THE READINESS ANALYSIS OF BLENDED LEARNING IN FLORES UNIVERSITY

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Abstract— *This research aims to know the readiness of blended learning in Flores University area especially in the study program of Information System. This research used a survey research approach with 113 people for the sample. For the data collection, this research used used questionnaire of Likert scale. To analyze the data, this research uses factor analysis in the readiness of adopted learning by Aydin and Tasci. The result of this research were: (1) normally test result showed that all the data are normally distributed because each variable was more than 0,05. (2) The point of KMO MSA was 0,533>0,50 and the point of Barlett's Test of Sphericity (sig.) was 0,000<0,05, it means that the factor analysis can continue. (3) The value of MSA for all variables was >0,50, it means the factor analysis is fulfilled. (4) The extraction value for all the variables was >0,50. So it can be concluded that all the variables are used to explain the factor. (5) The value of Eigenvalues component 1 was 1,858> 1, so it becomes a factor of 1 and can explain 46.453% of the variation. Meanwhile, the value of Eigenvalues component 2 is 1,225>1 so it becomes a factor of 2 and can explain 30,633% of the variation. (6) from the two factors formed, it was feasible to summarize the four variables analyzed. This means that the four variables have the readiness to carry out blended learning at Flores University.*

Keywords: Blended Learning, ELR Readiness

Penelitian ini bertujuan untuk mengetahui kesiapan *blended learning* di Lingkungan Universitas Flores khususnya program studi Sistem Informasi. Penelitian ini menggunakan pendekatan penelitian survei dengan jumlah sampel penelitian ini sebanyak 113 orang. Pengumpulan data menggunakan kuesioner dengan skala Likert. Analisis data pada penelitian ini menggunakan analisis faktor dengan pendekatan kesiapan *learning* yang diadopsi dari Aydin dan Tasci. Hasil penelitian menunjukkan: (1) Hasil Uji Normalitas menunjukkan semua data berdistribusi normal karena masing-masing variable lebih besar dari 0,05. (2) Nilai KMO MSA sebesar 0,533 > 0,50 dan nilai *Bartlett's Test of Sphericity* (Sig.) 0,000 < 0,05, dari hasil tersebut menunjukkan analisis faktor dapat dilanjutkan. (3) Nilai MSA untuk semua variable yang diteliti adalah > 0,50, menunjukkan analisis faktor ini terpenuhi. (4) Nilai *Extraction* untuk semua variable adalah > 0,50. Dengan demikian dapat disimpulkan bahwa semua variable dapat dipakai untuk menjelaskan faktor. (5) Nilai *Eigenvalues* komponen 1 sebesar 1,858 > 1 maka menjadi faktor 1 dan mampu menjelaskan 46,453% variasi. Sedangkan nilai *Eigenvalues* komponen 2 sebesar 1,225 > 1 maka menjadi faktor 2 dan mampu menjelaskan 30,633% variasi. (6) Dari kedua faktor yang terbentuk ini layak untuk merangkum keempat variable yang dianalisis. Hal ini berarti dari keempat variable memiliki kesiapan untuk melaksanakan pembelajaran *blended learning* di Universitas Flores.

Kata Kunci: *Blended Learning*, Kesiapan ELR

INTRODUCTION

The rapid advancement of information technology offers convenience in learning. A learning model that was originally only done face to face in the classroom, there is another option of learning model that can be used now. It is a learning model that combines or blends several learning models. That learning model is called Blended Learning [1].

A learning method in Flores University especially in the study program of Information System is conventional model, where lecturers spend more time in the classroom to explain in detail about the material, this is considered less effectibe because the unversity students only listen dan do not have the ability to be creative with the material that has been learned [1]. Besides that, the conventional method also makes students less developed in studying. The reason is they are

confronted to conventional method that generally only rely on the materials from the lecturers without reading for more or finding out more material independently outside of class hours.

To solve the problems related to learning process, there are some appropriatet innovations needed in the implementation of learning metode especially for the study program of Information System. One solution for it is the implementation of blended learning that combines the conventional learning and e-learning by MOODLE [2]. The implementation of this model wasa done in Covid-19 (Coronavirus disease) Pandemic and received the possitive response from the university students.

For implementing this learning model, there is the readiness of blended learning in the Information System study program area. The measurement of blended learning readiness is needed to know the right strategy in the learning process by using blended learning [2]. The research about learning readiness of blended learning also refers to the results of previous research [3]. It is proved successful in showing that learning through blended learning produces the biggest togetherness feeling than through conventional learning or learning that is used e-learning model only. And it is supported by some opinion [4] basically, blended learning is a combination of excellent learning that done by facing each other (face to face learning) dan by virtual learning (e-learning).

According to the explanation above, to know the learning readiness of blended learning at Flores University by using the Aydin and Tasci approach [5]. 4 factors will be evaluated to measure the learning readiness of blended learning such as Technology, Personal, Innovation dan Self Development.

MATERIAL AND METHOD

The method for this research is the survey method. The survey method is done by taking some samples from the population by using a simple random sampling [6]. The research subjects are university students and the lecturers in the Information System study program which is a part of the Information Technology Faculty of Flores University. The population is 158 people. For calculating the sample is by using Slovin formula [7], so there are 113 people for the research sample.

The Data Collection Method

This research instrument is a questionnaire. To know the readiness of blended learning, the readiness model is used. The Readiness index Indeks readiness of Aydin ad Tascii version with a scale of 1-5 [8]. The learning readiness of blended learning shows the readiness of an organization on some aspects in implementing a conventional study and e-learning. The readiness is not only about the students or the lecturers, but also about the readiness of the organization itself [9]. To measure the readiness of blended learning, the Aydin and Tasci model is used [5], which explained that there are four main factors to know the readiness of e-learning, such as (1) The technology factor, which is considering the way to make the technology of e-learning in school area to be effective. (2) The innovation factor, which is considering the experience of human resources in learning innovation by using technology; (3) The human factor, which is considering the characteristics of human resources in a learning process and (4) The self-development factor, which is considering the ability of an organization in applying the e-learning.

The Technique of Data Analysis

For Analyzing the data for this research, Statistical Product and Service Solution (SPSS) 22 for windows is used [10].

The Validity test is used to analyze each variable. To measure the validity questionnaire that is given to the respondent, a correlation technique od Moment Product is used. The statistical testing refers to the following criteria.
- r arithmetic < r table is invalid
- r arithmetic > r table is valid

The reliability of this research is done by calculating the Cronbach's Alpha value [11] of each testing variable's instrument. If the point of Cronbach's Convenient Alpha is > 0,6, the answer from the respondents in the questionnaires as the measurement is stated to be reliable. If the point of Cronbach's Convenient Alpha is < 0,6, the answer from the respondents in the questionnaires is stated to be unreliable.

The Normality test is used to know whether the data is distributed normally or not. For the data normality test, Kolmogrov-Smirnov with SPSS is used. The basic in choosing the Normality test are: (1) If the value of Asymp. Sig. (2 tailed) is > 0,05, the data is distributed normally if the value of Asymp. Sig. (2 tailed) is < 0,05, the data is not normally distributed.

The factor analysis aims to know which the best variable or the dominant variable of all the variables. There are some testing in the analysis factor:
1) KMO and Bartlett's Test is used to know the availability of a variable, whether the variable can keep being processed by using the technique of factor analysis or not when the

value from Kaiser Mayer Olkin Measure of Sampling Adequacy (KMO MSA) is > 0,50 and the value from Bartlett's Test of Sphericity(Sig.) is < 0,05.

2) Anti Image Matrices are used to know and decide the variables that can be used in factor analysis. This is known by the value of the Anti Image correlation of one variable to another variable is >0,50.

3) Communalities show whether the variable's value that is research can explain the factor or not. A variable that can explain the factor if the Extraction is > 0,50.

4) Total Variance Explained shows the value of each variable that is analyzed. The condition for being a factor is the value of Eigenvalues must be > 1.

5) The number of factors that are made. The way is by seeing the component point of Eigenvalue that must be > 1.

6) Rotated Component Matrix[a] aims to consider a variable will be put in a certain group of factor, it can be decided by seeing the biggest correlation between variable and factor (component) which is made.

7) Component Transformation Matrix can be decided by seeing the correlation value of all components is > 0,5.

RESULTS AND DISCUSSION

Validity Test

To achieve the valid data for this research can be a generalization, a validity and reliability test to the questionnaire's items in the research's variable is done. From the data analysis, the following are the results of the validity test:

Table 1. The Result of Validity Test

Item's No	r arithmetic	r table	Ket.
X1.1	0.72	0.185	Valid
X1.2	0.639	0.185	Valid
X1.3	0.655	0.185	Valid
X1.4	0.774	0.185	Valid
X1.5	0.474	0.185	Valid
X1.6	0.471	0.185	Valid
X2.1	0.589	0.185	Valid
X2.2	0.305	0.185	Valid
X2.3	0.583	0.185	Valid
X2.4	0.572	0.185	Valid
X2.5	0.614	0.185	Valid
X2.6	0.598	0.185	Valid
X3.1	0.64	0.185	Valid
X3.2	0.714	0.185	Valid
X3.3	0.741	0.185	Valid
X3.4	0.628	0.185	Valid
X3.5	0.676	0.185	Valid
X3.6	0.736	0.185	Valid
X4.1	0.446	0.185	Valid
X4.2	0.485	0.185	Valid
X4.3	0.613	0.185	Valid
X4.4	0.475	0.185	Valid
X4.5	0.457	0.185	Valid
X4.6	0.535	0.185	Valid

According to Table 1, all items of the Questionaire in 4 (four) variables are valid, because all questionnaire items have the Corrected Item-Total Correlation which is bigger than the table.

Reliability Test

The reliability test in this research is done by calculating the value of Cronbach's Alpha's instrument from each research variable that is tested. Following are the results of the reliability test:

Table 2. The Result of Reliability Test

Factor	Cronbach's Alpha	Ket.
Personal	0.694	Reliable
Selft_Development	0.622	Reliable
Technology	0.770	Reliable
Innovation	0.782	Reliable

Based on Table 2, the result for 4 (four) variables has the convenient Cronbach's alpha that is biggest than 0,6, so the conclusion is the research's instrument is reliable.

Normality Test

The data's normality test uses Kolmogorov-Smirnov with SPSS. The normality test is done to gain a proper statistic analysis. Following are the results of the normality test:

Table 3. The Result of Normality Test
One-Sample Kolmogorov-Smirnov Test

		Person al	Self_Dev elopment	Techno logy	Innovat ion
N		113	113	113	113
Normal Parameters.b	Mean	20.51	19.20	20.47	18.58
	Std. Deviati on	4.730	3.899	4.939	3.736
Most Extreme Differe nces	Absolu te	.085	.113	.104	.104
	Positiv e	.065	.104	.104	.104
	Negati ve	-.085	-.113	-.087	-.085
Kolmogorov-Smirnov Z		.906	1.204	1.105	1.102
Asymp. Sig. (2-tailed)		.385	.110	.174	.176

a. Test distribution is Normal.
b. Calculated from data.

Based on the results of the One-Sample Kolmogorov-Smirnov Test, the value of Asymp. Sig. (2 tailed) for each variable is bigger than 0,05, so it means that the data is normally distributed.

Factor Analysis Test

In the normality test, it is known that the data distributed normally. The next step is the test of

factor analysis. There are some tests in factor analysis test:

1) KMO and Bartlett's Test

KMO and Bartlett's Test aims to know whether a variable is able to keep processed by using the analysis technique of factor analysis or not. The results can be seen on the Table 4.

Table 4. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.533
Bartlett's Test of Sphericity	Approx. Chi-Square	91.246
	Df	6
	Sig.	.000

Table 4 shows that the value off KMO MSA is 0,533 > 0,50 and the value of Bartlett's Test of Sphericity (Sig.) is 0,000 < 0,05, from the result, it means that the factor analysis can be continued because it already keeps the first condition.

2) Anti Image Matrices

Anti Image Matrices aims to know and decide what are the variables that can be used in factor analysis. The results are in Table 5.

Table 5. Anti-image Matrices
Anti-image Matrices

		Perso nal	Self-Developm ent	Technol ogy	Innovati on
Anti-image Covaria nce	Personal	.426	.130	-.212	-.191
	Self_Develop ment	.130	.171	-.172	-.155
	Technology	-.212	-.172	.317	.139
	Innovation	-.191	-.155	.139	.210
Anti-image Correlati on	Personal	,455[a]	.481	-.577	-.637
	Self_Develop ment	.481	,470[a]	-.741	-.815
	Technology	-.577	-.741	,446[a]	.540
	Innovation	-.637	-.815	.540	,459[a]

a. Measures of Sampling Adequacy(MSA)

Table 5 shows that the MSA's value for all researched variables is > 0,50, so the second condition to factor analysis is also kept.

3) Communalities

Communalities shows that whether the researched variables' values can explain the factor or not. The variable can explain the factor if the Extraction is > 0,50. The results are in Table 6.

Table 6. *Communalities*

	Initial	Extraction
Personal	1.000	.705
Self_Development	1.000	.701
Technology	1.000	.835
Innovation	1.000	.842

Extraction Method: Principal Component Analysis.

Based on Table 6, the Extraction's values from all variable is > 0,50. So it can be concluded that all variables can explain the factor.

4) Total Variance Explained

Total Variance Explained shows the value of each analyzed variable. In this research, there are 4 variables. It means that 4 components are analyzed. There are 2 types of analysis to explain a variant, they are Initial Eigenvalues and Extraction Sums of Squared Loadings. Initial Eigenvalues shows the built factor. Meanwhile, the Extraction Sums of Squared Loadings shows the number of variants of the number of factors that are made. The results are in Table 7.

Tabel 7. Total Variance Explained
Total Variance Explained

Compone nt	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Tota l	% of Varian ce	Cumulati ve %	Tota l	% of Varian ce	Cumulati ve %
1	2.73 6	68.397	68.397	2.73 6	68.397	68.397
2	.608	15.191	83.588			
3	.576	14.389	97.977			
4	.081	2.023	100.000			

Extraction Method: Principal Component Analysis.

Based on Table 7 that is about Total Variance explained, The Initial Eigenvalues' part has 2 factors that can be formed. There is a condition for being a factor such as the Eigenvalues is > 1. The value of Eigenvalues component 1 is 1,858 > 1, so it becomes factor 1 and is able to explain 46,453 % variant. Meanwhile, the value of Eigenvalues component 2 is 1,225 > 1, so it becomes factor 2 and can explain 30,633% variant. The total of factor 1 and factor 2 shows that it can explain 77,086 variant.

5) Scree Plot

Scree Plot's image also shows several factors that are formed. It is by seeing the point of component that has Eigenvalue > 1. There are 2 points of component in the Scree Plot have the Eigenvalue > 1. It means that there are 2 factors formed. The results are in the Image 2.
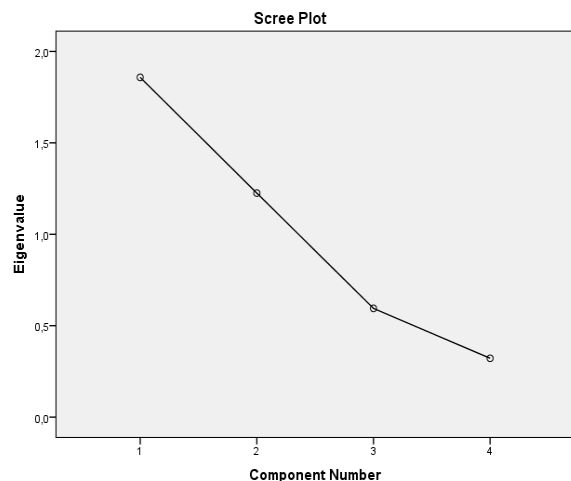

Image 2. *Scree Plot*

6) Rotated Component Matrix[a]

Rotated Component Matrix[a] aims to make sure a variable is placed in the right group of factors. It can be decided by seeing the biggest correlation value between the variable and the factor (component) that is made. Following is the model rotation's factor:

a) The Personal Variable. The value of correlation in the variable with the factor 1 = 0,059 and factor 2 = 0,838, because the correlation's value of factor 2 > factor 1, the personal variable is placed in the group of factor 2.

b) The Variable of Self-Development. The correlation value of the variable with the factor 1 = 0,098 and factor 2 = 0,832, because the correlation value of factor 2 > factor 1, the personal variable is placed in the group of factor 2.

c) The Technology Variable. The correlation's value of this variable with the factor 1 1 = 0,903 and factor 2 = 0,140, because the correlation's value of factor 1 > factor 2, the personal variable is placed in the group of factor 1.

d) The Innovation Variable. The correlation's value for this variable with the factor 1 = 0,917 and factor 2 = 0,034, because the correlation's value of factor 1 > factor 2, the personal variable is placed in the group of factor 1.

The results can be seen in Table 8.

Tabel 8. *Rotated Component Matrix[a]*

	Component	
	1	2
Personal	.059	.838
Self_Development	.098	.832
Technology	.903	.140
Innovation	.917	.034

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

7) Component Transformation Matrix

Component Transformation Matrix shows that at the component 1, the correlation's value is 0,838 > 0,5, and component 2 is 0,838 > 0,5. Because the correlation's values of all components are>0,5, it can be concluded that both factors that are made are usable for the four analyzed variables. The results are in Table 9.

Tabel 9. Component Transformation Matrix

Component	1	2
1	.838	.546
2	-.546	.838

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

CONCLUSION

Based on the analysis result and the content of this research, there are some things concluded. First is the Normality Test which is showing that all data is normally distributed. The reason is that each variable's value is bigger than 0,05. The second is the value of KMO MSA. The value is 0,533 > 0,50 and the Barlett's Test of Sphericity's value (sig) is 0,000 < 0,05. According to his result, it is known that factor analysis can be continued. The third is the value of MSA. Based on the analysis result, it can be known that the value of MSA for all variables is > 0,50, it shows that the factor analysis is kept. The forth is Extraction's value. The Extraction's value for all variable is > 0,50. Based on this result, it means that all variables can explain the factor. The fifth is the Eigenvalues. According to the analysis' result, the Eigenvalues component 1 is 1,858 > 1, so it becomes factor 1 and can explain 46,453 % variants. Meanwhile the Eigenvalues component 2 is 1,225 > 1, so it becomes factor 2 and is able to explain 30,633% variants. The total of factor 1 and factor two is usable to explain 77,086% variants. The sixth is after doing the test by using the factor analysis, it is known that both factors can explain the four analyzed variables. It means that the four variables have the readiness to do blended learning.

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