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MENTAL READINESS OF MUHAMMADIYAH TEACHERS TO ENTER THE ERA OF INDUSTRIAL REVOLUTION 4.0

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ABSTRACTS

This study aims to analyze the factors that influence the mental readiness of Muhammadiyah teachers in entering or facing the era of the industrial revolution 4.0. This study uses a quantitative approach involving 60 respondents from 5 Junior High Schools (SMP) in the Special Region of Yogyakarta. Data were taken using a questionnaire and analyzed using a regression test. The results of the study indicate that the mental readiness of Muhammadiyah teachers in entering or facing the era of the industrial revolution 4.0 is influenced by the behavioral readiness and health readiness possessed by the Muhammadiyah teachers. The significance value of the influence of behavioral readiness on the mental readiness of teachers is 0.019; while the significance value of the influence of health readiness on the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0 is 0.040.

Keyword: Mental Readiness, Muhammadiyah Teacher, Industrial Revolution 4.0.

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1. INTRODUCTION

The development of increasingly sophisticated information and communication technology (ICT) has become one of the triggers for the birth of the industrial revolution 4.0 era that is currently happening. Various changes have occurred in various fields, from trade to education. All these changes lead to the use of ICT as a tool in completing all work done, as well as in the field of education which currently involves a lot of ICT in its implementation process.

Regarding changes in education from education 1.0 to education 4.0, much has happened. Education 4.0 is centered on continuous creation and innovation, wherever and whenever it must be used as a class, meaning that learning can be done anywhere including at home, learning leads to personalization as a form of appreciation for the uniqueness of each individual as a student and the most prominent is the provision of technology for free (Makrides 2019).

This condition is very different from education 1.0 which makes teachers a source of knowledge, learning activities are mostly carried out in the classroom or building, centered on teachers and students tend to be passive in every educational process, students learn by reading books, and technology has not been used but only limited to knowledge or lessons. Meanwhile, education 2.0 and 3.0, although not yet like education 4.0, have developed significantly compared to education 1.0, namely involving teachers as facilitators in the learning process so that it is not entirely centered on teachers (Fauzi 2019).

Considering that education 4.0 is so flexible, of course, it requires all human resources (HR) involved in education, especially teachers, to be able to adapt to the conditions of education 4.0. If teachers still use the paradigm of education 1.0, it is certain that it will be a problem for the students they teach and for the teachers themselves. The ability to be able to change to adapt to the conditions of education 4.0 is a must for teachers if they want to continue to exist in the process of education 4.0. The classic problem faced by teachers who still have the paradigm of education 1.0 is the mastery of the technology used in every educational process and to overcome this problem, it is not only the intention to change but also hard work to practice until they truly master ICT as a tool in the field of education.

Teachers who have the desire to change the paradigm 1.0 to the paradigm 4.0 in themselves, of course, they must prepare various aspects within themselves, including mental preparation, educational preparation, economic preparation, technological preparation, work environment readiness, and health readiness. All of these various preparations are interrelated with each other and must support each other. All of these preparations will be a strength for teachers in making teachers' personalities truly ready to exist in the education process 4.0.

Based on all of these explanations, the author in this study will make an effort to analyze various forms of readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0, especially in relation to education, namely education 4.0. These efforts are expected to provide a picture of the reality that occurs in the field regarding the readiness of Muhammadiyah teachers to be able to exist in the era of the industrial revolution 4.0.

Teacher Dynamics

Teachers as pillars of education of course must receive attention so that their professionalism as teachers continues to develop. In relation to this, there is a study showing that the evolution of teaching profiles and time are factors in teacher professional development (Ellerani and Gentile 2013). Attention to teachers must also be directed at the level of teacher satisfaction because teacher satisfaction is an integral indicator that leads to effectiveness in schools, so that if teachers are satisfied with work practices in schools, it will produce something positive for the school. In relation to this, there are 6 aspects of organizational climate that influence teacher job satisfaction, namely 1) performance standards, 2) responsibility, 3) unity, 4) appreciation, 5) success, and 6) leadership (Treputtharata and Tayiam 2014). Teachers are human resources who play an important role in improving student competence, meaning that the level of student competence development is greatly influenced by teachers. For this reason, teachers also need to get maximum service, especially in education in the era of the 4.0 revolution, various electronic services are currently provided to teachers as a form of developing teachers in teaching. In relation to this, of course, teachers must be prepared with various electronic services provided to them, the conventional paradigm affects electronic services for teachers (Chen 2019).

The dynamics of teachers are indeed very complex, especially in developing countries, the very classic problem in developing countries is the lack of teachers, but to meet this shortage is not balanced with a sufficient budget. Therefore, contract teachers emerged, which were mostly filled by young, inexperienced teachers, and given low salaries. This practice is a good thing from a cost-saving aspect, but scholars are concerned that the form of hiring contract teachers can have a negative impact on educational equality (Chudgar, Chandra, and Razzaque 2015). The problem of the shortage of professional teachers also occurs for teachers for students with special needs (Cooc 2019). Many developing countries are turning to teacher contracts to overcome the shortage.

Contract teachers are usually graduates of regular teacher training institutions, but often receive much lower wages than regular teachers and do not receive benefits. In addition to being cheaper for the government, contract teachers are often considered more motivated. Unlike civil servant teachers, who have a very high level of job security, contract teachers know that poor performance can prevent them from being rehired in the future (Vegas 2015). The low salaries for contract teachers are a problem, especially since salary is one of the motivations for teachers. One aspect that can be used to attract people to become teachers is by increasing salaries, low teacher wages affect the quality mix of applicants for teaching (Ortega, 2010).

Industrial Revolution Era 4.0

The era of the industrial revolution 4.0 is an era that has truly shifted the previous era and given birth to various new technologies and markets that have slowly buried traditional-based markets. The presence of the industrial revolution 4.0 era is marked by the emergence of various new things, namely 1) the emergence of big data with its analysis, the emergence of data-based companies has been able to reap many benefits; 2) the emergence of various autonomous robots that have replaced many roles of workers in various industries; 3) the emergence of simulation technology that can be used to simulate various products to be

produced; 4) the emergence of system integration; 5) the emergence of networks between objects globally; 6) the emergence of physical-computational networks; 7) the emergence of various internet-based systems in various fields; 8) the emergence of additive manufacturing; and 9) the emergence of augmented reality (Saurabh Vaidya et al., 2018).

The era of the industrial revolution 4.0 has succeeded in inviting many people to change the traditional thinking paradigm towards a more advanced mindset through the revolutionary industry 4.0 in developing various brilliant ideas (Henning Kargermann et al., 2013). As previously stated, the era of the industrial revolution 4.0 is marked by the emergence of big data or maha data so that an architecture is needed that can analyze the maha data (Santos and Jorge 2017).

With the existence of maha data, data-based companies have emerged (Mourtzis et al., 2016) and have proven to have succeeded in dominating the world market. The supremacy of data-based companies is undeniable today, for example, data-based companies are companies that bridge each individual to find various desired data, both data in the form of scientific document archives and documents related to a person's data through social media.

The presence of the 4.0 revolution era has encouraged many people to conduct research due to the spectacular era of the 4.0 industrial revolution. In addition to individuals, many organizations and manufacturing companies also pay more attention to the presence of the 4.0 industrial revolution era through various studies conducted (Qin et al., 2016). The industrial revolution 4.0 era is defined as a new level of organization over all product values and life cycles (Saurabh Vaidya et al., 2018) and which pays attention to sustainable development (Garbie 2017).

The presence of the industrial revolution 4.0 era is a specter for anyone who does not want to change the traditional paradigm of thinking because the industrial revolution era is an era that brings disruptive concepts (Millar et al., 2017). The disruptive concept has slowly changed many forms of traditional-based businesses to digital-based ones. For anyone who does not want to follow these changes, it is almost certain that they will be left behind and drown by themselves. Various disruptive technologies have given birth to new competition because of the new markets that have been born (Cheng et al., 2017).

2. RESEARCH METHODS

This study used a quantitative method involving 60 teachers from 5 junior high schools (SMP) in the Special Region of Yogyakarta. The research data was taken by distributing questionnaires to all respondents. The questionnaire used applied a Likert scale by providing four alternative answers to each question asked, namely 1) strongly disagree, 2) disagree, 3) agree, and 4) strongly agree.

The analysis used to test the hypothesis proposed in the study used regression analysis, while the hypotheses proposed in this study are as follows (F**igure 1**).

H1 = There is a significant influence of educational readiness on teacher mental readiness
H2 = There is a significant influence of economic readiness on teacher mental readiness
H3 = There is a significant influence of behavioral readiness on teacher mental readiness
H4 = There is a significant influence of work environment readiness on teacher mental readiness

H5 = There is a significant influence of health readiness on teacher mental readiness

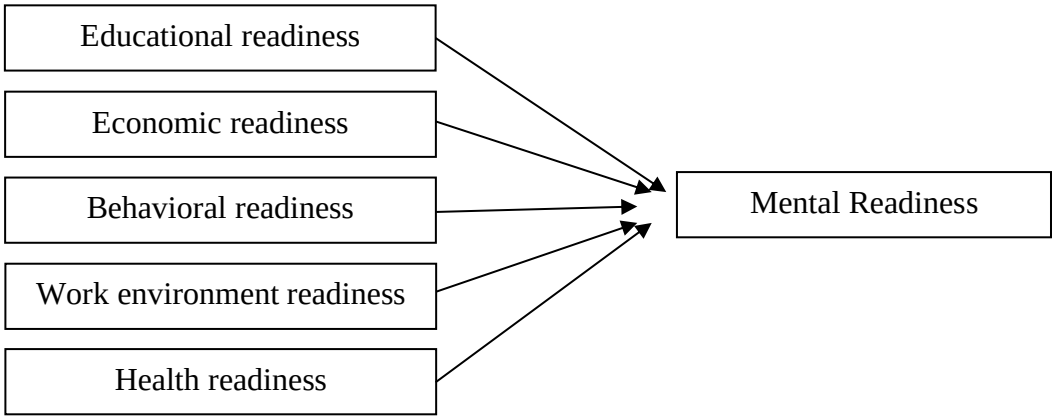

Figure 1. Research hypothesis

3. RESULTS AND DISSCUSION

3.1 Results

3.1.1. Respondent Demographic Data

Before presenting the results of the analysis of the main data in this study, the demographic data of the respondents involved in this study will be presented first (**Table 1**). Based on the demographic data obtained, it shows that the number of male respondents is 26 teachers (43.33%) and the number of female respondents is 34 teachers (56.67%). There are 49 teachers under 40 years old (81.67%) and 11 teachers over 40 years old (18.33%) with the youngest age being 22 years and the oldest being 57 years old. The length of service of teachers under 10 years is 44 teachers (73.33%) and those with a length of service of 10 years is 16 teachers (26.67%). Meanwhile, of all the respondents as a whole, they have heard the term industrial revolution 4.0 era but are not yet familiar with the term.

Table 1. Respondent Demographics

Variables	Frequency	Percentage (%)
1. Gender		
Male	26	43,33
Female	34	56,67
2. Age		
< 40 years	49	81,67
≥ 40 years	11	18,33
3. Working period		
< 10 years	44	73,33
≥ 10 years	16	26,67

3.1.2. Analysis results

After analyzing the main data in this study, various analysis results were obtained which are displayed in **Table 2**. Based on the results displayed in **Table 2**, it shows that the R Square value obtained is 0.494, which means that 49.4% of the variance can be predicted by the independent variable to be combined with the dependent variable. Related to the influence of all independent variables together on the dependent variable, it is indicated by the F value of 10.527 with a significance of 0.000. The significance value is less than 0.05, which indicates that the influence of all dependent variables together on the dependent variable is significant or in other words, the model used in this study is significant, meaning that the variables of educational readiness, economic readiness, behavioral readiness, work environment readiness, and health readiness can be used to predict the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0.

Related to the influence of the dependent variable on the independent variable partially, it is indicated by the beta value (β). The educational readiness variable has a value of β = 0.030 with a significance of 865, indicating that the educational readiness variable does not have a significant effect on the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0 because the significance value is greater than 0.05. The economic readiness variable has a value of β = 0.071 with a significance of 0.617, indicating that the economic readiness variable does not have a significant effect on the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0 because the significance value is greater than 0.05. The behavioral readiness variable has a value of β = 0.396 with a significance of 0.019, indicating that the behavioral readiness variable has a significant effect on the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0 because the significance value is less than 0.05.

Meanwhile, the work environment readiness variable has a value of β = -0.012 with a significance of 0.919 which indicates that the work environment readiness variable does not significantly affect the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0 because the significance value is greater than 0.05. The health readiness variable has a value of β = 0.036 with a significance of 0.040 which indicates that the health readiness variable has a significant effect on the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0 because the significance value is less than 0.05.

Table 2. Results of Regression Analysis

Model	Standardized coefficients		R Square	F	Sig
	Beta	Sig			
(Constant)					
Educational readiness	0,03	0,865			
Economic readiness	0,071	0,617			
Behavioral readiness	0,396	0,019	0,494	10,527	0
Work environment readiness	-0,012	0,919			
Health readiness	0,306	0,04			

3.2. Disscusion

Based on the results of the analysis that has been carried out, there are several things that need to be discussed. All discussions that will be carried out should provide a clearer picture related to what is being studied in this study. Considering the demographics of respondents involved in this study, it shows a diversity of ages and length of service, while the number of genders between men and women is balanced, all of which indicate that the respondents involved in this study show the real conditions that occur at the research location related to the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0.

The results of the regression analysis of the main data in this study indicate that behavioral readiness and health readiness have a significant influence on the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0. Meanwhile, educational readiness, economic readiness, and work environment readiness do not have a significant effect on the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0.

These results indicate that the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0 is largely determined by two things, namely behavioral readiness and health readiness. As previously stated, the presence of the industrial revolution 4.0 era is a specter for anyone who does not want to change the traditional paradigm of thinking because the industrial revolution era is an era that brings disruptive concepts (Millar et al., 2017). Thus, it is easily accepted logically that behavioral readiness is a variable that influences the mental readiness of Muhammadiyah teachers in facing the industrial revolution 4.0 era.

Behavior is the result of the work of a thought, therefore if the teacher's paradigm or way of thinking is able to change from a traditional paradigm to a visionary paradigm and is in line with the industrial revolution 4.0 era, it will influence the teacher's behavior in welcoming the industrial revolution 4.0 era. Conversely, if the teacher's paradigm or way of thinking is still maintained in the domain of traditional thinking, still considering technology to be something that can be destructive and so on, then it is certain that the teacher will have difficulty adapting to the current conditions of the industrial revolution 4.0 era.

In addition to behavioral readiness, the health readiness variable is also a variable that has an influence on the mental readiness of Muhammadiyah teachers in facing or entering the industrial revolution 4.0 era. Health readiness is basically an aspect that is very much needed anytime, anywhere, and is something that is very vital in life, for that it is something that is easy to accept logic if health readiness is a variable that affects the mental readiness of Muhammadiyah teachers in facing or entering the era of the industrial revolution 4.0. The combination of behavioral readiness and health readiness that are combined will greatly support the mental readiness of Muhammadiyah teachers in facing or entering the era of the industrial revolution 4.0. The readiness of these two factors is the main key to making Muhammadiyah teachers ready to enter and or face the era of the industrial revolution 4.0.

4. CONCLUSION AND SUGGESTION

4.1. Conclusion

The mental readiness of Muhammadiyah teachers in entering or facing the era of the industrial revolution 4.0 is influenced by the behavioral readiness and health readiness possessed by the Muhammadiyah teachers. The significance value of the influence of behavioral readiness on the mental readiness of teachers is 0.019; while the significance value of the influence of health readiness on the mental readiness of Muhammadiyah teachers in facing the era of the industrial revolution 4.0 is 0.040.

4.2. Suggestion

Based on the conclusions presented, it is suggested for any party, both Muhammadiyah organizations and the government, who are trying to make Muhammadiyah teachers ready to enter or face the era of the industrial revolution 4.0 by providing reinforcement on the importance of changing the mindset towards a revolutionary mindset and in accordance with the conditions of the industrial revolution 4.0 era. In addition, it should not be forgotten that participating in maintaining the health level of Muhammadiyah teachers will also make them increasingly have strong mental readiness in entering or facing the era of the industrial revolution 4.0.

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