Investigation of Online Learning Satisfaction During COVID 19: In Relation to Academic Achievement

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Abstract. The aim of this research is; 1) investigating the level of online learning satisfaction among students during COVID 19; 2) analyzing the influence of differences in gender, years of study, major in determining online learning satisfaction among students during COVID 19; 3) to analyze the relationship between online learning satisfaction and student academic achievement during COVID 19. The population was 656 students at STKIP Singkawang, and then a sample of 357 students (87 males and 270 females) was taken using a simple random sampling technique. The instrument in this study was adapted from Aman's Satisfaction instrument, which was then used to collect research data. Data analysis using SPSS with descriptive statistical techniques, MANOVA, and correlation. The results showed that online learning satisfaction was at a high level, meaning that students were satisfied with the online learning that had been implemented. The major differences have a significant effect on determining online learning satisfaction. Intercorrelation shows that there is a significant relationship on each indicator of online learning satisfaction with academic achievement, meaning that the higher the satisfaction felt by students in online learning, the student's academic achievement will increase.

Keywords: Online Learning Satisfaction, Acaemic Achievement

INTRODUCTION

The outbreak of the coronavirus (COVID 19) in Indonesia impacts the learning system at the University. Learning which is usually done face-to-face is then replaced with distance learning. Distance learning systems are used to suppress the spread of the corona virus so as not to infect more humans. Distance learning is also called online / virtual learning, because it is implemented using internet media so that it helps lecturers and students to interact online (Allen & Seaman, 2015; Baruah, 2018). The e-learning platform allows students to access various information on personal computers, while mobile e-learning (M-learning) allows students to access via mobile devices (Almajali et al., 2016 in Kattoa et al., 2016; Masa'deh et al., 2015). So that to achieve the goals of teaching and learning, a good internet system is needed (Surtikanti, 2020). The online learning system is new to the majority

of universities in Indonesia that are accustomed to using face-to-face learning systems, so that it will have an impact on the quality produced in the learning percentage (Karwati, 2014). Although the online learning system is seen as a relatively new approach, various studies predict it will be as effective as school-based learning (Murphy, 2020). There are at least three things that have an important role in online learning, namely lecturers, students and technology (Tîrziu & Vrabie, 2015). Therefore, it needs to be understood regarding student satisfaction in participating in online learning. Various studies show that the quality of online learning can be seen from the level of student satisfaction during the interaction process in learning (Moore & Kearsley, 2012). Learning satisfaction is also the key or the most important thing for success in the implementation of online learning, mainly determined by user perceptions of the usability and quality of courses, the quality of website platforms and services, and the level of achievement expected (Roca et al., 2013). Learning satisfaction needs to be understood because some online learning has not been successful in meeting student needs and does not achieve the learning objectives as expected (Allen & Seaman, 2014; Conrad & Donaldson, 2012).

Satisfaction can be defined as the feeling of being happy or disappointed (lacking/displeasing) a person as a result of a comparison between perceptions and experiences of the service being felt and what is expected (Kotler & Keller, 2015). Meanwhile, learning satisfaction is the value that students perceive from their educational experience in an educational environment (Bollinger & Erichsen, 2013). In essence, learning satisfaction can be measured based on students' enjoyment of learning in class. If students enjoy the learning process, it can be concluded that they have satisfaction in learning (Bennett, 2001). Then if you understand learning satisfaction in the context of online learning, the researcher defines it as a student's subjective assessment of the service performance provided by the lecturer in the online learning process, which can then be measured by the extent to which students enjoy online learning. If students have satisfaction with the learning process, a high self-confidence will be formed, so that then it makes students more confident in learning and developing useful skills, and is in a good cycle in acquiring knowledge (Letcher & Neves, 2010).

Online learning satisfaction has several components: learning outcomes or objectives, student assessment & measurement, learning resources & materials, learner interactions (instructors, student, content), and course technology (Aman, 2009). These components can indicate high or low online learning satisfaction felt by students. High or low learning satisfaction in students is essential to understand and measure because it can impact increasing the effort to go through a study to get success (Özgüngör, 2010). Then students with a high level of satisfaction are less likely to leave class or stop studying because they tend to be more motivated to attend the learning process in class (Noel-Levitz, 2009).

Several studies have discussed the relationship with online learning satisfaction among college students (Chen et al, 2020; Karwati, 2014; Loton et al., 2020; Napitulu, 2020) and its relationship with academic achievement (Ebner & Gegenfurtner, 2019; Parsetya & Harjanto, 2020; Sockalingam, 2012) at the university level that has implemented online learning for a long time. This research mostly continues and enriches the previous study results, but was carried out at universities that were new to using the online learning system because of the COVID 19 case. This research is essential to do as a form of evaluation for universities that have just implemented an online learning system to be of higher quality and achieve learning goals. There are many concerns in the community regarding the condition of online learning (Akdemir & Koszalka, 2008), so it needs to be proven empirically by understanding the learning satisfaction felt by students. Therefore this study has several objectives, namely: (1) Investigating the level of online learning satisfaction among students during COVID 19; (2) Analyzing the influence of gender differences, years of study, major on online learning satisfaction among students during COVID 19; (3) To analyze the relationship between online learning satisfaction and student academic achievement during COVID 19.

METHOD

Based on the objectives to be achieved in this study, the research design used was quantitative with a survey approach. Creswell (2014) defines the survey approach as an approach used to study a sample from population

by collecting data in quantitative or numerical, attitudes, or opinions.

This study's population were all STKIP Singkawang students who participated in online learning during COVID 19 and then already had an academic achievement index. Based on student affairs data, the number of active students who took part in the online learning process during COVID 19 was 656 people. The population was then taken as a sample of 357 students (male; 87 and female; 270) using simple random sampling technique (Slovin in Sevilla et al., 2007). Table 1 displays data (frequency and percentage) related to demographic information from respondents who were the sample in this study.

Tabel 1. Frequency and Percentage of Respondents Demographic Information

Demographic Information		Frequence	Percentage
Gender	Male	87	24.4
	Female	270	75.6
Major	Counceling	19	5.3
	Physic Education	12	3.4
	Math Education	50	14
	Indonesian Language	41	11.5
	Primary School Teacher Education	235	65.8
Years of Study	1st Years	121	33.9
	2nd Years	116	32.5
	3rd Years	120	33.6

The method used in this research is a questionnaire using a Likert scale. The questionnaire used consists of two parts, namely demographic information (gender, years of study, major, GPA) and learning satisfaction. The instrument used is an adaptation of the instrument developed by Aman (2009) which consists of five components and 22 items, namely learning objectives (4 items), student assessment & measurement (5 items), learning resources & materials (5 items), interactions (instructor, student, content) (5 items), and course technology (3 items). This instrument uses a four-point type Likert scale, ranging from very inappropriate (1 point), unsuitable (2 points), appropriate (3 points) and very suitable (4 points). To test the validity and reliability of the instruments to be used, the researcher first conducted a pilot study by distributing the instrument to 50 students who were not the research samples. The results of the pilot study showed that all statement items were valid and reliable, with a Cronbach alpha value on learning objectives of .747, student assessment & measurement of .749, learning resources & materials of .750, interactions (instructor, student, content) of .795, technology course of .789, overall learning satisfaction of .874. This means that the instrument is suitable for use in research.

Questionnaires that have been adapted and tested for validity and reliability are distributed directly to students who become the research sample. After the data was collected, the researcher then analyzed the data using SPSS version 23.0. To analyze the results of the research on the first research objective, the data analysis technique used was descriptive statistics (frequency and percentage), then to analyze the results of the study on the second research objective using Multivariate Analysis (MANOVA), and to analyze the results of the research on the third research objective using the correlation. The level of significance for all data analyzes was 5%.

RESULT AND DISCUSSION

Result

Online Learning Satisfaction Level in Students

The results of the descriptive analysis in table 2 show that the level of online learning satisfaction with students for each indicator is: 1) learning objectives (High = 312 people / 87.4%, moderate = 44 people / 12.3%, Low = 1 person /. 3%), 2) student assessment & measurement

(High = 324 people / 90.8%, moderate = 33 people / 9.2%, Low = 0 people / 0%), 3) learning resources & materials (High = 294 people / 82 .4% , moderate = 63 people / 17.6%, Low = 0 people / 0%), 4) interactions (High = 319 people / 89.4%, moderate = 38 people / 10.6%, Low = 0 people / 0%), 5) course technology (High = 218 people / 61.1%, medium = 137 people / 38.4%, Low = 2 people / 0.5%).

Table 2. Frequency and Percentage: Level of Online Learning Satisfaction

Variable	Sub Variable	Frequence			Percentage		
		Hight/ More	Middle	Low/ Less	Hight/ More	Middle	Low/ Less
Online Learning Satisfaction	learning objectives	312	44	1	87.4%	12.3%	.3%
	student assessment & measurement	324	33	0	90.8%	9.2%	0%
	learning resources & materials	294	63	0	82.4%	17.6%	0%
	interactions (instructor, student, content)	319	38	0	89.4%	10.6%	0%
	course technology	218	137	2	61.1%	38.4%	.5%

Effect of Gender, Major and Years of Study Differences in Determining Online Learning Satisfaction

The results of the descriptive online learning satisfaction analysis in table 3 show that in the gender variable, learning objectives for female students (M = 12.3, SD = 1.9) are higher than male students (M = 12.1, SD = 1.6), student assessment & measurement. female students (M = 15.9, SD = 1.8) were higher than male students (M = 15.4, SD = 2.2), learning resources & materials for female students (M = 15.1, SD = 2.1) were higher than male students -laki (M = 15, SD = 2.2), interactions (instructors, students, content) among female students (M = 15.6, SD = 1.6) are higher than male students (M = 15.2, SD = 2.4), course technology in female students (M = 8.5, SD = 1.4) is higher than male students (M = 8.4, SD = 1.9). In the major variables, learning objectives in students majoring in physics education (M = 13.3, SD = 1.8) were higher than students majoring in math education (M = 12.7, SD = 1.5), Indonesian language (M = 12.5, SD = 1.7), Counceling (M = 12.2, SD = 1.4), primary school teacher education (M = 12.1, SD = 1.9), student assessment & measurement for physic education students (M = 17.2, SD = 2..3) are higher than students majoring in Indonesia language (M = 16.4, SD = 2.0), math education (M = 16.2, SD = 2.1), primary school teacher education (M = 15.5, SD = 1.8), counseling (M = 15.2, SD = 1.4), learning resources & materials for physic education students (M = 17, SD = 2.4)

were higher than students majoring in math education (M = 15.7, SD = 2.2), Indonesia language (M = 15.5, SD = 1.8), Counceling (M = 15.2, SD = 1.1), primary school teacher education (M = 14.1, SD = 2.1), interactions (instructors, students, content) on students of physical education (M = 16.6, SD = 2.1) were higher than students students majoring in math education (M = 16.0, SD = 2.1), Counceling (M = 15.4, SD = 1.9), Indonesian language (M = 15.3, SD = 1.9), primary school teacher education (M = 15.3, SD = 1.7) , the technology course for physic education students (M = 9.5, SD = 1.5) is higher than students majoring in math education (M = 8.9, SD = 1.4), Indonesia language (M = 8.7, SD = 1.7), Counceling (M = 8.6 , SD = 1.1), primary school teacher education (M = 8.3, SD = 1.5). Then in the years of study variable, learning objectives for students in the first year (M = 12.6, SD = 1.4) were higher than those in the third year (M = 12.2, SD = 1.7) and in the second year (M = 12.0, SD = 2.2), student assessment & measurement third year students (M = 15.9, SD = 2.1) are higher than first year students (M = 15.8, SD = 1.8) and second year students (M = 15.6, SD = 1.8), learning resources & materials at Third year students (M = 15.2, SD = 2.2) are higher than first year students (M = 15.1, SD = 1.8) and second year students (M = 14.9, SD = 2.3), interactions (instructor, student, content) to students the third year (M = 15.8, SD = 1.9) is higher than first year students (M = 15.5, SD = 1.6) and the second year (M = 15.2, SD = 1.8), technology course for third year students (M = 8.6, SD = 1.7) is higher than first year students

(M = 8.5, SD = 1.5) and second year students (M = 8.4, SD = 1.4).

Table 3. Mean and SD of Online Learning Satisfaction based on Gender, Major and Years of Study

	Variable		**Online Learning Satisfaction**				
			Learning outcomes/ objectives	Student assessment & measurement	Learning resources & materials	Learner interactions	Course technology
Gender	Male	M	12.1	15.4	15	15.2	8.4
		SD	1.6	2.2	2.2	2.4	1.9
	Female	M	12.3	15.9	15.1	15.6	8.5
		SD	1.9	1.8	2.1	1.6	1.4
Major	Counceling	M	12.2	15.2	15.2	15.4	8.6
		SD	1.4	1.4	1.1	1.9	1.1
	Physic Education	M	13.3	17.2	17	16.6	9.5
		SD	1.8	2.3	2.4	2.1	1.5
	Math Education	M	12.7	16.2	15.7	16.0	8.9
		SD	1.5	2.1	2.2	2.1	1.4
	Indonesian Language	M	12.5	16.4	15.5	15.3	8.7
		SD	1.7	2.0	1.8	1.9	1.7
	Primary School Teacher Education	M	12.1	15.5	14.8	15.3	8.3
		SD	1.9	1.8	2.1	1.7	1.5
Years of Study	1st Years	M	12.6	15.8	15.1	15.5	8.5
		SD	1.4	1.8	1.8	1.6	1.5
	2nd Years	M	12.0	15.6	14.9	15.2	8.4
		SD	2.2	1.8	2.3	1.8	1.4
	3rd Years	M	12.2	15.9	15.2	15.8	8.6
		SD	1.7	2.1	2.2	1.9	1.7

The results of multivariate analysis in table 4 show that in the gender variable there is no significant difference between male and female students regarding online learning satisfaction with a value of F (5) = .493 and p> .05. The years of study variable also shows that there is no significant difference between students in the first year, second year, and third-year regarding online learning satisfaction with a value of F (10) = .595 and p> .05. Meanwhile, in the major variables, there are significant differences between the majors of counseling, physical education math education, Indonesian language and primary school teacher education with a value of F (20) = 2.216 and p <.05.

Table 4. Multivariate Analysis: Differences in Online Learning Satisfaction based on Gender, Major, Years of Study

Effect	Pillai's Trace	F Ratio	DF	Error DF	Sig of F
Gender	.008	.493	5.000	325.000	.781
Major	.131	2.216	20.000	1312.000	.002
Years of Study	.018	.595	10.000	652.000	.819

Relationship between Online Learning Satisfaction and Academic Achievement

The results of the intercorrelation analysis in table 5 show that all variables interact positively and significantly. Learning outcomes or objectives (r = .219, p <.05), student

assessment & measurement (r = .142, p <.05), learning resources & materials (r = .136, p <.05), learner interactions (instructor, student, content) (r = .182, p <.05), course technology (r = .141, p <.05) had a significant positive relationship with academic achievement.

Table 5. Intercorrelations: Relationship between Online Learning Satisfaction with Academic Achievement

Variable	M	SD	1	2	3	4	5
Learning objectives	12.3	1.8	-				
Student assessment & measurement	15.8	1.9	.647**	-			
Learning resources & materials	15.1	2.1	.664**	.668**	-		
Interactions (instructor, student, content)	15.5	1.8	.514**	.603**	.654**	-	
Course technology	8.5	1.5	.422**	.454**	.637**	.545**	-
GPA	3.6	.4	.219**	.142**	.136**	.182**	.141**

*p<.05, **p<.01*

Discussion

The first objective of this study is to analyze the level of online learning satisfaction among students. The results of the data analysis conducted showed that the average value on each indicator was at a high level, meaning that students were satisfied with the online learning that had been implemented (Demuyakor, 2020; Dooley et al., 2018; Green et al., 2018; Morton et al., 2016; Riddle & Gier, 2019). Student satisfaction with online learning is because the majority of students understand technology well (Parkes et al., 2015). This result is inversely proportional to other research studies which found that most of the students at the research location were dissatisfied with the online learning being carried out (Napitulu, 2020; Loton, 2020). Even though each indicator is at a high level, there is an indicator with the lowest level among the other indicators, namely course technology. This indicator is a very vital part of online learning because it is a medium that connects lecturers and students. If the course technology used cannot function optimally, it can affect the achievement of learning goals. Therefore, comfort, ease, speed and visual attractiveness in using course technology are important factors in student online learning satisfaction (Cidral et al., 2018; Lin & Wang, 2012; Navimipour & Zareie, 2015). On the other hand, a broken system, failed video connection or unusable usage affects user satisfaction (Asarbakhsh & Sars, 2013). Therefore, access related to technology has an important role during the online learning process (Amado-Salvatierra et al., 2012; Farhan et al., 2019; Liu et al., 2020; Shen & Ho, 2020). Then the indicator that is also considered very important related to student satisfaction in online learning is interaction, namely between lecturers, students and learning content (Kuo, et al., 2013). The results of this study indicate that students are satisfied with the interactions that occur during online learning because the lecturer provides constructive feedback and has more opportunities to discuss with classmates. Dziuban et al. (2018) revealed that many studies have found that the quantity and quality of student interactions is highly correlated with student satisfaction in almost all learning environments. Positive results in the form of high satisfaction with technology use and interaction are a good combination in increasing satisfaction in online learning (Cidral et al., 2018; Kuo, et al. 2013). In addition, learning objectives also have an essential role in student learning satisfaction because they have a substantial impact on student satisfaction in online learning (Mayer, 2019; Noetel et al., 2018). The results of this study indicate that students are satisfied with the learning objectives conveyed by the lecturers because they make the learning direction clear, following student expectations, and help guide student learning activities. Student assessment and measurement indicators also have a positive response from students, even outperforming other indicators. This shows that students are satisfied with the assessment and measurement used by lecturers

and have been applied by lecturers well (Roca et al., 2013; Mu'in & Amelia, 2018; Hew et al.,2020). Likewise, with the indicators of learning resources and material, students are satisfied with the development carried out by the lecturers. Students get various relevant learning resources and extensive explanations regarding the content contained in learning resources (Restrepo et al., 2012).

The second objective in this study is to analyze the influence of gender differences, major and years of study in determining online learning satisfaction. Of the three variables, only major differences affect determining online learning satisfaction. This difference can be caused by differences in the treatment given by the lecturers. Major with a higher level of online learning satisfaction indicates that students get better treatment and service so that expectations in online learning experiences are well fulfilled, such as orientation, learning outcomes, services, and instructor and peer interactions (Aman, 2009).

The third objective of this study is to analyze the relationship between online learning satisfaction and academic achievement. The results showed that all indicators of online learning satisfaction have a positive and significant relationship with academic achievement. Because student online learning satisfaction is at a high level, online learning satisfaction automatically increases student academic achievement significantly (Prasetya & Harjanto, 2020). This is because students who have online learning satisfaction are more motivated to take classes and have a strong effort to achieve success (Wang et al, 2019; Kurucay & Inan, 2017). The results of this study are different from the findings of Khiat (2013) who examined student satisfaction in non-traditional students, with findings indicating that the relationship between learning satisfaction and learning achievement is weak. This perceived fragile relationship could be due to non-traditional students not getting their learning satisfaction from the results of proper academic assessments. Sockalingam (2012) suggests that satisfaction with assessment has a direct effect on course scores but only explains 1.3% of the variance within a class.

CONCLUTION AND SUGGESTION

Based on the findings, the researcher concluded that students had satisfaction with online learning provided during the pandemic period of COVID 19, with the average indicator being at a high level. Of the three demographic information studied, only major differences have a significant effect on online learning satisfaction among students during the pandemic period of COVID 19. Then, each indicator of online learning satisfaction has a significant relationship with student academic achievement during the pandemic period of COVID 19.

This research certainly needs further development, especially in expanding the research area. Then additional researchers can also investigate the relationship between online learning satisfaction with various other variables that can improve student academic achievement. For stakeholders, research can be used as a benchmark in developing quality online learning so that it can provide satisfaction for students.

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