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Comparative learning holding on satisfaction, interest in learning, and academic performance of student

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ABSTRACT

The COVID-19 virus pandemic limits the movement of activities and learning is carried out online, followed by blended. After returning to normal offline. The research objectives are i) to analyze satisfaction, interest in learning and academic performance with online, blended and offline learning and ii) to differentiate between study programs in the Family Welfare Education. The research subjects were 5th semester students, cross-sectional study. Satisfaction, interest in learning and academic performance of students were measured using a questionnaire with a Likert scale of 1-5. Data analysis was descriptive percentages, difference tests with Kruskal-Wallis followed by Mann-Whitney, and correlation with the Gamma test. The level of student satisfaction with online, blended and offline learning is in the satisfied category. Interest in learning and academic performance in the good category. There are significant differences in the level of satisfaction, interest in learning and academic performance with online, blended and offline learning, as well as between study programs. There is a high relationship between the level of satisfaction and interest in learning with academic performance. The comparison of learning holding differs significantly in levels of satisfaction, interest, academic performance and between study programs, but in the same category (good). The best learning holding is offline.

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1. INTRODUCTION

Learning at Universitas Negeri Semarang (UNNES) starting from the 2019/2020 academic year will be carried out using blended learning. Blended learning is a combination of face-to-face learning (offline) and computer technology (online) [1]–[3]. The COVID-19 pandemic that has occurred since March 2020, which requires restrictions on movement, has resulted in all educational institutions being closed and educational activities being stopped. The government has regulated learning to be carried out via e-learning. Distance learning (e-learning) is a new approach and solution to maintain the learning process [4]–[6], or hybrid learning [7]. COVID-19 has subsided since March 2022, learning is again carried out using blended learning. Starting this even semester, February 2023, learning will again be carried out face-to-face or offline.

Students as one of the UNNES stakeholders must follow the learning policy. The challenges of blended learning students in self-regulation and using learning technology, and for the use of technology for teaching [3], require hard effort, the right attitude, a large budget [8], and will continue [9]. Online learning requires various resources, challenges related to technology, platform utilization, internet connectivity,

provision of learning resources. Safe and valid online assessments are more difficult to carry out [6]. Face-to-face learning is generally directed by lecturers, where students are taught in a way that is conducive to sitting and listening [10].

Various studies related to online learning, blended learning and face-to-face have been carried out. A study of students regarding the learning environment at Atilim University, Ankara, Turkey shows that there are significant differences in blended learning environments, online and face-to-face learning environments, and that blended learning environments are more effective [11]. Blended learning with in-class problem solving improves exam performance, and video assignments increase attendance and interest in learning [12]. Online or digital learning has a better positive effect on learning motivation and learning outcomes than face-to-face teaching [13]. Online learning provides better perception [14] and performance than face-to-face learning [15]. Blended learning increases the effectiveness of cephalometric learning through performance [16] and provides better positive emotions than face-to-face learning [17].

Learning effectiveness can be measured from student satisfaction [18]. Satisfaction in learning will have a significant impact on academic engagement and performance [19], which is the most critical reflection of the success of the educational process [20]. Research results in Nigeria show that students are dissatisfied with e-learning and do not want to continue afterwards, due to poor internet infrastructure and lack of electricity [21]. Restricting movement and maintaining distance, staying at home has resulted in reduced student activities. Physical activity is any body movement that increases energy and energy expenditure or calorie burning [22], [23].

The implementation of different learning over the last three years, namely online, blended learning and face-to-face, will have different impacts, especially in study programs that hold practicums, such as in the Family Welfare Education Study Program. Practicums in the field of culinary arts are held on campus and are carried out standing for around 6 hours face to face. This is different from the Fashion Study Program which uses a seated sewing machine. Practicums in the Beauty Care Education Study Program are held standing and sitting. Student practicum activities on campus with lecturer guidance will result in the skills obtained being different compared to those without lecturer guidance (practicum at home while online). Practical guidance and face-to-face lectures, which interact with peers will encourage interest in learning. It is hoped that academic achievement will also increase. However, it is necessary to consider holding face-to-face exams, it may require more effort from students. While previous research only compared two learning holding, it needs to be developed by comparing all types of learning holding, namely online, blended and offline. And study its impact on the level of satisfaction, interest in learning and academic achievement.

2. METHOD

This research was conducted cross-sectionally. Survey research quantitatively reveals the tendencies, attitudes, or opinions of a particular population [24]. Research data was taken at a certain time for study programs in the Family Welfare Education Study Program on several variables. In this study, we analyzed the implementation of learning carried out via e-leaning, blended learning, and face-to-face on satisfaction, physical activity, interest in learning, and academic performance of students majoring in Family Welfare Education Study Program, Faculty of Engineering, UNNES.

The research subjects were study program students in the Family Welfare Education Study Program, Faculty of Engineering, UNNES, consisting of the Culinary Education Study Program, Fashion Design Education Study Program, Beauty Management Education Study Program, and Family Welfare Education Study Program. Students are selected for semester 5.

The independent variables of this research are satisfaction, physical activity, and interest. The dependent variable is the academic performance of UNNES students. Student satisfaction is measured by a questionnaire with indicators of the substance of learning materials, media, teaching aids and models, learning activities, learning time and schedule, learning assessments, and learning facilities and infrastructure [25], with a 5 point Likert scale from 1=very dissatisfied to with 5=very satisfied [26]. Students' learning interest was measured using a questionnaire with three components, namely feelings of enjoyment, attention and exploration [27]. Academic performance was measured by a questionnaire with four exploring whether online learning, blended learning and face-to-face improved grades and graduation, individual performance and better teamwork [28]. This research will be modified by increasing the number of statements related to practical learning.

To describe satisfaction, physical activity, interest in learning and academic performance using descriptive percentages. The results of the normality test show that all data are not normal, so hypothesis testing is carried out using non- parametric statistics. To test the differences in learning implementation and study programs in satisfaction, interest in learning, physical activity and academic performance using the Kruskal-Wallis, while to determine the relationship between variables, the Gamma test was carried out [29].

3. RESULTS AND DISCUSSION

3.1. Research result

Implementing online, blended, and offline learning provides levels of satisfaction, interest in learning and academic performance in the same category, namely satisfied and good. In Table 1 it is known that the achievement range is between 73-80%. According to the study program category, the level of satisfaction, interest in learning and academic performance of the four study programs in the same category. The lowest level of satisfaction and interest in learning was in the Culinary Education Study Program and the highest was in the Beauty and Beauty Education Study Program. The academic performance achievements of the four study programs show almost the same figures, between 77–79 as shown in Table 2.

Table 1. Mean and category level of satisfaction, interest in learning and performance student academics according to learning organization

Variable	Types of learning organizations	Average	SD	Achievement (%)	Category
Satisfaction level	Online	122.4	22.4	74.2	Satisfied
	Blended	124.7	19.9	75.5	Satisfied
	Offline	129.2	19.3	78.3	Satisfied
	Total	125.4	20.8	76.0	Satisfied
Interest to learn	Online	36.9	6.3	73.8	Good
	Blended	37.3	5.7	74.6	Good
	Offline	38.8	6.0	77.6	Good
	Total	37.7	6.0	75.3	Good
Academic performance	Online	22.8	3.5	76.1	Good
	Blended	23.1	3.4	77.0	Good
	Offline	23.9	3.5	79.7	Good
	Total	23.3	3.5	77.6	Good

Table 2. Mean and category level of satisfaction, interest in learning and performance student academics according to study program

Variable	Study program	Average	Elementary school	Achievement (%)	Category
Satisfaction level	Catering	121.3	21.3	73.5	Satisfied
	Beauty	131.4	18.0	79.6	Satisfied
	Family Welfare Education	120.8	22.9	73.2	Satisfied
	Fashion	126.6	20.0	76.7	Satisfied
	Total	125.4	20.8	76.0	Satisfied
Interest to learn	Catering	36.7	5.5	73.3	Good
	Beauty	38.7	6.3	77.5	Good
	Family Welfare Education	37.3	7.0	74.5	Good
	Fashion	38.0	5.6	76.1	Good
	Total	37.7	6.0	75.3	Good
Academic performance	Catering	22.8	3.5	76.6	Good
	Beauty	23.1	3.4	78.1	Good
	Family Welfare Education	23.9	3.5	76.8	Good
	Fashion	23.3	3.5	79.0	Good
	Total	23.3	3.5	77.6	Good

About half of the students have levels of satisfaction, interest in learning, and academic performance in the satisfied and good categories. Around 25-30% of students have sufficient and insufficient categories. As many as 16-20% of students are very satisfied with online learning, and 23-33% are very satisfied with offline learning as shown in Table 3. The level of satisfaction, interest in learning and academic performance of students differs from online, blended and offline learning. The significance value for the three variables obtained a $p<0.05$ as shown in Table 4.

About half of Culinary Education students are satisfied with the implementation of learning at UNNES, with interest in learning and good academic performance. As many as 60% of Beauty Care Education Study Program students are satisfied with learning, but only 40% have a good interest in learning. Students from the Family Welfare Education and Fashion Design Education Study Programs have almost the same range of satisfaction, interest in learning and good academic performance. Complete data in Table 5.

Based on Table 6, it is known that there are differences in the level of satisfaction and interest in learning between study programs with a significance value of $p<0.05$. Academic performance does not differ between study programs. The results of the relationship test between variables in Table 7 is show a significant relationship between the level of satisfaction with interest in learning and academic performance. A significant relationship exists between interest in learning and academic performance. The significance value of all relationships between these variables is $p<0.001$. The correlation value obtained is almost the same, between 0.709-0.716, with a high correlation category.

Table 3. Percentage and categories of level of satisfaction, interest in learning and student academic performance according to learning implementation

Variable		Types of learning organizations			Total
		Online	Blended	Offline	
Satisfaction level	Less satisfied	6.4	1.5	1.5	3.4
	Quite satisfied	20.2	21.7	15.8	19.2
	Satisfied	55.7	52.7	59.6	56.0
	Very satisfied	17.7	23.2	23.2	21.3
	Total	100.0	100.0	100.0	100.0
Ask to learn	Not good	3.0	1.0	1.0	1.6
	Pretty good	33.5	34.0	24.6	30.7
	Good	47.3	47.8	45.8	47.0
	Very good	16.3	17.2	28.6	20.7
	Total	100.0	100.0	100.0	100.0
Academic performance	Not good	2.0	3.4	0.5	2.0
	Pretty good	27.1	22.7	19.2	23.0
	Good	50.2	56.2	46.8	51.1
	Very good	20.7	17.7	33.5	24.0
	Total	100.0	100.0	100.0	100.0

Table 4. Test results for differences in levels of satisfaction, interest in learning and performance student academics according to learning organization

Variable	F	Significance
Satisfaction level	5.782	0.003
Ask to learn	5.740	0.003
Academic performance	5.370	0.005

Table 5. Percentage and categories of level of satisfaction, interest in learning and student academic performance according to study program

Variable category		Study program name				Total
		Catering	Beauty	Family Welfare Education	Fashion	
Satisfaction level	Less satisfied	5.7	-	6.2	2.9	3.4
	Quite satisfied	23.8	12.2	25.9	17.4	19.2
	Satisfied	52.4	60.6	53.1	57.2	56.0
	Very satisfied	18.1	27.2	14.8	22.5	21.3
	Total	100.0	100.0	100.0	100.0	100.0
Interest to learn	Not good	2.4	-	4.9	0.7	1.6
	Pretty good	32.9	32.2	27.2	27.5	30.7
	Good	51.0	40.0	43.2	52.2	47.0
	Very good	13.8	27.8	24.7	19.6	20.7
	Total	100.0	100.0	100.0	100.0	100.0
Academic performance	Not good	2.9	1.7	1.2	1.4	2.0
	Pretty good	23.3	23.3	23.5	21.7	23.0
	Good	50.5	51.1	54.3	50.0	51.1
	Very good	23.3	23.9	21.0	26.8	24.0
	Total	100.0	100.0	100.0	100.0	100.0

Table 6. Test results for differences in levels of satisfaction, interest in learning and performance student academics according to learning organization

Variables	F	Significance
Satisfaction level	9.528***	0.000
Interest to learn	4.169**	0.006
Academic performance	1.405	0.240

Table 7. Correlation test results between variables

Correlation	Test results	Interest	Academic performance
Satisfaction level	r	0.709**	0.716**
	Significance	0.000	0.000
Interest to learn	r		0.713**
	Significance		0.000
Academic performance	r	0.713**	
	Significance	0.000	

3.2. Discussion

The level of student satisfaction with offline learning is the highest, followed by blended and online learning. This shows that lecturers still play an irreplaceable role with information technology. Offline learning is very necessary, especially in study programs that carry out practical activities and laboratory classes [30]. In accordance with research in China which states that lecturers still play an important role in blended learning and are an effective way to develop independence [31]. Blended learning integrates offline learning with online learning [30], [32]. High student satisfaction with offline learning in terms of learning materials, media, teaching aids and models, learning activities, learning time and schedule, learning assessments, and learning facilities and infrastructure available in all study programs. Satisfaction with online learning, which is carried out remotely, is the lowest. One of the causes is poor internet connectivity at student locations. The results of this research are in accordance with research conducted in the Department of Citizenship Education, Faculty of Teacher Training and Education, Universitas Halu Oleo, Indonesia, stating that online learning is no more effective than face-to-face (offline) lectures due to network constraints and internet quotas [33], this is also experienced in one of the vocational schools in Indonesia in English subjects [34], even students at three private universities in Indonesia experienced difficulties in achieving learning goals and students experienced fatigue, due to excessive online learning [35]. In various other universities, social and psychological stress in physiotherapy students in public universities in Jordan [36], were bored from nine universities in Indonesia [37], and quality and range of internet streaming for several medical colleges in Jordan several medical colleges in Jordan [4]. Low satisfaction occurs in conditions of fear of COVID-19, new learning media, quality of facilities and infrastructure, evaluation methods [38], at the College of Aerospace Technology, Yogyakarta, online learning results in students tending to depend on lecturers and be passive in learning [39]. Research conducted at IAIN Surakarta, Indonesia, stated that considerations in implementing online learning are the lack of information technology infrastructure, time to adapt, and the difficulty of internet access in some areas [40].

The results of the test for differences in learning implementation show that there are differences in the level of satisfaction. Other studies show mixed results. The same research occurred in sewing learning which preferred offline learning [41], medical students [42], management information systems courses [43]. Different learning has the same satisfaction, between online, blended and offline for students taking Child Development courses [44], between blended and offline [45]. On the other hand, blended learning provides higher satisfaction due to its ease of use and benefits [46].

The results are the same for interest in learning, which is highest in offline learning, followed by blended and online learning. The three studies produced a good category. This shows that differences in learning implementation do not significantly change students' interest in learning. The results of the difference test show different interests. The results of this study are both the same and different from other studies. Students at ten universities and colleges in Anhui Province had higher interest and acceptance of blended learning than online [47], [48]. Students' interest in learning English in online classes is higher than in offline classes [49].

Good interest in learning is shown by enjoyment and attention to the learning process. Exploration in the form of preparation or study before learning and reading material other than mandatory material is still not done well. Interests tend to devote more time and effort to reading tasks [50], find material interesting, and result in deeper learning [51].

The academic performance of students majoring in Family Welfare Education Study Program is in the good category. Differences in learning implementation have a real impact on academic performance, but do not differ between study programs. Academic performance is not good, especially mastery of skills and achievement index. During online learning, students do independent practice at home in the form of videos. Availability of laboratory equipment is very necessary. Active and interactive laboratory facilities provide a hands-on experience [52]. The lecturer only directs via zoom meeting with a shorter duration and limited discussion time. Students are less focused on online learning [50].

Various other research results also vary. Offline learning improves student performance on end-of-semester exams in undergraduate students, but worsens student performance in graduate students [51]. Research on medical students in South Africa shows that blended learning has much better performance than online and offline groups, in the affective, cognitive and psychomotor domains. [53]. Similar results in the college Mechanics course at the Collège D'enseignement General et Professionnel (CEGEP) [54], the management information systems course [43]. Learning engagement has a positive impact on learning effectiveness [55], positive attitudes towards learning, excellent academic achievement and computer skills [56], resulting in higher skills and performance compared to offline learning [52]. Flexible blended learning models and the increasingly widespread application of information and communication technologies have great potential to become more popular and recommended in higher education institutions [46], [47], [57], [58].

Online, blended and offline learning for students taking Child Development courses has the same academic performance [44], medical students [42]. Students prefer offline learning [43], but experience

increases in test scores or academic performance [45]. The academic performance of learning English at Islamic Azad University online is higher than offline [49]. In contrast, medical students in the online group had academic performance scores that were much lower than those in the offline class for the five areas of proficiency, namely participation, communication, preparation, critical thinking, and group skills [59]. Clear goals and expectations, quality of materials, and collaborative learning are significant predictors of student performance [60].

Level of satisfaction, interest and academic performance of students in the four study programs in the same category. The difference test shows different significance at the level of satisfaction and interest, not different at academic performance. This shows that the conditions for students in the four study programs are the same, with the same learning environment, adequate laboratory facilities and infrastructure. Beauty Education students have the highest level of satisfaction with the lowest interest in learning. This happens because the student has a part-time make-up job with a fairly good income. Therefore, interest in learning theory is lower and time for studying theory is less.

4. CONCLUSION

Offline learning provides the highest level of satisfaction, interest in learning, and academic achievement compared to the lowest blended and online learning. The level of satisfaction with online, blended and offline learning is in the satisfied category with respective achievements of 74.2, 75.5 and 78.3%. Interest in learning is in the good category with achievements of 73.8, 74.6 and 77.6%. Student academic achievement is in the good category, with achievements between 76.1-79.7%. There are differences in levels of satisfaction, interest in learning and academic achievement with the implementation of learning and between study programs except academic achievement. The level of satisfaction related to interest in learning and academic achievement is in the high category. Interest in learning correlates with academic achievement in the high category. Offline is still the best choice for conducting learning.

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