Students' Perception on Online Learning Experience During Pandemic (Covid-19)

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ABSTRACT
This study aimed to analyze students' perception about their experience in online learning using blended learning in Physics course. The sample was 101 undergraduate students of Physics education who completed the questionnaire which consisted of 34 questions in Likert scale. The data were analyzed using a semi-explorative approach and the results showed that most of the students thought that the lecturer's teaching methods were good and supported by good facilities. However, students have many assignments and do not feel any improvement in skills. Generally, students' perceptions varied influenced by the Appropriate Workload Scale (AWS) and the Appropriate Assessment Scale (AAS) which were explained by 60.911% of the variation.

INTRODUCTION

Distance learning has basically existed since a long time ago, a long way before the Corona virus spread all over the world. Since the pandemic occurred, distance learning has become unavoidable choice to be implemented in education globally. Nadeak [1] stated that distance learning or online learning was generally a solution to education problem emerged in early stage of pandemic spread. However, there were several complaints regarding online learning from some parties [2]. The advantages of online learning were barely perceived in which teacher's explanation was hard to understand and the communication was limited [3]. It became the trigger why this study used blended learning which consisted of offline and online learning components. During the pandemic, all lectures were cancelled so that it was impossible to conduct offline learning only; therefore, there was a need to use a method that integrated both offline and online course and it was blended learning. Blended learning could accommodate both teacher and students to maximise learning activity in spite of the distance limit [4]. On the other hand, this kind of learning was still new in Indonesia so that there was a need to study about student's perception about blended learning to support learning in pandemic era.

Blended learning is combining both onsite and online learning by focusing on the learning experience based on the strength and weakness of each mode [5]. Cronje stated that most of the definition about

blended learning was commonly lacking in defining the learning concept as he suggested that blended learning should have been defined as "The appropriate use of a mix of theories, methods and technologies to optimise learning in a given context" [6]. In Indonesia, the implementation of blended learning includes 30% traditional learning and 70% online learning [7]. As blended learning is an approach which is quite new in some countries, it faces some challenges in its application. Rasheed et al stated in their research that challenges of blended learning for students were about self-regulation and the use of technology which were also faced by the teachers, it was then becoming the challenge for institution as well to provide supportive technology for both teachers and students [8]. It is in accordance with Pratama and Scarlatos who stated that technology, in this case the ownership of mobile device and Wi-Fi connection, was very important in the application of e-learning [9]. Other challenges in blended learning were mentioned by Ughanda et al such as pedagogy development, preparation, assessment and culture challenge; adding to that, they reviewed students' perception about blended learning and the result showed that students generally had positive perception toward blended learning in which it motivates and excites the students to learn [10].

METHOD

This study aimed to analyzed undergraduate students' perception about their learning experience on blended learning implementation in Physics course. This study was a descriptive quantitative research which focused on undergraduate students' perception about their learning experience which was dominated by online learning, then it discussed about the relationship between students' perception and their generic skill at the end of lesson, and also the factors affecting the variety of students' responses.

In this study, the sample was 101 undergraduate students of Physics Education Department students in Lambung Mangkurat University which was taken by using simple random sampling. The sample chosen was the students who experienced blended learning during the pandemic and those who were considered as having generally average intelligence. However, it was concluded from the lecturer's point of view in which further measurement and study were needed to validate this claim. Data was collected by using online questionnaire containing 34 items of question based on six categories, which were Good Teaching Scale (GTS), Clear Goals and Standards Scale (CGS), Appropriate Assessment Scale (AAS), Appropriate Workload Scale (AWS), e-Learning Scale (E-LS), dan Generic Skills Scale (GSS). The questionnaire was adapted from Perceptions of the Blended Learning Environment Questionnaire (PBLEQ) developed by Han and Ellis [11] with minor changes in translation to Indonesian to fit the research design and Indonesian grammar for ease of understanding.

Data analysis was done by using semi-exploratory approach to identify the variety of students' responses and whether the responses were coherent to the categories in PBEQ; reliability analysis with Cronbach Alpha was used to identify whether students' responses were reliable; and correlation analysis with Pearson Product-Moment Correlation was used to recognise the relationship between students' perception of the learning experience and of their skill improvement. In addition, factor analysis was also done to identify whether the six categories were able and appropriate to explain the factors.

RESULTS AND DISCUSSIONS

Students' responses were categorised in six categories as mentioned before, and the first category is Good Teaching Scale (GTS). This category includes item number 1 to 8 and consists of statements regarding how the lecturer taught the course during online learning. The responses can be seen on the following Table.

Table 1. Descriptive Statistics of GTS Items

| No | Item | Mean | S.D. | Responses in Likert scale (%) | | | | |
				Completely disagree	Disagree	Neutral	Agree	Completely agree
1	Lecturer usually gives feedback of my performance during online learning	3.75	.805	0.0	8.9	20.8	56.4	13.9
2	Lecturer motivates me to do my best in completing task	4.11	.677	1.0	1.0	8.9	64.4	24.8
3	Lecturer tries hard to understand my difficulties in completing task	3.75	.793	1.0	3.0	31.7	48.5	15.8
4	Lecturer is very good in explaining things online	3.79	.683	0.0	3.0	26.7	58.4	11.9
5	Lecturer tries to make the course interesting	4.04	.706	0.0	2.0	16.8	56.4	24.8
6	Lecturer spares her/his time to give comment on my work	3.52	.807	1.0	6.9	40.6	41.6	9.9
7	Learning media used by lecturer really helps me to understand the material	3.63	.797	2.0	5.9	26.7	57.4	7.9
8	Lecturer seems ready to give online course	3.92	.643	0.0	2.0	18.8	64.4	14.9

Table 1 shows that students, on the average, answered to "agree" for all items in GTS category which means that students have good perception about the way lecturer gives the online course by using blended learning. The next category is Clear Goals and Standards Scale (CGS) which includes item number 9 to 12. This category refers to the clarity of learning goals and standards used in the course. Students' responses are shown on the following Table.

Table 2. Descriptive Statistics of CGS Items

| No | Item | Mean | S.D. | Responses in Likert Scale (%) | | | | |
				Completely disagree	Disagree	Neutral	Agree	Completely agree
9	I usually know the learning goal and direction clearly	3.55	.728	0.0	6.9	37.6	48.5	6.9
10	It is easy to know the score standards of tasks given by lecturer	3.32	.761	3.0	5.0	53.5	34.7	4.0
11	Since beginning, lecturer has explained the learning goals and accomplishment expected from the course	4.08	.717	0.0	3.0	12.9	57.4	26.7
12	I often find difficulties in understanding what the online learning course wants to achieve	3.53	.996	1.0	15.8	29.7	35.6	17.8

Table 2 shows variety of responses regarding the clarity of learning goals and standards, in which most of students knew the learning goals and direction because the lecturer had already explained it beforehand, but students still found difficulties in understanding the goal and standards expected from the course. The third category is Appropriate Assessment Scale (AAS) which includes item number 13

to 17. This category explores the conformity of assessment used to evaluate the online learning result. The results are presented on Table 3 below.

Table 3. Descriptive Statistics of AAS Items

No	Item	Mean	S.D.	Responses in Likert scale (%)				
				Completely disagree	**Disagree**	**Neutral**	**Agree**	**Completely agree**
13	Lecturer seems more interested in testing my memory rather than my understanding	3.49	.832	1.0	7.9	43.6	36.6	10.9
14	Lecturer asks about the facts too much	3.41	.710	2.0	3.0	51.5	39.6	4.0
15	In order to get good results in online learning, I just need to memorise the learning material	3.50	.867	1.0	10.9	35,6	41.6	10.9
16	The assessment given by lecturer is appropriate to the taught material	4.02	.648	0.0	2.0	13.9	64.4	19.8
17	The online assessment is easier and more practical than the offline one	3.44	.888	2.0	9.9	41.6	35.6	10.9

Table 3 shows that most of the students supposed to think that the key of success in online learning was memorising the material only, even though students did not know if lecturer tested their memory or knowledge. In spite of that, students assumed that the assessment was appropriate to the material given by lecturer and most of them thought that there was no significant difference between online and offline assessment. The next category is Appropriate Workload Scale (AWS) which explores the workload given by lecturer during online learning, it includes item number 18 to 21. The results are shown on the Table below.

Table 4. Descriptive Statistics of AWS Items

No	Item	Mean	S.D.	Responses in Likert scale (%)				
				Completely disagree	**Disagree**	**Neutral**	**Agree**	**Completely agree**
18	I feel too much pressure during online learning	3.61	1.020	4.0	8.9	27.7	40.6	18.8
19	The workload given by lecturer is too heavy	3.74	.997	3.0	5.0	32.7	33.7	25.7
20	I usually get enough time to understand the taught material	3.64	.657	0.0	4.0	33.7	56.4	5.9
21	The number of tasks that have to be done in online learning shows that not all of the materials should be really understood	3.47	.890	2.0	10.9	35.6	41.6	9.9

Students' perception regarding the workload in blended learning was that mostly students felt burdened by the heavy workload even though they were given enough time. It triggered them to have perception that there was no need to understand what the lecturer taught; the most important thing was completing the tasks. The next category is e-Learning Scale (E-LS) which includes item number 22 to 27 and specifically explores the implementation of online learning in blended learning and the effect of it for students. Students' responses regarding this category are seen below.

Table 5. Descriptive Statistics of E-LS Items

No	Item	Mean	S.D.	Responses in Likert scale (%)				
				Completely disagree	Disagree	Neutral	Agree	Completely agree
22	When using online learning, information technology really helps me in studying	4.33	.650	0.0	1.0	6.9	50.5	41.6
23	Taught material sources given by lecturer and provided in library are very supportive	3.51	.844	3.0	6.9	32.7	50.5	6.9
24	Communicating online with lecturer and fellow students helps me in learning	3.83	.664	0.0	4.0	19.8	65.3	10.9
25	Learning experiences in both online and offline learning are integrated well	3.50	.642	0.0	5.0	43.6	48.5	3.0
26	Online learning experience helps me to actively participate in the course	3.52	.715	0.0	6.9	39.6	47.5	5.9
27	Online learning makes it hard for me to communicate with lecturer and fellow students	3.45	.964	4.0	9.9	35.6	38.6	11.9

On Table 5, we can see that most of the students assumed that the facilities to support the online learning given by lecturer, such as learning material, communication, and information, were sufficient. Adding to that, students assumed that the online learning was integrated well with the offline learning. However, students found difficulties in communicating with lecturer and fellow students during online learning. The last category is Generic Skill Scale (GSS) which explores students' skills gained from blended learning. It includes item number 28 to 34 and the results are presented on Table 6 below.

Table 6. Descriptive Statistics of GSS Items

No	Item	Mean	S.D.	Responses in Likert scale (%)				
				Completely disagree	Disagree	Neutral	Agree	Completely agree
28	Online learning helps me develop my skill to work in team	3.54	.855	1.0	7.9	39.6	38.6	12.9
29	Online learning has sharpened my analytic skill	3.39	.692	2.0	4.0	49.5	42.6	2.0
30	After online learning, I feel more confident to face unfamiliar problems	3.27	.720	1.0	8.9	56.4	29.7	4.0
31	Online learning has improved my problem-solving skill	3.41	.764	2.0	6.9	43.6	43.6	4.0
32	Online learning has improved my skill in written communication	3.64	.701	1.0	4.0	30.7	58.4	5.9
33	Online learning helps me develop my skill in work planning	3.66	.803	2.0	5.9	24.8	58.4	8.9
34	I don't sense any skill improvement after attending online course	3.10	1.025	7.9	14.9	45.5	22.8	8.9

Table 6 above shows that students mostly assumed that their written communication and work planning skill were improved after experiencing blended learning. However, they mostly chose to be "neutral" on statements regarding improvement in teamwork, confidence in facing problem, problem solving, and analytic skill. Generally, students thought that online course in blended learning insignificantly affected their skill improvement.

Next, this part presents the exploratory factor analysis which aims to explore the theoretical structure of a phenomena; in this case, researchers aimed to explore the relationship between the varied responses in each item of PBEQ and the respondents individually. The result of exploratory factor analysis shows Eigen value for each item as shown in the following figure.
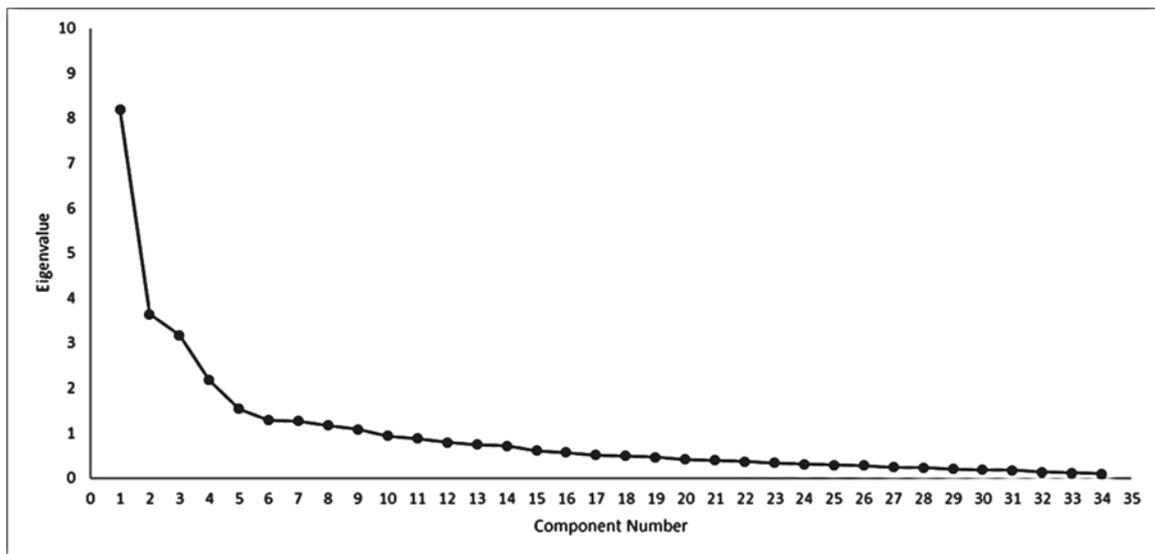

Fig 1. Eigen Value of PBEQ Items

The figure 1 shows that from the total of 34 items, there were only 20 items that had Eigen value above .40, it meant that the items with low loading (<.40) were eliminated and the coherent scale was shown for items number 1 to 20 only. Therefore, from the six categories, there were only four categories (presented by item 1 to 20) are coherent, which are GTS, CGS, AAS, and AWS. Albeit, there was no item to be deleted because based on the communalities exploratory analysis, the extraction values of all items were more than .40, so that all variables could be used to explain the factors.

Reliability analysis was done by using Cronbach Alpha and students' responses result showed the significance of .805 which meant that the responses were reliable and could be repeatedly measured. On the other hand, correlation analysis was done by using Pearson Product-Moment Correlation comparing GSS to other categories (GTS, CGS, AAS, AWS, and E-LS) to explore the relationship between students' perception of their generic skill after blended learning and their general blended learning experience. The analysis result is shown on Table 7.

Table 7. Analysis Pearson Product-Moment Correlation

		Correlations				
		GTS	**CGS**	**AAS**	**AWS**	**ELS**
GSS	Pearson Correlation	.276**	.313**	.194	.171	.519**
	Sig. (2-tailed)	.005	.001	.051	.087	.000
	N	101	101	101	101	101

Table 7 shows the significance of correlation which indicates that there was no correlation between students' perception of generic skill (GSS) and the conformity of assessment (AAS), neither does their perception of generic skill (GSS) and the workload (AWS). In the contrary, there was positive correlation between students' perception of generic skill (GSS) and teaching scale (GTS), clarity of learning goals and standards (CGS), and e-learning implementation (E-LS).

Factor analysis result of the six categories in PBEQ showed that all variables were qualified with KMO MSA value of .636 and Bartlett's test of sphericity significance of .000; However, MSA value showed that AWS category was not qualified for advanced analysis, therefore it needed to be re-analysed. Then, communalities extraction value showed that all categories could explain the factors of students' perception about blended learning as shown on Table 8 below.

Table 8. Eigen Value Per Category

Com	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.468	41.134	41.134	2.468	41.134	41.134	2.233	37.210	37.210
2	1.187	19.776	60.911	1.187	19.776	60.911	1.422	23.700	60.911
3	.901	15.013	75.923						
4	.646	10.770	86.693						
5	.474	7.900	94.593						
6	.324	5.407	100.000						

Extraction Method: Principal Component Analysis.

Eigen value (Table 8) for each category shows that the six categories could form two factors (namely factor 1 and factor 2). In order to grouping the factors, rotated component matrix is shown on Table 9.

Table 9. Rotated Component Matrix

	Component	
	1	2
GSS	.638	.206
GTS	.827	-.100
CGS	.690	.306
AAS	.293	.680
AWS	-.040	.896
ELS	.760	.096

Table 9 explains that the six categories in PBEQ with value of more than .40 in certain component belong to that component and it could be grouped as following.

The result of factors grouping of each category is shown on Table 10. Those factors are then integrated to Eigen values gained from factor analysis presented on Table 8, in which factor 1 includes GSS, GTS, CGS, E-LS and it explains 41.134% of the variance, while factor 2 included AAS, AWS and it explains 19.776% of the variance. Therefore, both factors combination explains 60.911% of the variance of students' responses which show their perception about blended learning.

Based on the research result, students' responses on GTS scale which explored the teaching way used by lecturer were mostly showing that they had positive perception about the lecturer's way of teaching. The largest percentage of positive responses was about lecturer giving motivation to students and showing a prepared performance during the online learning. It shows that the implementation of blended learning was good enough because the online learning did not obstruct the lecturer to give the

best performance. It is in accordance with the research result from Yilmaz and Malone [12] which proved that blended learning could improve teacher's self-efficacy in which it motivated teachers to teach in a better way. In this study, lecturer gave motivation to students which shows that there was an interaction between lecturer and students. This marks a good point as interaction is a crucial thing in learning as stated in Firman's and Rahayu's [13] research, in which they stated that interaction between lecturer and students created a deep and meaningful understanding in online learning. It shows that blended learning could create good interaction in the class. This statement is also supported by Sari [14] who stated that blended learning resulted on a better interaction between lecturer and students because of its flexibility.

On the next category, CGS, students' responses showed varied perception regarding the learning goals and standards. Students were already explained about the learning goals and expected achievement, but they still found difficulties to understand the learning standards. Similar thing is also shown in Toit's and Pool's research [15] which found that there was contradiction between students' responses on questionnaire and their perception about the learning implementation; they assumed that the instruction was clearly given before the class started, but students found it hard to understand it when it was applied. It is possibly happened because there was lack of explanation from the lecturer about specific learning goal and expectation, while actually students need a very clear instruction and explanation about how and what is going on the learning process as stated by Poon [16]. Teachers, who usually emphasise on deepening students' understanding about learning goals, standards, and evaluation before giving the learning material, have more opportunities to implement blended learning successfully from student's point of view because by having students understand those components may help students to decide their own learning strategy [17]. However, more references are needed to prove that understanding learning goals actually affects blended learning effectiveness. Therefore, further study is needed regarding this phenomenon.

Students' responses on AAS category showed that most of the students had positive perception about the conformity of assessment used to evaluate the online learning outcome with the goals expected. However, students assumed that the questions given in the assessment emphasised on memorisation skill, not on students' understanding of the learning material. It was because the questions used in the assessment demanded students' memory about the material. Horzum et al [18] in their research stated that evaluating students' performance in blended learning could not be done by using written questions only since the success of this learning was not tied to learning outcome, but on students' satisfaction of the learning process, interaction, and also participation in the learning activity. In addition, students' responses in AAS category showed their perception about the difficulty level in which they assumed that the assessment both in online and offline learning was similar, neither easier nor more practical. It shows that the principle of blended learning in this study was not fully perceived; it is marked by the similarity of both learning in which both offline and online learning should have supported each other and completed the lack of aspects on each side. Blended learning should have been consisting of two components: online and offline learning, which complete each other and be supported by comfortable learning vibe, appropriate assignment, and flexibility to gain students' satisfaction in blended learning [19].

On the next category, AWS, most of the students responded with negative statement about the workload. As many as 40.6% of the students stated that they felt burdened by the workload, it was then followed by the statement that they assumed the workload was too heavy for them. However, there was quite similar percentage of the students who chose to be agree and neutral about the heavy workload. Therefore, it cannot be concluded that blended learning demands a heavy workload. Sofiana [20] in her research explained that the workload in blended learning was categorised as medium level and it was caused by the problem in internet connection. The statement is contrast with the result of this study, so that it needs further study because the workload here was not specifically explained both quantitatively and qualitatively. On the other hand, Yuniarsih et al [21] stated that the heavy workload in blended learning might be caused by the overload number of tasks given to students at the same time in different course. It is in line with researchers' suggestion regarding the cause of negative perception about the workload, in which the obligation to complete the tasks in various subjects and

course in the same time burdens students during the online learning.

Next, on E-LS category, students' responses indicated that they had positive perception about the facilities provided in online learning and their whole experience in using blended learning. Students were fully supported by the technology which helped them participate in online learning course. It is supported by Som et al [22] who stated that technology, online interaction, and study management were strong factors affecting students' readiness in blended learning. However, as many as 38.6% of the students found difficulties in communicating online with lecturer and fellow students; it was possibly caused by the problem in internet connection as stated by Sofiana [20] in her research. The essential part here was that students' perception about the integration between online and offline learning were good enough as 48.5% of the students stated that their experience in both learning were integrated well. It shows that blended learning used in the course was well implemented.

Lastly, students' perception of their generic skills (GSS) after experiencing blended learning indicated that students assumed there was no significant change in their skill after using blended learning. Most of the students chose to be neutral in the statement of blended learning helped them improve their confidence, teamwork, analytic and problem-solving skill. However, students had positive perception about the improvement of their written communication and work planning skill. It is, however, in the contrary of several studies that showed significant improvement in students' skill after completing blended learning. Rafiola et al [23] proved that blended learning could improve students' learning outcome significantly. Rahman et al [4] in his research also showed that 77% of his students had positive perception about blended learning in which they assumed that it improved some of their learning skills. In this study, the low percentage of positive perception about students' generic skill was possibly affected by the implementation of blended learning which was not optimal. The sudden change of learning method during pandemic forces lecturer to immediately finds an appropriate way to maximise the learning which then triggers to unreadiness of the implementation of online learning. However, as seen on Table 7, correlation analysis showed a positive correlation between students' perception of their generic skill and good teaching aspect, clarity of learning goals and direction, and the implementation of e-learning. It indicates that GTS, CGS, and E-LS affect students' perception about their gained skills.

However, further study is essential to strengthen this statement to avoid misconception. Based on the factor analysis which can be seen on Table 8, all six categories: GSS, GTS, CGS, E-LS, AAS, and AWS were representative, in term of representing students' perception in blended learning. There were four out of six categories (GSS, GTS, CGS, E-LS) which were able to explain 41.134% of the variance, while two others (AAS and AWS) were able to explain 19.776% of the variance. Therefore, all six categories were able to explain 60.911% of the variance of students' responses regarding their perception about blended learning. This percentage indicated that even though the factors could not explain 100% of the variance, yet it explained the majority of variance (60.911%). Adding to that, several other factors which may affect students' perception about blended learning are learning design [24], self-efficacy [25], technology, flexibility, and engagement in learning process [26].

CONCLUSION AND SUGGESTION

Undergraduate students' learning experience by using blended learning can be evaluated from their perception about the whole learning process. The components which were evaluated from students' responses through online questionnaire were: lecturer's way of teaching (GTS), clarity of learning goals and standards (CGS), appropriate assessment (AAS), appropriate workload (AWS), e-learning (E-LS), and generic skill (GSS), in which all six categories were able to explain 60.911% of the variance. Generally, students had positive perception about blended learning. Yet, there were several negative perceptions about the clarity of learning goals and standards and the appropriate workload given in online learning. From the result of this study, students' perception about blended learning,

especially online learning aspect, can be generally reviewed. However, a potential good discussion can be achieved if each category was reviewed thoroughly. Also, the implementation of blended learning in this study was not fully applied, whereas online learning dominated the whole course as pandemic occurred and all lectures were cancelled. Hence, it was quite difficult for students to review the integration between online and offline learning. On the other hand, blended learning is newly implemented in Indonesia, so that more studies are needed to provide more references about blended learning. Therefore, there is a need for further study regarding each category discussed in this study to get deep and clear insight about students' perception in blended learning.

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