scale, each question is built using the same scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). Student dimension (SumL), instructor characteristic (SumQ), and technology characteristic (SumT) is represented for calculating the satisfaction scores, respectively. According to Zulkipli et al (2022), the majority of respondents are satisfied on all three dimensions, with more than 50% responding positively. Furthermore, the researchers extend the analysis in this study to see if the satisfaction score based on the three dimensions differs depending on their demographic factors. Gender, the student's current location (on campus or in their hometown), the area of origin (urban or rural), and finally, whether or not the student has an appropriate study space are all taken into account. To investigate the differences in satisfaction scores, the researchers employed a compare mean independent t test analysis.

Results and Analysis

In this section, the results of the analysis process are presented. Starting with the results of the gender-based satisfaction score analysis. The output discussion on the student's current location pursues. Then, proceed with the discussion of the result satisfaction score based on the student's origin. Finally, there will be a discussion of the results obtained from the satisfaction score of whether the student had a proper study area.

a) Gender

Table 4 and Table 5 are represented the independent t-test results and descriptive results based on gender. The Levene's test result showed that the variances across the gender category were equal for all three measurements. F=0.25, p-value=0.875, F=0.298, p-value=0.587 and F=0.041, p-value= 0.841 are the Levene's test result for SumL, SumQ and SumT respectively. Based on the output from the independent sample t test, the result show that there was a significant difference in SumL score for female (Mean=55.9062, SD=7.5269) and male (Mean=53.6111, SD=8.11094), condition; t(98)=-1.973, p-value=0.051). The result also indicate there was a significant difference in SumQ score for female (Mean=55.7656, SD=9.81696) and male (Mean=55.0278, SD=10.72643), condition; t(98)=-1.798, p-value=0.075). The results were significant at alpha level 5% and 10%. While, there was no significant difference in SumT score for female (Mean=35.75, SD=5.07718) and male (Mean=33.9167, SD=4.98784), condition; t(98)=-.250, p-value=0.803).

Table 4
Independent t test result

Components	**Levene's Test for Equality of Variances**		**t-test for Equality of Means**		
	F	Sig.	t	df	Sig. (2-tailed)
SumL	.025	.875	-1.973	98	.051
SumQ	.298	.587	-1.798	98	.075

SumT	.041	.841	-.250	98	.803

Table 5
Descriptive Result

Components	Gender	N	Mean	Std. Deviation
SumL	Female	64	55.9062	7.5629
	Male	36	53.6111	8.1109
SumQ	Female	64	55.7656	9.8169
	Male	36	55.0278	10.7264
SumT	Female	64	35.7500	5.0771
	Male	36	33.9167	4.9878

b) Current Location of Respondents

Moreover, Table 6 and Table 7 are illustrated the independent t-test results and descriptive results based on student's current location either staying in hometown or campus. The Levene's test result showed that the variances between the current location category were equal for all three measurements. F=1.150, p-value=0.286, F=0.234, p-value=0.630 and F=1.285, p-value= 0.260 are the Levene's test result for SumL, SumQ and SumT respectively. Based on the t test analysis, the results show that there were no significant difference in SumL, SumQ and SumT score for Hometown (Mean=55.2, SD=7.58377), (Mean=55.48, SD=10.32494), (Mean=35.4667, SD=5.25391), and Campus (Mean=54.72, SD=8.58060), (Mean=55.56, SD=9.62237), (Mean=33.9600, SD=4.50444) conditions; t(98)=0.265, p-value=0.791), t(98)=-.034, p-value=0.973), t(98)=1.284, p-value=0.202) respectively.

Table 6
Independent t test result

Components	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
SumL	1.150	.286	.265	98	.791
SumQ	.234	.630	-.034	98	.973
SumT	1.285	.260	1.284	98	.202

Table 7
Descriptive Result

Components	Current Location	N	Mean	Std. Deviation
SumL	Hometown	75	55.2000	7.5837
	Campus	25	54.7200	8.5806
SumQ	Hometown	75	55.4800	10.3249
	Campus	25	55.5600	9.6223
SumT	Hometown	75	35.4667	5.2539
	Campus	25	33.9600	4.5044

c) Area of Respondents

Table 8

Independent t test result

Components	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
SumL	.025	.875	-1.973	98	.051
SumQ	.298	.587	-1.798	98	.075
SumT	.041	.841	-.250	98	.803

Table 9

Descriptive Result

Components	Area	N	Mean	Std. Deviation
SumL	Urban	67	54.0149	7.7332
	Rural	33	57.2424	7.6035
SumQ	Urban	67	54.2388	9.9378
	Rural	33	58.0606	10.1086
SumT	Urban	67	35.0000	5.0841
	Rural	33	35.2727	5.1977

In addition, Table 8 and Table 9 shows the independent t-test results and descriptive results based on area of origin either Urban or Rural. Levene's test result showed that the variances between the groups were equal for SumL, SumQ and SumT. F=0.25, p-value=0.875, F=0.298, p-value=0.587 and F=0.041, p-value= 0.841 are the Levene's test result for SumL, SumQ and SumT respectively. Based on the output from the independent sample t test, the result show that there was a significant difference in SumL score for urban (Mean=54.0149, SD=7.73323) and rural (Mean=57.2424, SD=7.60358), condition; t(98)=-1.973, p-value=0.051). The result also indicate there was a significant difference in SumQ score for urban (Mean=54.2388, SD=9.93782) and rural (Mean=58.0606, SD=10.10860), condition; t(98)=-1.798, p-value=0.075). The results were significant at alpha level 5% and 10%. While, there was no significant difference in SumT score for urban (Mean=35.0000, SD=5.08414) and rural (Mean=35.2727, SD=5.19779), condition; t(98)=-.250, p-value=0.803).

d) Proper study place

Table 10

Independent t test result

Components	Levene's Test for Equality of Variances		t-test for Equality of Means		
	F	Sig.	t	df	Sig. (2-tailed)
SumL	.041	.840	1.496	98	.138
SumQ	3.108	.081	3.246	98	.002
SumT	2.890	.092	1.440	98	.153

Table 11
Descriptive Result

Components	Do you have a proper study area?	N	Mean	Std. Deviation
SumL	Yes	90	55.4667	7.6880
	No	10	51.6000	8.3825
SumQ	Yes	90	56.5444	9.9121
	No	10	46.1000	6.5396
SumT	Yes	90	35.3333	5.2338
	No	10	32.9000	2.9981

Finally, Tables 10 and Table 11 show the independent t-test and descriptive results when respondents were asked whether they had a proper study area or not. The Levene's test result once more revealed that for SumL, SumQ, and SumT, the variances between the groups were equal. F=0.041, p-value=0.840, F=3.108, p-value=0.081 and F=2.890, p-value= 0.092 are the Levene's test result for SumL, SumQ and SumT respectively. Based on the output from the independent sample t test, the result show that there was a significant difference in SumQ score for category 'yes' (Mean=56.4667, SD=9.91215) and caregory 'no' (Mean=46.1000, SD=6.53962), condition; t(98)=3.246, p-value=0.002). The result was significant at alpha level 5% and 10%. However, the result indicate that there was no significant difference in SumL score for category 'yes' (Mean=55.4667, SD=7.68802) and category 'no' (Mean=51.6000, SD=8.38252), condition; t(98)=1.496, p-value=0.138). There was no significant difference also in SumT score for category 'yes' (Mean=35.3333, SD=5.23386) and category 'no' (Mean=32.9000, SD=2.99815), condition; t(98)=1.440, p-value=0.153).

Conclusion

The main objective of this study is successfully achieved which is to examine there is any differences in the students' satisfaction level based on demography factors. The three dimensions are student dimensions, technological characteristics, and instructor characteristics. The four demographic factors included in the study are gender, current location, area and do the respondents have a proper study place. As a conclusion, there is only a statistically significant difference between respondents' gender and area for instructor characteristic satisfaction score. For student dimension satisfaction score, there is a significant difference in gender, respondent area, and study place conditions. For all the factors, technology characteristic satisfaction score did not reveal any significant differences.

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