Convergence Analysis of Acceleration and Generalization of E-Learning in the Manifestation of Globalization Education Readiness 4.0

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Abstract. Education 4.0 is an education characterized by the use of digital technology in the learning process or known as a cyber system. In its implementation, online learning or what we know as e-learning today really determines the quality of education in every nation and country, coupled with the entry of the industrial era 4.0 which must manifest globalization learning without any limits, both in terms of time, distance, and cost. Utilization of E-learning will have a good impact on education. As a form of expression of online learning, the research team from the Putra Indonesia University YPTK Padang institution has implemented an online lecture system, facilitated by the Learning Management System (LMS) in the form of the Moodle Application. This research was conducted at Putra Indonesia University YPTK Padang with a population of all active students, while for a sample of 381 people, the sampling technique was Propotional Random Sampling using Slovin formula. As for the output of the results of this study, among others, it can be a reference material for accredited national journals and scopus. While the impact of the outcome of the research results will be referred to as a role model in online learning.

1. INTRODUCTION

Indonesia faces the fourth industrial revolution known as the Industrial Revolution 4.0. This is an era of disruptive innovation, where this innovation is growing very rapidly, so it can help create new markets. This innovation is also able to disrupt or damage existing markets and even more able to replace existing technologies. Facing the big challenges, education is required to be able to change from the conventional paradigm. Education 4.0 is an education characterized by the use of digital technology in the learning process or known as a *cyber system*. In its implementation, online learning or what we know as e-learning today really determines the quality of education in every nation and country, coupled with the entry of the industrial era 4.0 which must manifest globalization learning without any limits, both in terms of time, distance, and cost. Utilization of E-learning will have a good impact on education.

E-learning is a media that is student-centered learning, where the teacher acts more as a facilitator, mentor, trainer, and friend to learn while students are more involved as active participants in the learning process. One of the advantages of e-learning as a learning medium is that it can be accessed 24 hours, so there is no limit to students in seeking information for subjects presented and can hone the student's pattern of reference.

As the front guard in the world of education, teaching staff, both lecturers and teachers, must upgrade competencies in the face of the Education 4.0 era. The students faced by teachers and lecturers today are millennial generations who are no stranger to the digital world. Students are familiar with industrial information and technology 4.0. This shows that the graduated school or university products must be able to answer the challenges of industry 4.0. Many factors influence the manifestation of globalization 4.0 education preparation including the existence of accelerated convergence and elearning generalization.

Elearning convergence is a combination of face to face and online systems carried out by students and teachers / lecturers. With the combination of e-learning, students are expected to be able to better understand the material provided and become students who have high-quality mindset. The education era 4.0 is a very difficult challenge faced by teaching staff. If it does not change the way to educate and teach, then in the next few years we will experience great difficulties. Education and learning that are loaded with knowledge content overrides the content of attitudes and skills as currently implemented will result in students who are not able to compete with machines. Therefore there is a need for the role of educators who understand the development of era 4.0. With the awareness of the teaching staff about it, students will be able to focus on this e-lerning convergence.

Learning systems with e-learning models are believed to help accelerate the process of education and improve the quality of education. Acceleration in terms. Acceleration of learning as a way to create learning activities a fun process. To welcome education that is in line with the times, thus competencies are needed to be able to compensate for the presence of technological developments in the era of Education 4.0. The required competency is one of the projections of 21st century competency needs. The

realization of success in this era 4.0 education is influenced by the manifestation of every element involved, both teaching staff, students, and technological devices as supporting elements. Teachers in the industrial revolution era must improve their understanding in expressing themselves in the field of media literacy, understand the information that will be shared with students and find analysis to solve the problems of digital literacy academics. On the other hand, students are also required to be able to collaborate in changing the educational paradigm by developing patterns of thinking and strengthening education-based digitalization of applications.

As a form of expression of online learning, the research team from the Putra Indonesia University YPTK Padang institution has implemented an online lecture system, facilitated by the Learning Management System (LMS) in the form of the Moodle Application. Therefore, it is necessary to have a study that aims to see the combination of elearning, and acceleration of e-learning in the future. So that every element involved in advancing Indonesian education can manifest its readiness in media and digital literacy.

The emergence of the 4.0 industrial era has become a challenge and opportunity that can encourage innovation and creation in all sectors of work, including the world of education. Therefore the Government needs to consider the relevance of the application of distance learning (*online*) and respond to changes, challenges, and opportunities while taking into account*humanities*. One approach that can be applied in implementing learning in Higher Education (PT) is distance learning (PJJ) throughlearning *online* (*Elearning*). The concept of *e-learning* is an era of transformation of conventional educational activities into digital forms both in*contents*and systems. This learning model is believed to be able to help and encourage world education institutions to be able to improve service and learning processes more flexibly without being limited by time, geographical location and student presence on campus. In English it is known as '*online learning*', '*e-learning*', '*web-based learning*' which basically refers to 'learning in the network.' Dabbagh & Bannan Ritland (2005, p. 15) online learning is explained as' open learning distributed through internet networks or Web-based networks, to facilitate learning and development of knowledge through meaningful interaction and learning activities.

Even though at the beginning of the emergence of many people doubted and witnessed that this learning model could eliminate*humanities,* interactions between students and their lecturers. The results of research in several countries found a tendency for *drop-out* students asparticipants

elearning, such as the Park & Choi (2009) study, which stated that *drop-out rates* studentreached 54% in America, while the Nistor & Neubauer (2010) study *drop-out* students in Germany reached 23.9%. Therefore, it needs high attention for educational institutions to be able to increase the readiness of online learning not only from the point of view of their students, but also related to the readiness of all existing elearning service provider components. Both from the existing infrastructure and related to human resources owned by the institution, in order to maximize the achievement of student learning outcomes in college.

This study tries to find out and analyze the factors that influence the readiness oflearning *online* for students at Putra Indonesia University YPTK Padang in participating inlearning *online.* Preliminary observations on students at Putra Indonesia University YPTK Padang, about how students perceive themselves to be able to manage changes in patterns and ways of interaction of lecturers in the use of information and communication technologies that are directly related to student readiness in online learning, indicate a degree of student readiness in online learning. . Even though at the initial stage, it takes time and socialization for students and lecturers, related to the technical use of information technology which is a bit complicated. However, along with the time of elearning learning the benefits began to be felt for students and lecturers including educational institutions. So that the quality of online education is able to provide better achievement of educational goals.

Kaminski, Switzer, & Gloeckner (2009), states that the quality of student interaction in learning depends on the technology used and the ability or readiness of students to use information technology. Research related to online learning readiness conducted by Kaur & Zoraini (2004), shows that only one third of students feel ready for e-learning at the Open University of Malaysia. Hung's findings, ML et al. (2010) which examined participants' readiness to conclude that high student readiness was in self-efficacy, motivation to learn. Furthermore, Cigdam and Yildirim's (2014) study of the online learning habits, found that overall students had readiness in online learning, but they had to improve their self-efficacy towards computers and their self-efficacy in online communication.

From this description the study sought to analyze interaction readiness to learn*(readiness)*online learning students by making learning culture, strength of character and satisfaction of learning as a determinant factor in predicting online learning readiness of students at the University Putra Indonesia YPTK Padang.

2. LITERATUR REVIEW

The concept of online learning began to be introduced along with the increase in the use of technology both among educators and students. The aim is to streamline the learning process, and reduce the limitations that are often encountered in the learning process, in relation to the flexibility of time and place. According to Allen (2013), E-Learning is learning that is structured with the aim of using electronic systems or computers so that it can support the learning process. E-learning (electronic learning) can also be regarded as one aspect of the application of ICT in the world of education in the delivery of learning content or electronic learning experiences using computers and computer-based media. Today in the world, more than a thousand institutions in 50 countries have used e-learning to support their learning activities (Bhuasiri et.al, 2012).

Readiness for online learning is defined as mental or physical readiness of an organization or individual for learning experiences (Borotis & Poulymenakou, 2004). Readiness of online learning is very important because in the implementation of e-learning there are often various obstacles (resistance) such as resistance, computer literacy, limited human resources, infrastructure to organizational culture (Mungania, 2003). In addition, the elearning model itself is designed to simplify the process of obtaining basic information needed in developing e-learning. Therefore, online learning readiness must also be the main concern of the organization before deciding to implement e-learning. Satisfaction is the feeling of being happy or disappointed someone who appears after comparing the performance (results) that are thought of the expected performance (or results). Own satisfaction is the result of differences between expectations and perceived performance (Londong, 2012). When attending online learning, students will personally assess whether they are satisfied or dissatisfied with the learning process that they are going through (Robbins & Judge, 2007). Learning satisfaction is an

affective element that occurs when students feel there is consistency between hope and experience. In other words, students who have a high level of satisfaction in their learning activities, it is certain that they will also have high readiness in learning online. If the expectations are met or the reality experienced exceeds expectations, then students feel learning satisfaction (Chang & Chang, 2012).

Culture is a system of values and beliefs that interact with people in an organization, organizational structure and control systems that produce behavioral norms (Pabundu, 2006). Learning culture is a reflection of the quality of academic life that grows based on the enthusiasm and values embraced by an educational institution, environment, atmosphere, taste, and climate that is able to develop intelligence, student skills that are expressed in the form of cooperation in discipline, responsibility, and motivation to learn. A student who has a high learning culture will always prepare himself to be able to learn to the fullest, which will directly have habits that support a high level of learning readiness in all his activities at school.

Another factor that is also thought to determine the level of readiness for online learning, is the strength of character. Character strength is as a form of value or potential possessed by someone or learner who can support the implementation of his teaching and learning activities. Peterson and Seligman (2004), character strength is a psychological element that includes processes and mechanisms, which provide definitions of virtue. Character strength is defined as a mental process that helps a person to think and behave in ways that can improve the quality of work and their life experiences, and increase interest in their environment (McCullough & Snyder, 2000, in Litman & Davidovitch, 2010). Through character strengths such as interest, talent and motivation, students will have the ability to understand and follow an online learning model. In other words, the strength of character possessed by students will be able to direct all attitudes and behaviors to readiness for online learning. Therefore the strength of character is also considered as a reflection of a person's potential to achieve personal welfare and contribute to the workplace and the environment around them (Peterson & Seligman, 2004).

3. RESEARCH METHODOLOGY

Associative research methods according to **Sugiyono (2013)** are studies that aim to determine the influence or also the relationship between two or more variables. In this study, descriptive and associative research methods were used to determine the effect of accelerated convergence and generalization of e-learning in the manifestation of globalization education readiness 4.0

3.1 Population and Samples

3.1.1. Population

According to **Sugiyono (2013),** population is a generalization region consisting of objects / subjects that have quality and certain characteristics set by the researcher to be studied then conclusions drawn. The population in this study were all UPIYPTK Padang students in the even semester 2018-2019 who participated in 8,000 elearning.

3.1.2. Sample

According to **Sugiyono (2013), the** sample is part of the number and characteristics possessed by the population. If the population is large, and researchers and it is not possible to learn all that exists in the population, for example due to limited funds, energy, and time, the researcher can use samples taken from that population. The sampling technique used in this study is *proportional random sampling* . According to **Sugiyono** (2013), *proportional random sampling* is sampling that takes into account the consideration of elements or categories in the study population.

One method used to determine the number of samples is using the Slovin formula as follows.

$$n = \frac{N}{1 + Ne^2}$$

N = number of isolation
e = error tolerance limit 0.05

Based on the results of the above formula, the number of students of Putra Putra Indonsia is 8000 people. So the number of samples obtained is 381 people.

3.2 Test Research Instruments
To test the instruments used in this study, validity and reliability testing tools are used, namely:
1. Test Validity of Instruments
According to **Irianto (2011)** the validity test is used to measure the validity or validity of a questionnaire. In this case the correlation coefficient whose significance value is smaller than 5% (*level of significance*) indicates that these statements are valid as forming indicators.
The basis of the analysis used for testing validity is as follows: testing the validity test is done by correlating each item that makes the variable with the total summation of all items of the research variable. If the total item value is greater than 0.367 then the item is declared valid, and vice versa.

2. Instrument Reliability Test
Ghozali (2011) says reliability is a number that shows the consistency of a measuring instrument in measuring the same object. Reliability of a construct variable is said to be good if it has *Alpha Cro*nbach's value> 0.70**.** In this study the validity and reliability tests are calculated using the IBM SPSS Version 21 program

3.3. Hypothesis
Testing Testing the hypothesis in this study t test and F test using the help of IBM SPSS Version 23 program
1. *Test*
According to **Ghozali (2013)**, the t test is how far the influence of one independent variable individually in explaining the variation of the dependent variable. In this study researchers examined the effect of communication, work stress and work conflict on employee performance.

2. F-Test
According to **Ghozali (2013)**, the F test basically shows whether all the independent variables included in the model have a simultaneous influence on the dependent variable.

4. RESULT AND DISCUSSIONS
4.1 Validation and Reliability
1. *Multiple Linear Regression Analysis*
The statistical analysis used in this study is multiple linear regression. This analysis is used to determine the effect of independent variables (*independent*) the influence of Convergence (X1), Acceleration (X2) Generalization (X3) Manifestation of Readiness of Globalization Education 4.0 (Y) The regression analysis produces regression coefficients that show the direction of causal relations between independent variable and dependent variable. The processed data with the help of SPSS *for Windows* using a multiple linear regression analysis model can be seen in Table 1:

Table 4.1
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.500			7.454	11.180,000,
1	X1	248,089	,	182	2,770,	006
	X2,	792,088	,	544		9.018,000,

X3	067,192,	024,346,	730

a. Dependent Variable: Y

Based on computer calculations using the SPSS program, it can be seen that the constant value is 11,180 value of regression coefficient β1 0,248, regression coefficient β2 0,792 and regression coefficient β3 0,067 Based on these values multiple regression models can be made with equations as follows:

Performance employee (Y) = 11,180 + 0,248 X1 + 0,792 X2 + 0,067 X3 + e

Test t (t-test)
a. The Effect of Convergence (X1) on Manifestation of Globalization Education Readiness 4.0 (Y)

From table 4.1 above, it can be seen that the level is significantly smaller than alpha (0.006 <0.05), then Ho is rejected and Ha is accepted. This means that partially there is a positive and significant influence between convergence (X1) on the Manifestation of Globalization Education Readiness 4.0 (Y). Therefore the first hypothesis which states "Convergence partially has a positive and significant effect on Manifestation of Globalization Education Readiness 4.0   " ***Accepted.***

b. Effect of Acceleration (X2) on Manifestation of Globalization Education Readiness 4.0 (Y)

From table 4.1 above, it can be seen that the level of significance is smaller than alpha (0,000 0,05), meaning that there is a positive and significant influence between acceleration (X2) towards Manifestation of Globalization Education Readiness 4.0 (Y) Therefore the second hypothesis which states "**acceleration** Partialhas a positive and significant effect on the Manifestation of Globalization Education Readiness 4.0   " ***Received".***

c. Effect of Generalization (X2) on Manifestation of Globalization Education Readiness 4.0 (Y)

From table 4.1 above, there is a significantly smaller level of alpha (0.730> 0.05), then Ho is accepted and Ha is rejected. That is, partially positive and not significant influence between Generalization (X3) on Manifestation of Globalization Education Readiness 4.0 (Y). Therefore the third hypothesis which states "Manifestation partially has a positive and not significant effect on the Manifestation of Globalization Education Readiness 4.0   " ***Rejected".***

5. CONCLUSION

Based on data analysis, interpretation of the results of the study, and the discussion that has been submitted previously, then some conclusions can be raised from the results of this study as follows:

1. Convergence partially has a positive and significant effect on Manifestation of Globalization Education Readiness 4.0
2. Acceleration partially has a positive and significant effect on Manifestation of Globalization Education Readiness 4.0
3. The manifestations partially have a positive and not significant effect on the Manifestation of Globalization Education Readiness 4.0

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