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Analysis of Teacher Candidate Responses to the Needs of Blended Learning Model Based on MOOCs and Augmented Reality

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ABSTRACT

The article aims to analyze the response to the need for a blended learning model based on MOOCs and augmented reality for prospective teachers. The sample data were 52 prospective teachers. The instrument used in this study was a questionnaire sheet for the needs of prospective teachers. The results of this study indicated that the instruments used were valid and reliable. It was evidenced by the results of the validity calculation which states that 18 questions are valid and no questions were issued. Then, the calculation of data reliability using the cronbach alpha method with a score of 0.878, this value was greater when compared with the r_{table} value for $\alpha = 0.05$, namely 0.273. Hence, it can be said that the data used reliable. For the percentage of prospective teacher needs, 88.86% was obtained, which means that prospective teachers strongly agree that the need for a blended learning model based on MOOCs and augmented reality for prospective teachers.

Keywords: *Teacher Candidate Response, MOOCs, Augmented Reality, Blended Learning*

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INTRODUCTION

The 21st century learning paradigm suggests that a teacher must use digital technology, appropriate means of communication and/or networks to access, manage, integrate, evaluate and create information to function in learning (Solihudin, 2018). The 21st century is concerned with the ability to think creatively and problem solving abilities, the ability to communicate and collaborate, and the ability to be creative and innovate (Handayani et al., 2018). The 21st century is also known as the industrial revolution 4.0 (Redhana, 2019). The era of revolution 4.0 is a term used to refer to an era where there is a combination of technology which results in physical, biological, and digital dimensions forming a blend that is difficult to distinguish (Putrawangsa & Hasanah, 2018).

One of the uses of technology in the field of education can be implemented by implementing blended learning models based on MOOCs and Augmented Reality. Blended learning is a method that combines face-to-face learning in class with online learning (Cheung & Wang, 2019; Auster, 2016; Risdianto, 2019). The application of the

appropriate Blended learning model can make it easier for educators in the process of understanding several possible disciplines by optimizing more flexible teaching and learning by utilizing technology (Oktaria et al., 2018; Medina, 2018). The purpose of the blended learning model is to get the best learning by combining the various advantages of each component of the conventional method and the online component (Priono et al., 2018).

Massive Open Online Courses (MOOCs) first appeared on the educational horizon in 2008, which coincided with the launch of Connectivism and Connective Knowledge (CCK08) facilitated by George Siemens and Stephen Downes. In principle, MOOCs describe an Online Course with a massive amount of open registration, which not only provides administrative administration services but also in terms of content, design, access points, application methods, and the definition of success (Emigawaty, 2017). MOOCs are online based, aiming at large-scale interactive participation and open access through websites. In addition to traditional course materials such as videos, readings, and problem sets, MOOCs provide interactive user forums, quizzes that help build communities for students and teachers to deliver online learning content over the Internet to nearly anyone who wants to take courses at no cost with no attendance restrictions (Husna, 2019). One of the uses of technology in the field of education is the use of Augmented Reality technology in learning, Augmented reality (AR) is a technology that visually adds to the real-world environment by projecting computer-generated information into the eye (Siahaan et al., 2019). Unlike virtual reality, which completely replaces reality, augmented reality simply adds or complements reality (Kamelia, 2019). The way AR works in adding virtual objects to the real environment is as follows: 1) The real world image is taken from the camera, 2) The tracking process starts to get the rendering position of the virtual object, 3) The virtual object is inserted into the real image based on the results (Pragestu et al., 2015).

In analyzing the data, one of the models commonly used is the RASCH model. Rasch modeling can be used to analyze the quality of questions, determine the level of student ability and the level of difficulty of the problem, to detect misunderstandings, bias in problems, or to find out that students are cheating (Risdianto et al., 2020). In the Rasch measurement model, the validity and reliability of an instrument can be seen by looking at analyzes such as item polarity, one-dimensional, item-individual/respondent mapping, item-individual reliability, and several other forms of analysis (Hayati & Lailatussaadah, 2016). From the description above, it is necessary to analyze the response to the need for a blended learning model based on MOOCs and augmented reality for prospective teachers.

METHOD

The population taken in this study are prospective teachers or prospective educators. For the sample taken was 52 prospective teachers. The data collection technique used in this study was to use a questionnaire to determine the level of teacher prospective needs for the blended learning model based on MOOCs and augmented reality. The research instrument used in this needs analysis research is a questionnaire sheet of needs for the blended learning model based on MOOCs and augmented reality for prospective teachers. Data analysis techniques in this study are quantitative analysis techniques and qualitative analysis techniques. The quantitative analysis technique in this case is the measurement of the needs of prospective teachers statistically which refers to the answers to the research questionnaire filled out by 52 prospective teachers. After obtaining the calculation results from the modeling, then

proceed with qualitative research. Broadly speaking, this qualitative research is only a supporter of the quantitative research results obtained. The analysis was carried out in two ways, namely the needs analysis carried out on the data with the results of the analysis in the form of a percentage and the analysis using the Rasch model assisted by the Winstep application. Percentage is obtained based on the modified Likert scale calculation. With a Likert scale, the variables to be measured are translated into variable indicators. Furthermore, these indicators are used as guidelines in compiling items in the form of questions or statements. For positive sentences, each instrument item is given a quantitative value as in table 1 below:

Table 1 Likert Scale Calculation

Evaluation	Scala value
Strongly Agree	4
Agree	3
Diagree	2
Totally Diagree	1

Whereas for negative sentences, the score is the opposite [16].
To calculate this percentage using a formula:

$$PRCG = \frac{\sum SP}{\sum SM} \times 100\%$$

Information:
PRCG = Percentage of Teacher Candidate Responses
SP = Acquisition Score
SM = Maximum Score [17]

Table 2 Interpretation of Student Response Scores [18]

Percentage (%)	Category
0 % - 25 %	Totally Disagree
26 % - 50 %	Disagree
51 % - 75 %	Agree
76 % - 100 %	Strongly agree

RESULT AND DISCUSSION

Questionnaire for the need a blended learning model based on MOOCs and augmented reality for prospective teachers in the form of a questionnaire developed based on the Likert scale. The questionnaire analysis was carried out to determine the level of need for prospective teachers for the blended learning model based on MOOCs and augmented reality. The questionnaire on this needs was filled in by 52 respondents with 18 items. Assessment using a Likert scale with the maximum score of the questionnaire items is 4 and the minimum is 1. For the results of calculating the validity of the data can be seen in table 3.

Table 3 Case Processing Summary

		N	%
Cases	Valid	18	100,0
	Excluded[a]	0	,0
	Total	18	100,0

The Cross Processing Summary table provides information that there are 18 (N) valid questions. No data released (Excluded). A total of 18 data (N) were processed or 100% of the data were processed. This means that the 18 questions used are really accurate to measure what would be measured.
The results of data reliability calculations can be seen in the following table:

Table 4 Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0,878	0,877	44

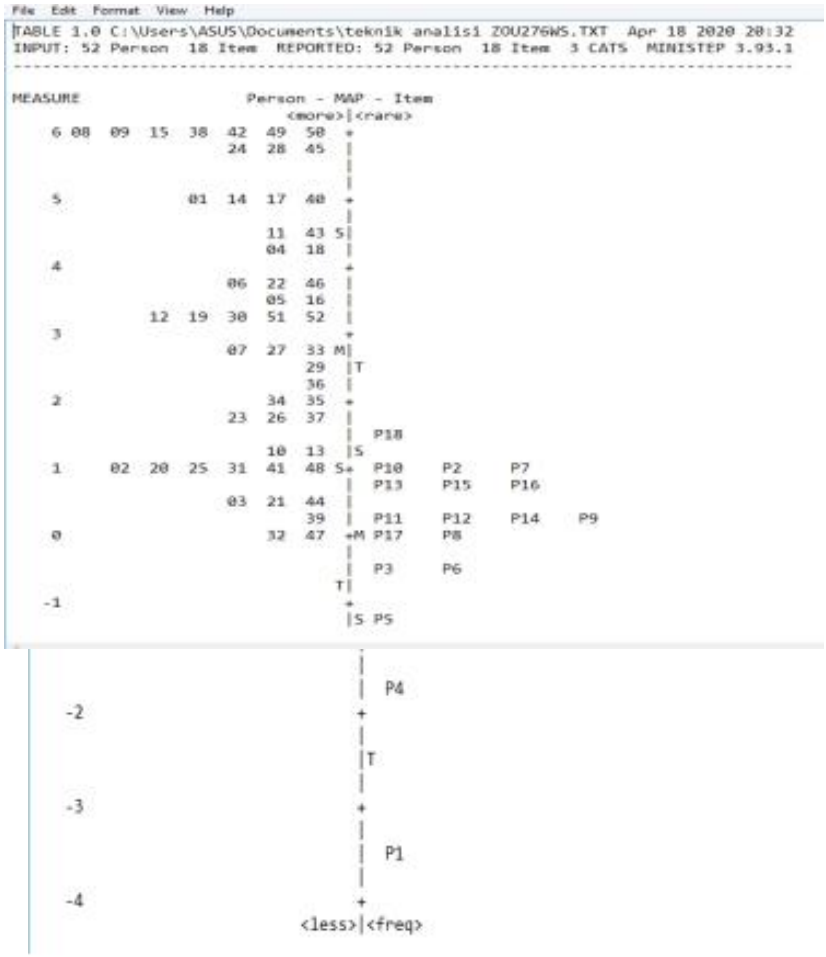
The reliability statistics table shows the results of data reliability calculations using the Cronbach alpha method with a score of 0.878. Then this value (0.878) is compared with the product moment r value table. By using the distribution table r for α = 0.05, a value of 0.273 is obtained, then it is compared with Cronbach's Alpha value of 0.878. The decision rule is:
Reliable: if rcount is greater than rtable value (rcount> rtable)
Unreliable: if rcount is less than rtable value (rcount <rtabel)
Thus it can be concluded that the alpha value is 0.878> 0.273, so that the data is said to be reliable or reliable, meaning that the data would give the same results if tested in the same group at different times or occasions. To find out the percentage of response of prospective teachers to the needs of a blended learning model based on MOOCs and augmented reality, it can be processed through data on Table 5.

Table 5 Results of Data Response to the Needs of Teacher Candidates

Responden	Skor Total (n)	Skor Maksimal (N)	Persentase $P = \frac{n}{N} x100\%$	Kategori
52 Calon Guru	3327	3744	88,86%	Sangat Setuju

Table 5 provides information that prospective teachers strongly agree with the blended learning model based on MOOCs and augmented reality, this is indicated by the large percentage obtained of 88.86% of the maximum percentage of 100%. And according to the Likert scale interpretation table for data with a percentage of 76% - 100% categorized as strongly agree.

To find out that the respondent is filling in the data correctly, then using the Winstep application with the Rasch model. The first step is to find variable maps



On the map on the left, there are seven prospective teachers/respondents (08, 09, 15, 38, 42, 49, 50) who have the highest level of ability (strongly agree), the seven prospective teachers/respondents get the maximum value that can be obtained . Getting the highest ability is (+6 logit).

For the map on the right there are 18 questions that have validity levels of difficulty varying from P18 which is the most difficult to answer to P1 which is the easiest to answer. From the questionnaire data obtained from the question with the lowest difficulty level is question 1 (P1), prospective teachers/respondents with low ability (disagree) respondents number 32 and 47. This shows a good thing because in this case every question given can provide information regarding the ability of the tested respondent.

When compared to the distance between M-S-T (average, 1SD and 2SD) on the wright map above, it can be seen that the distribution of respondents' ability (left) is wider than the distribution of the difficulty level of the question (right).

When comparing the logit item mean with the logit person, it can be seen that the logit person is larger (+2.8 logit), this indicates that the overall ability is only slightly higher than the question difficulty. From the map, it can be seen that of the 52 prospective teachers / respondents all of them successfully answered the questions posed to them correctly.

From the manual counting of data obtained by respondents who have a value above 60 there are 35 respondents and those who have a value below 60 are 17

respondents with the lowest score getting 54. So it can be said that respondents who answered these questions had their own difficulty level. each on the question given.

Analyze question items using output table 13. Item measure

Person: REAL SEP.: 2.17 REL.: .82 ... Item: REAL SEP.: 2.78 REL.: .89

Item STATISTICS: MEASURE ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL CORR.	PTMEASUR-AL EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Item
18	174	52	1.45	.35	2.23	4.2	2.30	3.7	.51	.70	53.3	75.7	P18
2	177	52	1.08	.35	1.01	.1	.95	-.1	.71	.69	68.9	75.8	P2
7	177	52	1.08	.35	1.81	3.1	2.10	3.2	.50	.69	55.6	75.8	P7
10	178	52	.96	.35	.68	-1.6	.53	-2.0	.77	.69	84.4	75.8	P10
13	179	52	.83	.36	.56	-2.3	.50	-2.1	.78	.69	86.7	75.9	P13
15	179	52	.83	.36	1.14	.7	1.27	1.0	.63	.69	73.3	75.9	P15
16	179	52	.83	.36	.91	-.3	1.01	.1	.70	.69	77.8	75.9	P16
11	183	52	.32	.36	.81	-.9	.71	-1.0	.74	.67	80.0	76.9	P11
9	184	52	.19	.36	.48	-2.9	.37	-2.6	.80	.66	91.1	77.1	P9
12	184	52	.19	.36	.96	-.1	.89	-.3	.65	.66	77.8	77.1	P12
14	184	52	.19	.36	.95	-.1	.92	-.2	.66	.66	73.3	77.1	P14
8	186	52	-.08	.37	.68	-1.6	.56	-1.5	.73	.65	84.4	77.6	P8
17	186	52	-.08	.37	.96	-.1	.84	-.4	.65	.65	80.0	77.6	P17
3	189	52	-.48	.37	1.12	.6	1.03	.2	.57	.62	73.3	78.1	P3
6	190	52	-.62	.37	.69	-1.5	.57	-1.1	.69	.61	84.4	78.1	P6
5	195	52	-1.35	.39	.65	-1.9	.45	-1.0	.64	.53	88.9	78.8	P5
4	198	52	-1.84	.42	1.00	.1	1.66	1.0	.44	.47	82.2	80.7	P4
1	205	52	-3.52	.63	1.02	.2	1.73	.9	.22	.27	93.3	93.3	P1
MEAN	184.8	52.0	.00	.38	.98	-.2	1.02	-.1			78.3	78.0	
P.SD	7.9	.0	1.20	.06	.42	1.7	.56	1.6			10.6	3.9	

The total count column reads 52 which means that all prospective teachers/respondents answered every question that was given. From the table above, order the difficulty levels from the highest (P18) to the lowest (P1), which is shown in the Measure column. Information on the difficulty level of questions can make it easier for us to identify which questions are difficult and which questions are easy for respondents to answer.

To find out the level of suitability of the question (item fit), whose meaning is in accordance with the ideal model of measurement. Select table 10. Item fit order. In the table below, it can be seen that the item fit indicators for all question items, namely outfit means square (0.5 <MNSQ> 1.5), outfit Z-standard (-2.0 <ZSTD <+2,0), and point measure correlation. (0.4 <Pt Measure corr <0.85), it does not indicate any problem. In other words, all the questions given can be understood well by all respondents, there are no questions that are misconceptions.

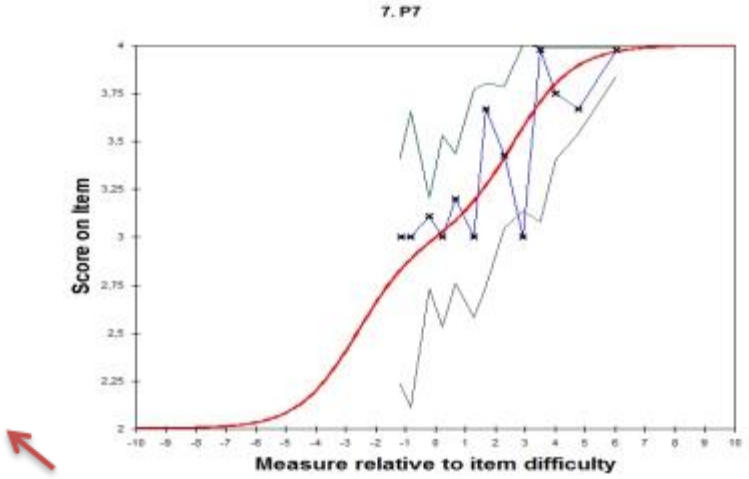
TABLE 10.1 C:\Users\ASUS\Documents\teknik analis ZOU968WS.TXT Apr 19 2020 13:54
INPUT: 52 Person 18 Item REPORTED: 52 Person 18 Item 3 CATS MINISTEP 3.93.1

Person: REAL SEP.: 2.17 REL.: .82 ... Item: REAL SEP.: 2.78 REL.: .89

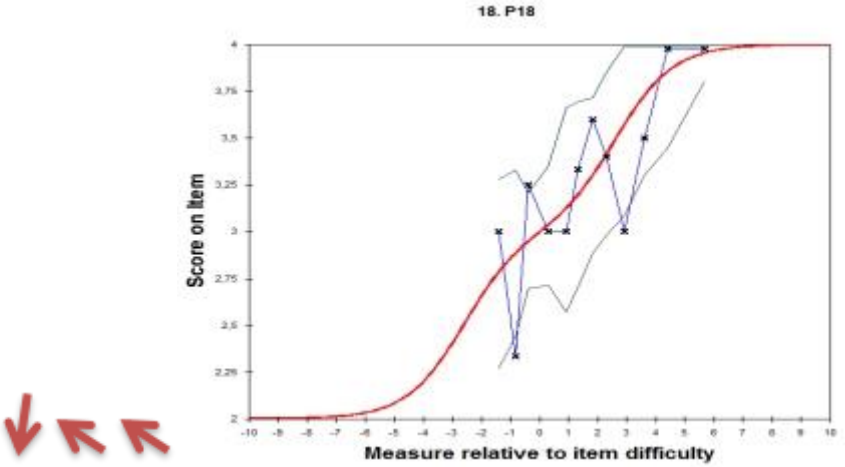
Item STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL CORR.	PTMEASUR-AL EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Item
18	174	52	1.45	.35	2.23	4.2	2.30	3.7	A .51	.70	53.3	75.7	P18
7	177	52	1.08	.35	1.81	3.1	2.10	3.2	B .50	.69	55.6	75.8	P7
1	205	52	-3.52	.63	1.02	.2	1.73	.9	C .22	.27	93.3	93.3	P1
4	198	52	-1.84	.42	1.00	.1	1.66	1.0	D .44	.47	82.2	80.7	P4
15	179	52	.83	.36	1.14	.7	1.27	1.0	E .63	.69	73.3	75.9	P15
3	189	52	-.48	.37	1.12	.6	1.03	.2	F .57	.62	73.3	78.1	P3
2	177	52	1.08	.35	1.01	.1	.95	-.1	G .71	.69	68.9	75.8	P2
16	179	52	.83	.36	.91	-.3	1.01	.1	H .70	.69	77.8	75.9	P16
12	184	52	.19	.36	.96	-.1	.89	-.3	I .65	.66	77.8	77.1	P12
17	186	52	-.08	.37	.96	-.1	.84	-.4	i .65	.65	80.0	77.6	P17
14	184	52	.19	.36	.95	-.1	.92	-.2	h .66	.66	73.3	77.1	P14
11	183	52	.32	.36	.81	-.9	.71	-1.0	g .74	.67	80.0	76.9	P11
6	190	52	-.62	.37	.69	-1.5	.57	-1.1	f .69	.61	84.4	78.1	P6
8	186	52	-.08	.37	.68	-1.6	.56	-1.5	e .73	.65	84.4	77.6	P8
10	178	52	.96	.35	.68	-1.6	.53	-2.0	d .77	.69	84.4	75.8	P10
5	195	52	-1.35	.39	.65	-1.9	.45	-1.0	c .64	.53	88.9	78.8	P5
13	179	52	.83	.36	.56	-2.3	.50	-2.1	b .78	.69	86.7	75.9	P13
9	184	52	.19	.36	.48	-2.9	.37	-2.6	a .80	.66	91.1	77.1	P9
MEAN	184.8	52.0	.00	.38	.98	-.2	1.02	-.1			78.3	78.0	
P.SD	7.9	.0	1.20	.06	.42	1.7	.56	1.6			10.6	3.9	

It can be seen in the table above that the questions P18 and P7 contain one unfit criteria, namely the mean-square infit value greater than the value of 1.5.This can also be shown by the ICC graph as below:



The arrow on P7 is a misfit response pattern.



The arrow on P18 is a misfit response pattern.
To analyze the teacher's ability, we select the 17 Person Measure table. The teacher's ability data wuold be displayed sequentially from the highest to the lowest, as follows :

TABLE 17.1 C:\Users\ASUS\Documents\buku winstep\ ZOU520WS.TXT1 Apr 21 2020 20:32
INPUT: 52 Person 18 Item REPORTED: 52 Person 18 Item 3 CATS MINISTEP 5.95.1

Person: REAL SEP.: 2.17 REL.: .82 ... Item: REAL SEP.: 2.78 REL.: .89

Person STATISTICS: MEASURE ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL CORR.	PTMEASUR-AL EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Person
8	72	18	7.12	1.85	MAXIMUM MEASURE				.00	.00	100.0	100.0	08
9	72	18	7.12	1.85	MAXIMUM MEASURE				.00	.00	100.0	100.0	09
15	72	18	7.12	1.85	MAXIMUM MEASURE				.00	.00	100.0	100.0	15
38	72	18	7.12	1.85	MAXIMUM MEASURE				.00	.00	100.0	100.0	38
42	72	18	7.12	1.85	MAXIMUM MEASURE				.00	.00	100.0	100.0	42
49	72	18	7.12	1.85	MAXIMUM MEASURE				.00	.00	100.0	100.0	49
50	72	18	7.12	1.85	MAXIMUM MEASURE				.00	.00	100.0	100.0	50
24	71	18	5.86	1.04	.95	.2	.54	.1	.22	.14	94.4	94.4	24
28	71	18	5.86	1.04	1.00	.3	.68	.2	.17	.14	94.4	94.4	28
45	71	18	5.86	1.04	1.00	.3	.68	.2	.17	.14	94.4	94.4	45
1	70	18	5.08	.77	.90	.0	.54	.0	.32	.20	88.9	88.9	01
14	70	18	5.08	.77	.94	.1	.61	.0	.28	.20	88.9	88.9	14
17	70	18	5.08	.77	1.07	.3	.94	.4	.15	.20	88.9	88.9	17
40	70	18	5.08	.77	1.92	1.5	.96	.4	.29	.20	94.4	88.9	40
11	69	18	4.57	.66	1.04	.2	2.92	1.6	.06	.25	83.3	83.3	11
43	69	18	4.57	.66	.95	.0	.75	.1	.31	.25	83.3	83.3	43
4	68	18	4.19	.59	.82	-.5	.65	-.2	.42	.28	77.8	77.8	04
18	68	18	4.19	.59	1.01	.2	1.02	.3	.25	.28	77.8	77.8	18
6	67	18	3.86	.56	1.41	1.6	1.23	.5	.36	.32	77.8	72.8	06
22	67	18	3.86	.56	.90	-.3	.75	-.1	.40	.32	66.7	72.8	22
46	67	18	3.86	.56	.95	-.1	.90	.1	.34	.32	77.8	72.8	46
5	66	18	3.56	.53	1.03	.2	.86	.0	.34	.35	55.6	68.9	05
16	66	18	3.56	.53	.99	.0	.84	-.1	.36	.35	55.6	68.9	16
12	65	18	3.28	.52	1.14	.8	1.03	.2	.27	.37	55.6	67.8	12
19	65	18	3.28	.52	1.22	1.1	1.06	.3	.22	.37	44.4	67.8	19
30	65	18	3.28	.52	.84	-.8	.73	-.4	.49	.37	77.8	67.8	30
51	65	18	3.28	.52	.99	.0	.89	.0	.38	.37	66.7	67.8	51
52	65	18	3.28	.52	1.51	2.3	5.25	4.4	-.28	.37	55.6	67.8	52
7	63	18	2.75	.51	.84	-.7	.76	-.5	.52	.42	77.8	67.0	07
27	63	18	2.75	.51	1.70	2.8	1.67	1.5	.22	.42	44.4	67.0	27
33	63	18	2.75	.51	.70	-1.5	.63	-.9	.62	.42	88.9	67.0	33
29	62	18	2.48	.52	.93	-.2	.84	-.3	.47	.44	72.2	68.7	29
36	61	18	2.21	.53	.66	-1.3	.57	-1.2	.67	.46	77.8	71.2	36
34	60	18	1.93	.54	1.15	.6	1.17	.5	.60	.47	72.2	73.8	34
35	60	18	1.93	.54	.78	-.7	.80	-.4	.55	.47	83.3	73.8	35
23	59	18	1.63	.55	.62	-1.1	.63	-.9	.65	.48	88.9	76.7	23
26	59	18	1.63	.55	.93	-.1	.91	-.1	.42	.48	77.8	76.7	26
37	59	18	1.63	.55	1.77	1.9	1.85	1.7	.55	.48	55.6	76.7	37
10	58	18	1.32	.57	1.11	.4	1.17	.5	.19	.49	72.2	78.8	10
13	58	18	1.32	.57	.39	-1.9	.38	-2.0	.80	.49	94.4	78.8	13
2	57	18	.98	.59	.57	-1.0	.60	-.8	.53	.49	94.4	80.7	02
20	57	18	.98	.59	1.35	.9	1.38	.9	.75	.49	72.2	80.7	20
25	57	18	.98	.59	1.10	.4	1.20	.5	.06	.49	83.3	80.7	25
31	57	18	.98	.59	1.22	.6	1.24	.6	.46	.49	72.2	80.7	31
41	57	18	.98	.59	.82	-.3	.82	-.2	.34	.49	83.3	80.7	41
48	57	18	.98	.59	.57	-1.0	.60	-.8	.53	.49	94.4	80.7	48
3	56	18	.62	.60	2.26	2.1	2.49	2.2	.45	.49	61.1	82.0	03
21	56	18	.62	.60	.86	-.2	.87	-.1	.60	.49	83.3	82.0	21
44	56	18	.62	.60	.99	.1	.93	.0	.56	.49	83.3	82.0	44
39	55	18	.26	.60	.15	-2.9	.10	-2.9	.71	.48	100.0	82.5	39
32	54	18	-.09	.59	.40	-1.6	.38	-1.5	.60	.46	94.4	81.7	32
47	54	18	-.09	.59	.28	-2.1	.22	-2.5	.00	.46	94.4	81.7	47
MEAN	64.0	18.0	3.32	.78	.99	.0	1.02	.0			78.3	78.0	
P.SD	5.9	.0	2.19	.44	.40	1.1	.81	1.2			14.3	7.9	

With 18 questions and each item the maximum score is 4, the maximum total score for the overall questionnaire is 72 and the minimum score is 4. On the other hand, the total count column states how many questions the prospective teacher has answered.

The measure column states the level of ability in logit units. In the table above, the highest ability is owned by 08 (measure = +7.12 logit) until the lowest ability is owned by 47 (measure = -0.09 logit). This shows that the same raw score (total score) as well as high ability can be seen through a skalogram.

In the aspect of the mismatch of the response with the ideal model as shown by the 6 person fit order table, it can be seen that the least fit is the prospective teacher / respondent with codes 52, 11 and 03.This indicates a tendency for an inconsistent pattern among the three respondents in answering questions this question.

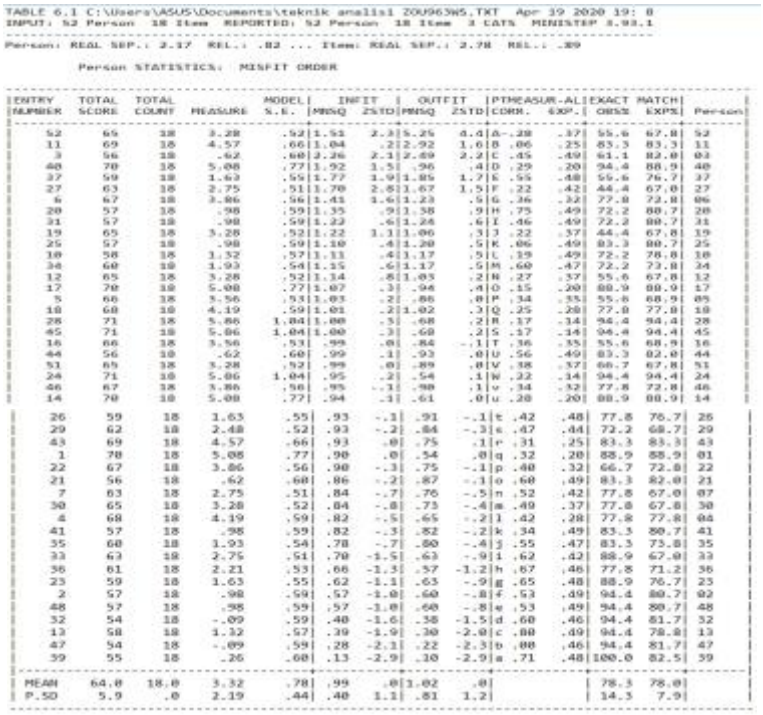


TABLE 6.1 C:\Users\ASUS\Documents\teknik analisi ZOU963WS.TXT Apr 19 2020 19: 8
INPUT: 52 Person 18 Item REPORTED: 52 Person 18 Item 3 CATS MINISTEP 3.93.1

Person: REAL SEP.: 2.17 REL.: .82 ... Item: REAL SEP.: 2.78 REL.: .89

Person STATISTICS: MISFIT ORDER

ENTRY NUMBER	TOTAL SCORE	TOTAL COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD	PTMEASUR-AL CORR.	PTMEASUR-AL EXP.	EXACT MATCH OBS%	EXACT MATCH EXP%	Person
52	65	18	3.28	.52	1.51	2.3	5.25	4.4	A	-.28	.37	55.6	67.8	52
11	69	18	4.57	.66	1.04	.2	2.92	1.6	B	.06	.25	83.3	83.3	11
3	56	18	.62	.60	3.26	3.1	2.69	2.2	C	.45	.49	61.1	82.0	03
40	70	18	5.08	.77	1.92	1.5	.96	.4	D	.29	.20	94.4	88.9	40
37	59	18	1.63	.55	1.77	1.9	1.85	1.7	E	.55	.48	55.6	76.7	37
27	63	18	2.75	.51	1.70	2.8	1.67	1.5	F	.22	.42	44.4	67.0	27
6	67	18	3.86	.56	1.41	1.6	1.23	.5	G	.36	.32	77.8	72.8	06
20	57	18	.98	.59	1.35	.9	1.58	.9	H	.75	.49	72.2	88.7	20
31	57	18	.98	.59	1.22	.6	1.26	.6	I	.46	.49	72.2	88.7	31
19	65	18	3.28	.52	1.22	1.1	1.06	.3	J	.22	.37	44.4	67.8	19
25	57	18	.98	.59	1.10	.4	1.20	.5	K	.06	.49	83.3	88.7	25
10	58	18	1.32	.57	1.11	.4	1.17	.5	L	.19	.49	72.2	78.8	10
34	60	18	1.93	.54	1.15	.6	1.17	.5	M	.60	.47	72.2	73.8	34
12	65	18	3.28	.52	1.14	.8	1.05	.2	N	.27	.37	55.6	67.8	12
17	70	18	5.08	.77	1.07	.3	.94	.4	O	.15	.20	88.9	88.9	17
5	66	18	3.56	.53	1.03	.2	.86	.0	P	.34	.35	55.6	68.9	05
18	68	18	4.19	.59	1.01	.2	1.02	.3	Q	.25	.28	77.8	77.8	18
28	71	18	5.86	1.04	1.00	.5	.68	.2	R	.17	.14	94.4	94.4	28
45	71	18	5.86	1.04	1.00	.3	.68	.2	S	.17	.14	94.4	94.4	45
16	66	18	3.56	.53	.99	.0	.84	-.1	T	.36	.35	55.6	68.9	16
44	56	18	.62	.60	.99	.1	.93	.0	U	.56	.49	83.3	82.0	44
51	69	18	3.28	.52	.99	.0	.89	.0	V	.38	.37	66.7	67.8	51
24	71	18	5.86	1.04	.95	.2	.54	.1	W	.22	.14	94.4	94.4	24
46	67	18	3.86	.56	.95	-.1	.90	.1	v	.34	.32	77.8	72.8	46
14	70	18	5.08	.77	.94	.1	.61	.0	u	.20	.20	88.9	88.9	14
26	59	18	1.63	.55	.93	-.1	.91	-.1	t	.42	.48	77.8	76.7	26
29	62	18	2.48	.52	.93	-.2	.84	-.3	s	.47	.44	72.2	68.7	29
43	69	18	4.57	.66	.93	.0	.75	.1	r	.31	.25	83.3	83.3	43
1	70	18	5.08	.77	.90	.0	.54	.0	q	.32	.20	88.9	88.9	01
22	67	18	3.86	.56	.90	-.3	.75	-.1	p	.40	.32	66.7	72.8	22
21	56	18	.62	.60	.86	-.2	.87	-.1	o	.60	.49	83.3	82.0	21
7	63	18	2.75	.51	.84	-.7	.76	-.5	n	.52	.42	77.8	67.0	07
30	65	18	3.28	.52	.84	-.8	.73	-.4	m	.49	.37	77.8	67.8	30
4	68	18	4.19	.59	.82	-.5	.65	-.2	l	.42	.28	77.8	77.8	04
41	57	18	.98	.59	.82	-.3	.82	-.2	k	.34	.49	83.3	80.7	41
35	60	18	1.93	.54	.78	-.7	.80	-.4	j	.55	.47	83.3	73.8	35
33	63	18	2.75	.51	.70	-1.5	.63	-.9	i	.62	.42	88.9	67.0	33
36	61	18	2.21	.53	.66	-1.3	.57	-1.2	h	.67	.46	77.8	71.2	36
23	59	18	1.63	.55	.62	-1.1	.63	-.9	g	.65	.48	88.9	76.7	23
2	57	18	.98	.59	.57	-1.0	.60	-.8	f	.53	.49	94.4	80.7	02
48	57	18	.98	.59	.57	-1.0	.60	-.8	e	.53	.49	94.4	80.7	48
32	54	18	-.09	.59	.40	-1.6	.38	-1.5	d	.60	.46	94.4	81.7	32
13	58	18	1.32	.57	.39	-1.9	.30	-2.0	c	.80	.49	94.4	78.8	13
47	54	18	-.09	.59	.28	-2.1	.22	-2.3	b	.80	.46	94.4	81.7	47
39	55	18	.26	.60	.13	-2.9	.10	-2.9	a	.71	.48	100.0	82.5	39
MEAN	64.0	18.0	3.32	.78	.99	.0	1.02	.0			78.3	78.0		
P.SD	5.9	.0	2.19	.44	.40	1.1	.81	1.2			14.3	7.9		

To determine the overall quality of the instrument, the following summary statistical table shows a good indication of both the response pattern, item quality and interaction between items and persons.

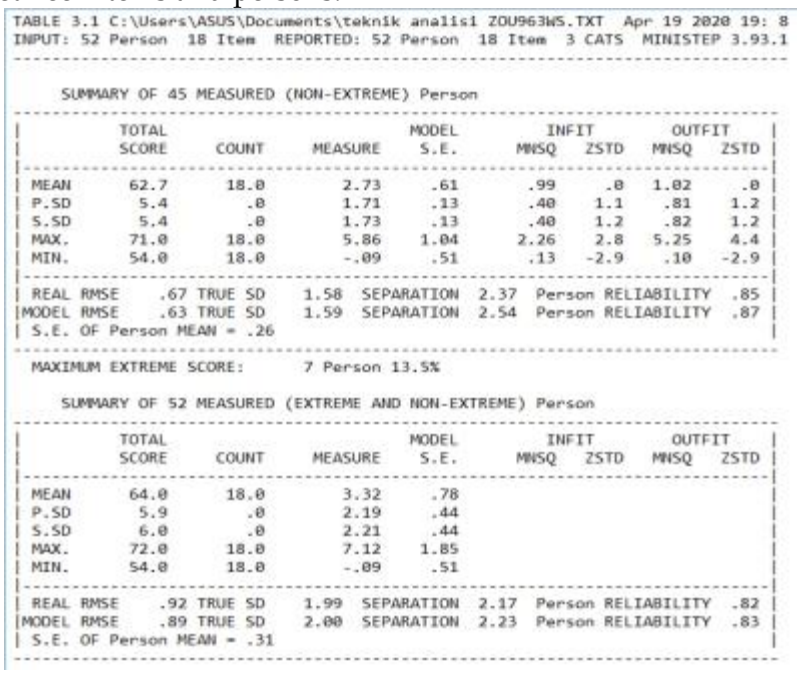


TABLE 3.1 C:\Users\ASUS\Documents\teknik analisi ZOU963WS.TXT Apr 19 2020 19: 8
INPUT: 52 Person 18 Item REPORTED: 52 Person 18 Item 3 CATS MINISTEP 3.93.1

SUMMARY OF 45 MEASURED (NON-EXTREME) Person

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	62.7	18.0	2.73	.61	.99	.0	1.02	.0
P.SD	5.4	.0	1.71	.13	.40	1.1	.81	1.2
S.SD	5.4	.0	1.73	.13	.40	1.2	.82	1.2
MAX.	71.0	18.0	5.86	1.04	2.26	2.8	5.25	4.4
MIN.	54.0	18.0	-.09	.51	.13	-2.9	.10	-2.9

REAL RMSE .67 TRUE SD 1.58 SEPARATION 2.37 Person RELIABILITY .85
MODEL RMSE .63 TRUE SD 1.59 SEPARATION 2.54 Person RELIABILITY .87
S.E. OF Person MEAN = .26

MAXIMUM EXTREME SCORE: 7 Person 13.5%

SUMMARY OF 52 MEASURED (EXTREME AND NON-EXTREME) Person

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	64.0	18.0	3.32	.78				
P.SD	5.9	.0	2.19	.44				
S.SD	6.0	.0	2.21	.44				
MAX.	72.0	18.0	7.12	1.85				
MIN.	54.0	18.0	-.09	.51				

REAL RMSE .92 TRUE SD 1.99 SEPARATION 2.17 Person RELIABILITY .82
MODEL RMSE .89 TRUE SD 2.00 SEPARATION 2.23 Person RELIABILITY .83
S.E. OF Person MEAN = .31

In the summary of the person response pattern, the infit value and outfit means square are close to the perfect value (1.0). The infit value and outfit z-std are close to the ideal value, namely 0.0. Person's reliability value also shows satisfactory reliability (0.85). The value of separation (separation) 2.37. The person strata value which has a price of 3 indicates the existence of three groups of respondents (the ability to strongly agree, agree and disagree). This reflects the diversity of ability (heterogeneous), which

shows the representation of the ability of prospective teachers who take the test based on data from the questionnaire that has been taken.

Person RAW SCORE-TO-MEASURE CORRELATION = .98
CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .92 SEM = 1.68

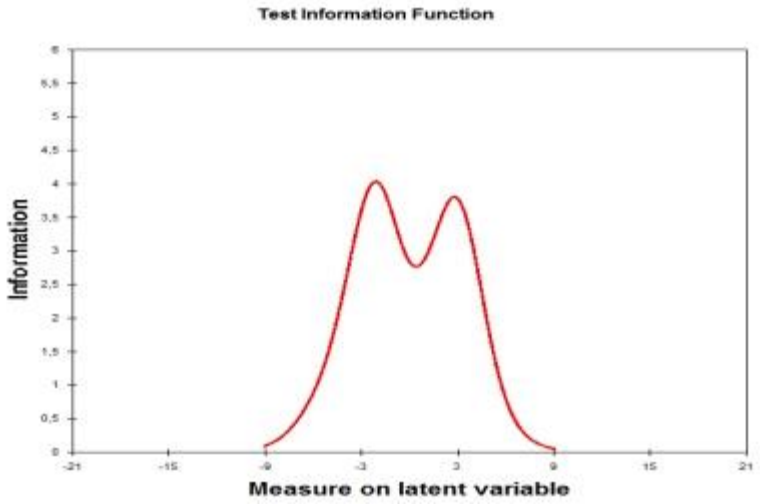
SUMMARY OF 18 MEASURED (NON-EXTREME) Item

	TOTAL SCORE	COUNT	MEASURE	MODEL S.E.	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN	184.8	52.0	.00	.38	.98	-.2	1.02	-.1
P.SD	7.9	.0	1.20	.06	.42	1.7	.56	1.6
S.SD	8.1	.0	1.23	.06	.43	1.8	.57	1.7
MAX.	205.0	52.0	1.45	.63	2.23	4.2	2.30	3.7
MIN.	174.0	52.0	-3.52	.35	.48	-2.9	.37	-2.6

REAL RMSE	.41	TRUE SD	1.13	SEPARATION	2.78	Item RELIABILITY	.89
MODEL RMSE	.39	TRUE SD	1.14	SEPARATION	2.95	Item RELIABILITY	.90
S.E. OF Item MEAN = .29							

In the aspect of interaction between person and item, the Cronbach alpha index is good (0.92). As in the previous table, information about the instrument also shows that the infit value and outfit means square are close to their supposed value (1.0), the same is true for the infit value and outfit z-std (close to 0.0). The item reliability index shows very good 0.89, and the item separation value is 2.78 which shows that the question items used can classify the ability of prospective teachers.

In the following information function graph, it can be seen that large information can be obtained on the measure value between -3 and 3, this indicates that the level of the question used is indeed a little more difficult and can provide good information for individuals whose ability is slightly higher (strongly agree) than moderate ability (agree).



From the results that have been submitted, the number of respondents agreed to develop a learning MOOCs, especially in the current Covid 19 pandemic conditions. MOOCs currently exist more towards full online learning. However, the reality in the field of unequal infrastructure such as the internet network must be a consideration. Therefore, other research suggested that the development of Augmented Reality-assisted MOOCs, it is possible to facilitate and be more flexible, both syncronically and asyncronously, is needed to overcome these problem conditions (Iqbal, M. Z., Mangina, E., & Campbell, 2019; Ibáñez, M. B., & Delgado-Kloos, C. 2018). With the

existence of MOOCs that would be developed, it is hoped that they can provide contributions and alternatives in learning as an innovative solution, especially when combined with Augmented Reality technology, which is currently a trend in virtual learning technology. By using Augmented Reality as an alternative learning media, it contributed in learning activities can be more attractive to students and benefit obtained is a more advanced learning media by taking advantage of current technological developments. Mustaqim & Kurniawan (2017) added that Through Augmented Reality it can be a solution to overcome modules or trainers which are quite expensive and cannot be bought by schools. Students can still do practicum by seeing items like the original.

CONCLUSION

Based on the analysis conducted on the results of the response to the needs of prospective teachers to the blended learning model based on MOOCs and augmented reality, it can be concluded that the quality of the response questionnaire to the needs of the MOOCs and augmented reality based blended learning model is very good. So that it can be used to test all the data used. The 18 question items used are valid and reliable as evidenced by the value of rcount> rtabel, namely alpha 0.878> 0.273 and the percentage obtained is 88.86% who are in the strongly agree category according to the Likert scalable interpretation table. Even so, further research needs to be done to get the results of teacher candidate responses for a wider coverage area. Based on the analysis of variable maps, it appears that there are seven prospective teachers / respondents (08, 09, 15, 38, 42, 49, 50) who have the highest level of ability (strongly agree), the seven prospective teachers / respondents get the maximum score that can obtained. Getting the highest ability is (+6 logit). From the questionnaire data, the questions with the lowest difficulty level were question 1 (P1), prospective teachers / respondents with low ability (disagree) respondents number 32 and 47. At the time of analyzing the questions in the questionnaire, the total count column reads number 52 means that all prospective teachers / respondents answered every question that had been given. From this table, order the difficulty levels from highest (P18) to lowest (P1), which is shown in the Measure column. In the following information function graph, it can be seen that large information can be obtained on the measure value between -3 and 3, this indicates that the level of the question used is indeed a little more difficult and can provide good information for individuals whose ability is slightly higher (strongly agree) than moderate ability (agree).

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The author would like to thank all respondents or prospective teachers who have been willing to work together to obtain the data needed in this study as well as other parties who have helped.

AUTHOR CONTRIBUTION STATEMENT

The Author Contributions Statement can be up to several sentences long and should briefly describe the tasks of individual authors. Please list only 2 initials for each author, without full stops, but separated by commas (e.g. JC, JS). In the case of two authors with the same initials, please use their middle initial to differentiate between them (e.g. REW, RSW). The Author Contributions Statement should be included at the end of the manuscript before the References. The Author Contributions Statement can be up to several sentences long and should briefly describe the tasks of

individual authors. Please list only 2 initials for each author, without full stops, but separated by commas (e.g. JC, JS). In the case of two authors with the same initials, please use their middle initial to differentiate between them (e.g. REW, RSW). The Author Contributions Statement should be included at the end of the manuscript before the References.

REFERENCES

Auster, C. J. (2016). Blended learning as a potentially winning combination of face-to-face and online learning: An exploratory study. *Teaching Sociology*, *44*(1), 39-48. https://doi.org/10.1177%2F0092055X15619217

Cheung, S. K., & Wang, F. L. (2019). Blended learning in practice: guest editorial. *Journal of Computing in Higher Education*, *31*(2), 229-232. https://doi.org/10.1007/s12528-019-09229-8

Emigawaty. (2017). Perancangan Arsitektur Dan Purwarupa Model Pembelajaran Massive Open Online Course (Moocs) Di Perguruan Tinggi Menggunakan Layanan Mobile. *Jurnal Ilmiah DASI*, *18*(1), 25–30. Google Scholar

Handayani, M. W., Swistoro, E., & Risdianto, E. (2018). Pengaruh Model Pembelajaran Problem Solving Fisika terhadap Kemampuan Penguasaan Konsep dan Kemampuan Pemecahan Masalah Siswa Kelas X MIPA SMAN 4 Kota Bengkulu. *Jurnal Kumparan Fisika*, *1*(3), 36–44. Google Scholar

Hayati, S., & Lailatussaadah, L. (2016). Validitas Dan Reliabilitas Instrumen Pengetahuan Pembelajaran Aktif, Kreatif Dan Menyenangkan (Pakem) Menggunakan Model Rasch. *Jurnal Ilmiah Didaktika*, *16*(2), 169. https://doi.org/10.22373/jid.v16i2.593

Husna, J. (2019). Implementasi MOOCs di Pendidikan Ilmu Perpustakaan dan Informasi (Sebuah Peluang dan Tantangan di Indonesia). *Anuva: Jurnal Kajian Budaya, Perpustakaan, Dan Informasi*, *3*(3), 247–256. https://doi.org/10.14710/anuva.3.3.247-256

Ibáñez, M. B., & Delgado-Kloos, C. (2018). Augmented reality for STEM learning: A systematic review. *Computers & Education*, *123*, 109-123. https://doi.org/10.1016/j.compedu.2018.05.002

Iqbal, M. Z., Mangina, E., & Campbell, A. G. (2019, October). Exploring the use of augmented reality in a kinesthetic learning application integrated with an intelligent virtual embodied agent. In *2019 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)* (pp. 12-16). IEEE. Google Scholar

Kamelia, L. (2019). *Perkembangan Teknologi Augmented Reality Sebagai Media Pembelajaran Interaktif Pada Mata Kuliah Kimia Dasar*. *9*(1), 238–253. Google Scholar

Medina, L. C. (2018). Blended learning: Deficits and prospects in higher education. *Australasian Journal of Educational Technology*, *34*(1). https://doi.org/10.14742/ajet.3100

Mustaqim, I., & Kurniawan, N. (2017). Pengembangan Media Pembelajaran Berbasis Augmented Reality. *Jurnal Edukasi Elektro*, *1*(1), 36–48. https://doi.org/10.24252/lp.2018v21n1i6

Oktaria, S. D., Budiningsih, A., & Risdianto, E. (2018). Model Blended Learning Berbasis Moodle. In *Halaman Moeka Publishing*. Google Scholar

Pragestu, S., Sujiani, H., & Negara, A. B. P. (2015). Implementasi Augmented Reality dengan Memanfaatkan GPS Based Tracking pada Sistem. *Jurnal Edukasi Dan Penelitian Informatika (JEPIN)*, *1*(2), 122–127. Google Scholar

Priono, A. I., Purnawan, P., & Komaro, M. (2018). Pengaruh Penerapan Model

Pembelajaran Blended Learning Terhadap Hasil Belajar Menggambar 2 Dimensi Menggunakan Computer Aided Design. *Journal of Mechanical Engineering Education*, *5*(2), 129–140. https://doi.org/10.17509/jmee.v5i2.15179

Putrawangsa, S., & Hasanah, U. (2018). Integrasi Teknologi Digital Dalam Pembelajaran Di Era Industri 4.0 Kajian dari Perspektif Pembelajaran Matematika. *Jurnal Tatsqif*, *16*(1), 42–54. https://doi.org/10.20414/jtq.v16i1.203

Redhana, I. W. (2019). Mengembangkan Keterampilan Abad Ke-21 Dalam Pembelajaran Kimia. *Jurnal Inovasi Pendidikan Kimia*, *13*(1), 2239–2253.

Risdianto, E. (2019). Development of Blended Learning Based on Web and Augmented Reality. *1st International Conference on Educational Sciences and Teacher Profession (ICETeP 2018)*, *295*, 144–147.https://dx.doi.org/10.2991/icetep-18.2019.35

Risdianto, E., Darmawan, A., Kristiawan, M., Wachidi, & Riyanto. (2020). Rasch Model Analysis On The Feasibility Test Of Basic Physics II Practical Guide Using Augmented Reality. *ARPN Journal of Engineering and Applied Sciences*, *15*(4), 482–490.

Siahaan, A. D., Medriati, R., & Risdianto, E. (2019). Pengembangan Penuntun Praktikum Fisika Dasar Ii Menggunakan Teknologi Augmented Reality Pada Materi Rangkaian Listrik Dan Optik Geometris. *Jurnal Kumparan Fisika*, *2*(2), 91–98. https://doi.org/10.33369/jkf.2.2.91-98

Solihudin JH, T. (2018). Pengembangan E-Modul Berbasis Web Untuk Meningkatkan Pencapaian Kompetensi Pengetahuan Fisika Pada Materi Listrik Statis Dan Dinamis Sma. *WaPFi (Wahana Pendidikan Fisika)*, *3*(2), 51. https://doi.org/10.17509/wapfi.v3i2.13731