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Experience in the Teaching Practice Program, Creativity, and Locus of Control for Preparedness to Become Teachers in the Industrial Revolution Era 4.0

Zuhri Saputra Hutabarat [a], Sri Umi Mintarti Widjaja [b], Sunaryanto [c], and Cipto Wardoyo [c]

[a] Universitas Negeri Malang, Faculty of Economics, Doctoral Student of Economics Education, Jl. Semarang No. 5, 65145, Malang, Indonesia
[b,c,d] Universitas Negeri Malang, Faculty of Economics, Department of Economics Education, Jl. Semarang No. 5, 65145, Malang, Indonesia

***Corresponding author:** [a] zuhri2saputra1hutabarat9@gmail.com, [b] sri.umi.fe@um.ac.id, [c] sunaryanto.fe@um.ac.id, [d] cipto.wardoyo.fe@um.ac.id

Abstract

This study aimed to determine the readiness of students to become teachers in the industrial revolution era 4.0. Education progress is closely related to the industrial revolution 4.0, which supports the learning process wherever you are. Students' perceptions of the teaching profession by developing the competence of prospective teachers in the Covid 19 situation through the experience of teaching practice programs in schools by increasing creativity through various technological advances and the times. To create the next generation of the nation who is superior, able to compete, and ready to become competent and professional teachers of the industrial revolution era 4.0. This study uses a quantitative approach in data collection, using a survey method. In managing the results of this study using the Slovin formula to represent the entire population of 755 and using a Likert scale to measure the experience of teaching practice programs, locus of control and student readiness to become teachers in the era of the industrial revolution 4.0 regarding a series of statements given in the form of a questionnaire, and distributed online. Via google form. The research sample consisted of 261 teacher candidate respondents who had finished implementing the teaching practice program in Jambi Province of Indonesia. SEM-PLS analyzed the collected data. The results of this study are 1) The formation of the skills of prospective teachers in teaching and guiding students in real terms at school by continually improving and developing teacher competencies needed by students in the era of the industrial revolution 4.0, 2) Through the experience of teaching practice programs in schools obtaining more references to learning media through combining learning methods and models that students currently need. 3) The role of campuses and schools can realize innovative education through improving the quality of education, equitable distribution of education, and expanding access through relevance in learning prospective economic teachers in the era of the industrial revolution 4.0.

Keywords: Teaching Practice Program Experience, Creativity, Locus of Control and Student Readiness to Become Teachers in the Industrial Revolution Era 4.0

1. Introduction

The world is developing so rapidly that it is now in the era of the industrial revolution 4.0, where technology has become the basis of everyday human life (Henning Kagermann, Wolf-Dieter Lukas, 2011). Along with the development of the industrial revolution, which has entered the phase of the 4.0 industrial revolution, this is marked by the increasingly massive role of technology in education (Kemeristekdikti, 2018). Given that the teacher's duties are so essential, the teacher must be competent to carry out their duties professionally and competently (Afrianto, 2018). Prospective teachers must compete well in the era of the industrial revolution 4.0 because prospective teachers are the most influential component in achieving quality education processes and outcomes (Mulyasa, 2009). In various countries, along with the development of the era of readiness to become a teacher, they must also be prepared to survive in this fast technological era (Cordes, F., & Stacey, 2017).

As a developing country, Indonesia is one of the countries that have the largest population in the world; it also applies industry 4.0 with the term Making Indonesia 4.0. According to the Minister of Industry of the Republic of Indonesia, one of the areas that must be prepared in Making Indonesia 4.0 is education (Hartarto, 2018). Quality education will not be realized without competent and professional teachers; teachers in education have an essential role because teachers are tasked with designing learning, shaping character, and developing the talents and potentials of students so that output is created in the form of quality human resources. (Lase, 2019). Furthermore, prospective teachers' readiness to become teachers in the era of the industrial revolution 4.0 must also be seen from how the experience of teaching practice programs is, creativity, and locus of control. Thus, it is hoped that prospective teachers will compete in the era of industrial revolution 4.0. So in the era of the industrial revolution 4.0, prospective teachers must have competencies in education to become competent and professional teachers (Liao et al., 2018).

However, the perception of prospective teacher students regarding the teaching profession shows that there are still many prospective teachers who are not interested in continuing to work as teachers, even though they have already studied for six semesters, even until the final semester at university. We analyze this by observing the ongoing teaching practice program activities in January 2021; the results prove that there are differences in the perceptions of prospective teacher about the teaching profession. Referring to the theory of perspective, teacher and student perceptions regarding the teaching profession focus more on how a person's perception of something is inherent in other people and the stigma in the surrounding environment (Davis & Jones, 2014). It can be seen from the psychological aspect of prospective teacher, hey have different perspectives on the teaching profession, which is one factor of unpreparedness to work as a teacher (Mulyana, 2016).

Furthermore, the readiness to become a candidate for teacher can also be seen from their ability to carry out teacher duties and their understanding of the teaching profession of the various competencies that a teacher must have through practical teaching programs in schools. During the practical teaching program experience in schools, prospective teachers must train themselves to become competent and professional teachers. Experience in teaching practice programs in schools, teacher candidates still need to be improved and evaluate their readiness to become teachers in integrating several teaching competencies properly so that they are ready to become teachers (Yuniasari & Djazari, 2017). So it can be concluded that the readiness of students to become teachers

in the era of the industrial revolution 4.0 still needs to be evaluated in various aspects, both aspects of readiness to appear teaching in front of a class, readiness for mastery of subject matter, methods, models, learning media, readiness to compile learning tools, readiness to follow progress technology by the development of the era of the industrial revolution.

Investigating the readiness to become a teacher in the industrial revolution 4.0 era will be determined by control locus. So prospective teachers do not stutter towards various developments in the influence of culture. They can solve problems around them by increasing the ability of education to meet the qualifications of prospective teachers who are competent and professional in their fields (Ahluwalia, 2017). Because in the qualifications, the fulfillment of competence of globalization, competence in the future strategies, and counselor competence as a prospective teacher must be ready to face the era of the industrial revolution 4.0 and have strong self-control (Joneta et al., 2016). However, the ability to control self-control of prospective teachers must also place themselves in any situation, wherever and under any circumstances, especially in preparing themselves to become competent and professional teachers (Ulin & Oktarina, 2014).

With applied research: experience in practical teaching programs, creativity, locus of control, and readiness of students to become teachers in the industrial revolution era 4.0 through the variables of this research provide three contributions, including 1) Can open students' understanding to be ready to become economic teachers in the industrial revolution era 4.0 which was not present in previous research, by testing this article highlighting the role of locus of control, 2) Obtaining more references to methods, models and learning media according to technological advances and the times needed in the era of the industrial revolution 4.0, the focus is on prospective teachers in Indonesia unique because Indonesia is a densely populated country that has a variety of distinctive characters, various languages and diverse cultures in the face of the era of the industrial revolution 4.0. 3) This study provides new insights on campuses and schools in realizing innovative education through improving the quality of education, equitable distribution of education, and expanding access through relevance in realizing prospective economic teachers in the era of the industrial revolution 4.0.

2. Literature Review

Readiness to become a teacher in the era of the industrial revolution 4.0 is influenced by three exogenous variables and one endogenous variable along with its indicators, namely: As competent and professional teacher candidates can be developed through experience in teaching practice programs in schools, being (input) in preparing to become teachers (outcome) (Bukaliya Rupande, 2013). The variables that affect input and outcome in student readiness to become teachers in the industrial revolution era 4.0 are the locus of control variables. Locus of control in this study as a whole is internal locus of control as well as external locus of control, where the prospective teacher is one of the personality variables, which is defined as an individual's belief in whether or not a person can control his destiny through events in his life are under his control (Ivancevich M.Joha, 2014). This is because the qualifications of teacher competence and educational sciences must be improved by developing a more modern era. Locus of control also plays a role in increasing prospective teachers' confidence to continue to feel worthy and ready to become competent and professional teachers (Kreitner, Robert dan Kinicki, 2003).

Teachers' issue from time to time seems endless, along with the progress of the times at this time, the development of the world, changes in technology, and the times are so very fast (Baharuddin, H Wahyuni, 2018). The world of education cannot be separated from the role of teachers who must have creativity. Until now, teachers are still facing complex problems, especially regarding creativity (Baharuddin, H Wahyuni, 2018). Even though the subordinate role has shifted a lot, teachers who have creativity still hold the key to student success in school (Smith et al., 2014). However, in determining the academic goals of the school, work should be done with students, teachers and parents (Sipahi, 2020).

The role of prospective teachers in the world of education is very urgent because the requirements of learning are competent and professional teachers and the readiness of prospective teachers to become teachers in the era of the industrial revolution 4.0 (Klaus Schwab, 2016). If we cannot keep up with the flow of technological advances, we will be left behind with others and even other countries. Therefore, if prospective teachers cannot keep up with the times in the era of the industrial revolution 4.0, they will be left behind with prospective teachers in various other countries (Wena, 2011). Therefore prospective teachers must improve their abilities so that later they become competent and professional teachers because, in the future, the role of teachers will be more critical, so there is no choice now except to be ready to become teachers and follow the developments in the era of the industrial revolution 4.0 (Klaus Schwab, 2016).

Education is the central pillar of the industrial revolution 4.0 era. Readiness to become a teacher must also change for the better to keep up with the current rapid development of science and technology. Improving the quality of teachers, universities, and schools must work well together. It is hoped that prospective teachers will be able and ready to become real teachers in the era of industrial revolution 4.0, not to shift teachers' roles. Therefore, in this study, we develop the following hypothesis:

H1: The experience of the practical teaching program affects the readiness of students to become teachers in the industrial revolution era 4.0.

H2: Creativity affects the readiness of students to become teachers in the era of the industrial revolution 4.0.

H3: Locus of control affects the readiness of students to become teachers in the industrial revolution era 4.0.

Prospective teachers play an essential role in education in the era of the industrial revolution 4.0. That there are two critical things that teachers must do in preparing themselves to become teachers in the era of the industrial revolution 4.0, namely: 1) Teacher candidates can prepare themselves to solve problems that do not yet exist, and 2) Teacher candidates can improve their teaching knowledge by technological advances by the times (Huseno, 2018). To be ready to become a teacher in the era of the industrial revolution 4.0 is not easy; prospective teachers need learning strategies that can facilitate students 'needs to develop, and learning strategies also have an impact on students' mindsets and what prospective teachers will produce in facing the development of the next industrial revolution (Budiman & Apriani, 2019).

3. Research Methodology

The approach used in this research is a quantitative research design using a survey method; the main advantage of this approach is that it helps to understand how to experience teaching practice programs, creativity, and locus of control to be ready to become a teacher in the era of the industrial revolution 4.0, so we create a research model framework. As follows:

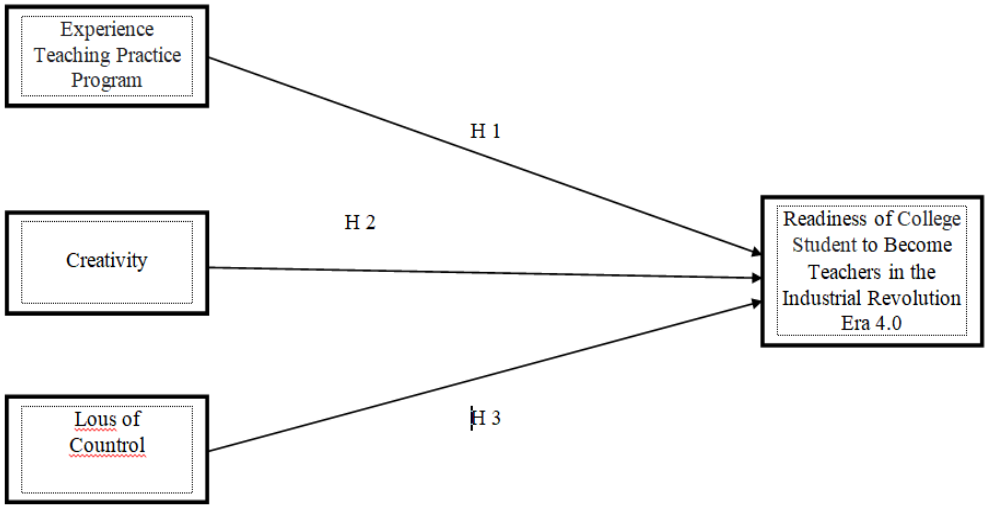

Figure 1. Research Framework

Source: Researcher's Elaboration

3.1 Sampling and Data Collection

This study uses a quantitative explanation method with three hypotheses. Quantitative research methods are research methods based on the philosophy of positivism, which is used to examine a particular population or sample (Straits, 2006). This study using a survey method, which collects information from a sample of individuals through their responses to the questionnaire questions given (Check, J. W., & Schutt, 2011). The questionnaire in this study consists of several indicators, which will be structured statements and then answered by the respondent, aiming to obtain specific information and involve data processing in this study.

In addition to data collection, researchers used sampling techniques taken from a group of populations where a population is a group consisting of individuals with the same character (Creswell, 2011). Simultaneously, the sample is part of the total population by choosing by setting provisions (Neuman, n.d.). The population selected in this study were students who had carried out practical teaching experience program activities; the total number of students who had carried out practical teaching experience program activities were 755 students from 3 campuses in Jambi province, namely: Jambi University (UNJA), Batanghari Jambi University (UNBARI)) and the College of Teacher Training and Education Bangko (STKIP Bangko). In determining this study sample using the Slovin formula, which is expected to represent the entire population and the error rate generally used by researchers, namely 1% 5% 10% (Kriyantono, 2010). In this study, the sample used was 261 respondents. The researchers used the questionnaire to measure students' readiness to become teachers in the industrial revolution era 4.0 for students in the economic education study

program in Jambi Province. Using a Likert scale that has been determined and sorted according to the researcher's provisions (Kriyantono, 2010). All measurement scales are graded via a type scale. Likert uses five points ranging from "strongly disagree" (1) to "strongly agree" (5). Questionnaires were distributed to 261 prospective teachers who have carried out practical teaching experience program activities.

3.2 Instrument Development

The questionnaire was designed to determine the variables of teaching practice program experience, with indicators namely: 1) intership orientation, and 2) intership engagement (Bukaliya Rupande, 2013), (Suharsini Arikunto, 2013), and (Yanto, H., Mula, J. M., & Kavanagh, 2011) as many as 16 statement items. While the creativity variable with indicators, namely: 1) Creativity against cognitive development, 2) Creativity for mental health, and 3) Creativity against aesthetic development (Hamzah B. Uno dan Nurdin Muhammad, 2011). Furthermore, to understand the locus of control, the indicators are: 1) internal factors, and 2) external factors (Ghufron & Risnawita, 2017) as many as 16 statement items. Meanwhile, to measure students' awareness to become teachers in the era of industrial revolution 4.0, with indicators namely: 1) educational competence, 2) competence for technological committalization, 3) competence of globalization, 4) competence in the strategic future, and 5) counselor competence (Huseno, 2018) as many as 18 statement items. all statement items. Exogenous variables and endogenous variables were responded to with a Likert range of 5 points with a scale of 1 indicating "strongly disagree" to 5 indicating "strongly agree". Questionnaires were distributed to 261 student teachers who had carried out practical teaching experience programs for economic education study programs in Jambi Province.

3.3 Data Analysis

Data analysis activities are carried out after the necessary research data has been collected, in this study using descriptive statistical analysis, namely processing data in the form of numbers and not generally applicable (Sugiyono, 2017). The data was collected using a questionnaire technique as the instrument was distributed online via Google Form, accessible via smartphones and personal computers. We conducted two stages of testing in analyzing data using PLS-SEM consisting of: evaluation of measurement models (outer model) and evaluation of measurement models (inner model). Evaluation of measurement model (outer model) is a measurement model showing how the manifest or variable observation represents the latent variable to be measured. Meanwhile, the evaluation of measurement model (inner model) shows the power of estimation between latent and construct variables (Latan, 2015).

4. Results And Discussion

Students' readiness to become teachers in the industrial revolution era 4.0 is the aim of this research. Because education is very closely related to the 4.0 industrial revolution, which is used to support the learning process, thought patterns and develop creative ideas for prospective teachers in the Covid 19 situation with the unlimited times and technological advances that we feel today. Creating the next generation that is superior, able to compete, and ready to become competent and professional teachers in the era of the industrial revolution 4.0. In this study, the hypothesis was tested using

structural equation modeling (SEM) with SmartPLS 3.29 software; It can be seen that the results of testing our research scheme model are carried out in Figure 2 below:

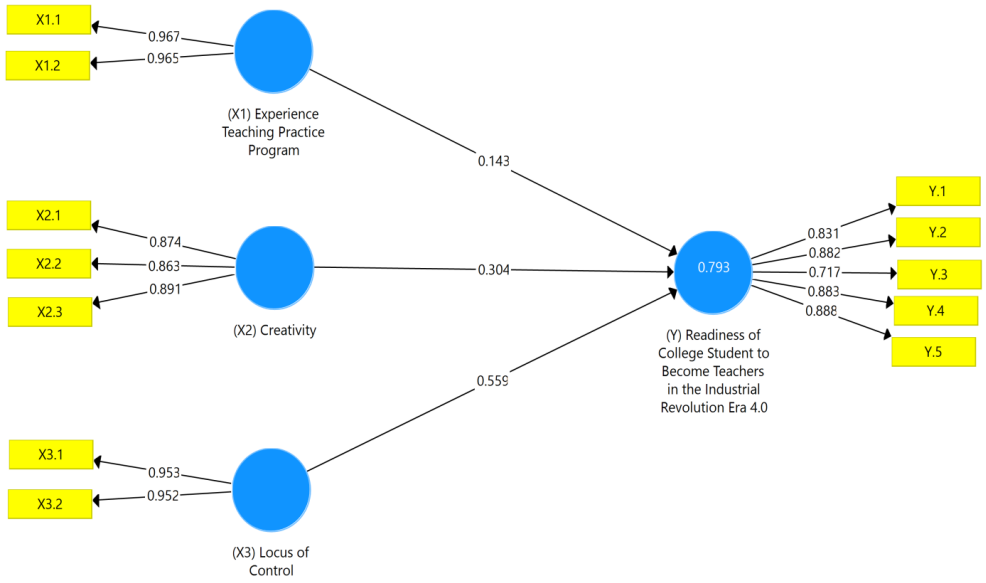

Figure 2. Results of the Structural Equation Research Model

Source: SmartPLS 3.29 (Data processed by researchers in 2021)

Figure 2 is a structural model that shows the effect of the seven hypotheses tested; figure 2 above shows that the experience of the teaching practice program, creativity, and locus of control affect student readiness to become teachers in the industrial revolution era 4.0. It is also shown that all indicators are declared valid in measuring each exogenous and endogenous variable appropriately. As for what is the result of the overall loading test for our research variable indicators, it is presented in the table below as follows:

Table 1: Results of Loading Factor Testing for Research Variable Indicators

Code	Indicator	Loadings
Experience Teaching Practice Program		
X1.1	Intership orientation	0.967
X1.2	Intership engagement	0.965
Creativity		
X2.1	Creativity against cognitive development	0.874
X2.2	Creativity for mental health	0.863
X2.3	Creativity against aesthetic development	0.891
Locus of Control		
X3.1	Internal factors	0.953
X3.2	External factors	0.952
Readiness of College Student to Become Teachers in the Industrial Revolution Era 4.0		
Y.1	Educational competence	0.831
Y.2	Competence for technological commercialization	0.882

Y.3	Competence of globalization	0.717
Y.4	Competence in the future strategis	0.833
Y.5	Counselor competence	0.888

Source: SmartPLS 3.29 (Data processed by researchers in 2021)

Through our research results, it is obtained a model of readiness to become a teacher in the era of the industrial revolution 4.0, using SEM-PLS to meet convergent validity, all indicators can be said to be valid if the loading factor value is> 0.700 (Chin, 2010). Meanwhile, to assess reliability can be determined through a series of measurements of the answers' consistency to several questions given to respondents. Consistency can be seen through the reliability of a construct; it can be seen through Alpha Cronbach. The constructor variable is reliable if it has a Cronbach Alpha value ≥ of 0.50 (Hair, 2011). Following are the results of reliability and validity carried out on 261 respondents who were deemed to meet the predetermined criteria as follows:

Table 2: Reliability And Validity Test Result

	Cronbach's Alpha	**rho_A**	**Composite Reliability**	**Average Variance Exracted (AVE)**
Experience Teaching Practice Program	0.929	0.930	0.966	0.934
Creativity	0.849	0.850	0.908	0.768
Lous of Countrol	0.897	0.897	0.951	0.907
Readiness of College Student to Become Teachers in the Industrial Revolution Era 4.0	0.896	0.988	0.924	0.710

Source: SmartPLS 3.29 (Data processed by researchers in 2021)

Based on table 2 above, it can be seen that the reliability test that has been carried out on 261 respondents who have carried out the experience of the teaching practice program shows that the variable is declared reliable and meets the requirements. It can be seen that each variable has a cronbach's alpha value and composite reliability has a value of> 0.70. The average variance extracted (AVE) is a value that describes the amount of variance and diversity in the various manifest variables that latent constructs can support. The average variance extracted (AVE) value in this study has a value> 0.50, which indicates a measure of convergent validity either or accurately by (Henseler, Ringle, 2009)

This study can measure each exogenous and endogenous variable indicators that are declared valid and have a high value as required. Next is to test the model's feasibility by looking at the magnitude of the R-square value obtained. R-square is a measuring tool used to test the quality of the regression line equation of a model used (Chin, 2010). By obtaining the R-square value can describe the effect of latent variables, specifically endogenous latent variables, whether the effect is substantive or not. The results of the calculation of the R-Square value can be seen in Table 3 as follows:

Table 3: R2 Calculation Output

	R Square	R Square Adjust
Readiness of College Student to Become Teachers in the Industrial Revolution Era 4.0	0.793	0.790

Source: SmartPLS 3.29 (Data processed by researchers in 2021)

Based on table 3 above, it can be seen that the R-Square locus of control value is 0.795, which indicates that the model in this study is declared "strong" because the R-square value is> 0.70. The R-Square value is the readiness of students to become economic teachers in the industrial revolution era 4.0. amounting to 0.516, which indicates that this study's model is declared "moderate" because the R-square value is> 0.50, so it can be considered predictive relevance. To further analyze the variables using PLS-SEM. This analysis aims to determine the effect between variables measured by calculating the value of the path coefficient.

In analyzing each endogenous and exogenous variable's effect, resampling was first carried out using the bootstrapping method. To see the significance between the seven hypothesis variables that have been determined based on the results of the bootstrapping that has finished running, the data on the influence between variables are obtained as follows:

Table 4: Results of Hypothesis Test Calculation

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (IOS / STDEVI)	P Values
(X1) Experience Teaching Practice Program -> (Y) Readiness of College Student to Become Teachers in the Industrial Revolution Era 4.0	0.143	0.142	0.050	2.876	0.004
(X2) Creativity -> (Y) Readiness of College Student to Become Teachers in the Industrial Revolution Era 4.0	0.304	0.300	0.064	4.757	0.000
(X3) Locus of Control -> (Y) Readiness of College Student to Become Teachers in the Industrial Revolution Era 4.0	0.559	0.561	0.054	10.281	0.000

Source: SmartPLS 3.29 (Data processed by researchers in 2021)

In the table above, it can be seen that based on the test results, three hypotheses of the direct effect between variables have been obtained. So if the path coefficient value> 1.96, it can be concluded that

it is valid with a significance of 0.05 and vice versa. If the path coefficient value is <1.96, it can be concluded that it is invalid with a significance of 0.05 (Latan, 2015). From the results of data acquisition in Table 4, it can be seen that the significance of the effects between the constructs is as follows:

The findings of the first hypothesis (H 1) The experience of teaching practice programs has a positive and significant effect on readiness to become a teacher in the era of the industrial revolution 4.0. This occurs due to the formation of prospective teachers' skills in teaching and guiding students in real terms in schools by continually improving and developing their educational competencies according to the needs of students in the era of the industrial revolution 4.0. This is in line with the results of previous studies (Margaret et al., 2010), (Levin & He, 2008), (Aldalalah & Gasaymeh, 2020) and (Adu-Yeboah & Kwaah, 2018). This makes the interaction activity between the teaching practice program's experience and the readiness to become a teacher in preparing the ability to control oneself by the times and technology.

Furthermore, the second hypothesis (H 2) Creativity has a positive and significant effect on readiness to become a teacher in the era of the industrial revolution 4.0. Students during their education on campus construct an understanding of teacher competencies needed in the world of education, especially in schools. This understanding forms the creativity of students who are very good to become teachers in the era of the industrial revolution 4.0; good creativity shows the belief that their qualifications and competencies are also good. These findings show that through the experience of teaching practice programs in schools, obtaining more references to learning media through combining learning methods and models needed by students at this time can use strategies for using learning methods, models, and media appropriately by the material being taught. Appropriately, effectively, and efficiently in improving the quality of teaching and can increase student motivation in the classroom to learn well, they tend to focus on developing their abilities to be ready to become teachers in the era of the industrial revolution 4.0. It is corroborated by the results of previous studies (Utomo, 2019), (Sulaiman et al., 2017), (Kiewra & Vaselkack, 2016), (Tawil et al., 2013), (Utami Munandar, 2002), and (Seechaliao, 2017). Prospective teachers who, from the beginning, prepare themselves to become teachers will develop their creativity maximally so that prospective teachers believe they can survive (are willing), adjust when they become teachers and have a good understanding and knowledge of the teaching profession.

The results of the third hypothesis (H 3) Locus of control have a positive and significant effect on readiness to become a teacher in the era of the industrial revolution 4.0. This makes the interaction effect of prospective teachers having substantial experience in improving the relationship between prospective teachers and students regarding the learning process, which can then be used to develop themselves as professional educators who have values, attitudes, and knowledge in the teaching profession. Through this interaction, prospective teachers will quickly adapt according to the times and technology in the surrounding environment with an excellent locus of control. Then the locus of control internal factors of student life will have a good influence in forming a good personality as well. In this case, external factors will also influence prospective teachers in preparing themselves to become competent and professional teachers in the era of the industrial revolution 4.0 so that the role of campuses and schools influences each other in realizing innovative education through improving the quality of education, equitable distribution of education, and expanding access through relevance

in realizing prospective economic teachers in the era of the industrial revolution 4.0. By the results of previous studies (Ulin & Oktarina, 2014), (Zaidi & Mohsin, 2013), and (Gujjar & Aijaz, 2014). Locus of control and readiness to become a teacher are beliefs about oneself that, according to the locus of control, internal and external factors can make it a competent and professional teacher.

The implication of this research will be meaningful that in the future, higher education institutions will add insight into the perceptions of prospective teachers about the teaching profession, not only through the program of field practice activities in schools. However, also in every educational science course that will be applied in schools. It needs to be addressed that the prospective teacher's perception of the teaching profession must be well-formed since the prospective teacher takes an educational study program on campus because it will add absolute confidence to broaden the knowledge of prospective teachers about the teaching profession so that that prospective teacher can follow every development of science the world of education in the era of the industrial revolution 4.0. Prospective teachers who have much basic knowledge will be better prepared to become competent and professional teachers.

5. Conclusion

This study confirmed three accepted hypotheses in the study that competence as a teacher candidate in the era of the industrial revolution 4.0 must continually be improved and improved following the times and technological developments in the world of education today. The qualification and competency standards that teachers must have served as guidelines for prospective teachers to maximize their potential. Prospective teachers must follow the era of disruption and take advantage of technology to ease the duties of being a teacher in the era of industrial revolution 4.0.

The most important limitation of our research lies in the fact that the data were only collected from students of economic education study programs in Jambi Province. Students of the economic education study program in the criteria of this research are students who have carried out and completed the teaching practice program experience, where the student is ready to teach at school by the knowledge and teacher competencies they have at the university.

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