

The Strategy of Teachers in Developing Curriculum for Learning Process in Facing Challenges in Era of Industrial Revolution 4.0

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Abstract: The role of professional teachers in the learning is vital as students' key to successful learning and creating qualified graduates. Professional teachers are competent teachers in building and developing good and effective learning process to be able to create intelligent students and qualified education. This has led learning quality as a component which becomes either Central Government or Local Government concern in improving education quality, particularly one which is associated with students' graduate quality. The learning alignment in the practical realm is adjusted with curriculum construct. The education should at least be able to prepare students to face three things: a) preparing children to be able to work the job that does not exist yet; b) preparing children to be able to solve problem which does not exist yet, and c) preparing children to be able to use technology that has not discovered yet. The millennial generation, in the era of industrial revolution 4.0, requires a commitment of policymakers to provide supportive facility and infrastructure to compete in the 4.0 era due to this era demands human resource which has 4C, creative thinking, collaboration, communication, and creativity. These four potentials should be supported by character and identity, which can complement self in self-identity with technology in the 4.0 era.

Keywords: professional teacher, the implementation of curriculum

I. INTRODUCTION

In the era of reform and communication, it encourages competition, work needs, and changes that require the education world to change and adjust graduate competencies. This change causes changes in the paradigm of knowledge, learning, and teaching which inevitably changes the curriculum; in which the curriculum is designed to prepare students as subjects to learn both in solving their individual and environmental problems. Teachers are ones of the factors in organizing education in schools. Therefore, to improve the quality of education, teacher quality must be improved, improve the quality of teachers not in terms of welfare but also increase their professionalism in developing the curriculum. Law No. 14 of 2005 Article 1 paragraph (1) states that professional teacher educators with the main task of educating, teaching, guiding, directing, training, evaluating and encouraging students in early childhood education in formal education, primary and secondary education.

Teachers must be able to utilize it to improve the quality of the teaching and learning process in each education unit, so that they can prepare superior human resources (HR) with global competencies even though information technology is increasingly sophisticated and developing so quickly and learning resources are so easily obtained. So the role of the teacher as an educator cannot be replaced with any object even though a sophisticated robot can be created as a substitute for humans, but it cannot replace the position of the teacher in the classroom by advancing the technology. Therefore, the teaching profession is very attached to integrity and personality. With the tremendous development of information technology, teachers must be able to direct, guide

students, and teachers as encouragement in realizing quality and character education and can train 21st-century skills needed by each students, in the 4.0 movement industry will be included in various education sectors. Hence, increasing teacher professionalism becomes substantial.

Teacher professionalism continues to increase in the context of 21st-century education challenging teacher attitudes and commitment to improve quality so that teachers support competencies that are in line with the times. In this case, the spirit of the teacher continues to build national civilization to improve with the times; this creates a cultured nation and able to compete in global association. In the industrial revolution 4.0 era in various fields of life it is expected that phenomena replace the old system with a new system based on robot technology for which teachers are more adaptive to the times can increase student resources, if teachers can only transfer knowledge can be replaced with technology, teachers must able to inspire, give suggestions and motivate students to be able to compete in the industrial revolution. Teachers capable of character learners, adapt to the development of the times by not making cognitive intelligence as a benchmark but prioritize the process of creativity as habituation. Therefore, teachers in the age of developing industry can become reality as teaching material that is considered in the 2013 Curriculum (K-13).

II. LITERATURE REVIEW

Conceptually the teacher as a professional must fulfill various competency requirements to carry out their duties and authority in a professional manner, while the real conditions in the field still pay attention to quantity, quality, and professionalism of the teacher. This problem

is still added to the various challenges ahead facing the global crisis. Generally revealed by Tilaar (1995), Long-term development (PJP) II is the community no longer accepting unprofessional teachers anymore. This is in accordance with the opinion of UNESCO, namely: (1) teachers are considered as professional workers who provide services to the community, (2) teachers are required to master specialist skills, (3) knowledge and skills are obtained from continuous education.

Based on the above opinions, the teacher of the industrial revolution era 4.0 is truly a professional teacher to be able to face challenges. For that, pedagogic, professional, personality and social competencies need to be developed so as to educate students who have the ability to predict and cope. On the other hand, professional teachers must be supported by an appropriate reward system, in order that teachers are able to focus on improving the quality of services provided in accordance with professional job criteria. It states that teachers have the right to receive benefits such as: in the form of industry 4.0 will have an impact on the role of education, in particular, its educational role. If the educator is still maintaining knowledge, then they will lose their strength along with technological developments and changes in their learning methods. This condition must be overcome by increasing the competence of educators who support knowledge for exploration and creation through independent learning.

A. Increasing Teachers' Competencies in the Era of Industrial Revolution 4.0

The world of education in the era of the industrial revolution is in the knowledge age by accelerating the increase in extraordinary knowledge. The Acceleration of increasing extraordinary knowledge is supported by the application of digital media and technology called superhighway information (Gates, 1996). The style of learning activities in the knowledge age must be adapted to the needs of the age itself. Further, learning materials must provide more authentic designs to go through challenges where students can collaborate to create solutions to problem-solving lessons. The problem-solving leads to questions and answers those students who able to figure out solutions in the context of learning using information resources (Trilling and Hood, 1999: 21).

Teachers in the industrial revolution 4.0 era are required to conduct an acceleration on the development of information and communication in class learning and classroom management adapted to the advancement of information and communication technology. The teacher is no longer the only source of information but is treated especially with the touch of psychology and educative. For this reason, everyone still expects the presence of teachers to be needed. Thus, the teacher acts as an educator as well as manager or as an education facilitator so that he/she is able to plan, implement and evaluate educational resources for the students can learn productively.

The task of the teacher as an educator is to instill the basic values of character development of students in their lives, including the use of technological advances

wisely and as inspiration for students. Teachers still have an important role in the era of revolution, which can guide students in online discussions. In the development of technology, the more difficult teachers are to compete with machines. Present machines or robots are far smarter, faster, and more effective in searching for information and knowledge. Therefore, the teachers need to change the way of teaching from the traditional to the multidimensional learning. This means that the authentic role of teacher to transfer the knowledge turns to a mentor, facilitator, motivator, inspiration, and developer of imagination and creativity so that learning is more fun and interesting to students. The teacher becomes the raiser of character values and builds teamwork as well as social empathy. All these social aspects are run by teachers and cannot be replaced with machines or robots.

B. Teachers' Abilities in Developing Curriculum in the Era of Industrial Revolution 4.0

The curriculum prepares students to be able to live in a community. Thus, the curriculum is an important component to explain the purpose and direction of education as well as the learning experience that must be possessed by students. In line with the opinion of Sagala (2008: 140) who asserts that the curriculum is one indicator that determines the outcome of the education performance. Accordingly, the curriculum must be managed well and professionally. In this case, the teachers have a responsibility as the implementers in the teaching and learning process. The Government in the field of education Policy 2013 curriculum has elaborated students' abilities on pedagogic dimensions, life skills, collaboration, as well as critical and creative thinking by prioritizing "soft skills" and "transversal skills", life skills, and skills that are clearly not related to certain occupational and academic fields.

Minister of Education and Culture of the Republic of Indonesia, Muhadjir Efendy assessed the aspects of Indonesian education needs to revise the curriculum by adding five competencies possessed by students. The competencies are considered excessively needed capital to be able to compete in the era of industrial revolution 4.0. The five competencies are: (1) critical thinking skills; (2) having innovative creativity and abilities; (3) good communication skills and abilities; (4) the ability to work together; (5) have high self-confidence.

This condition is contrary to the current implementation of education and learning which is limited by the walls of classrooms that do not allow students to explore the real educational environment (families, communities, and schools). The learning is always held by the teachers as *kaya adale* (as usual) and not as *kaya kudune* (as they should), poor innovation and creation. The learning process in school is nothing more than a routine of repetition and delivery (informative) content of knowledge that does not sharpen students to develop their creativity, sense, intention, and work as well as social care. The teacher organizes learning this year still like the previous years. Digital has triggered the demand for professionals of human resources (HR) who have competencies that extremely different than before. The era of the industrial revolution 4.0 also

changes the way of thinking about education. Changes made are not just teaching methods, but are more essential, namely changes in the perspective of the concept of education itself.

C. The Challenges of Educational Institutions in the Era of Industrial Revolution 4.0

In the era of revolution 4.0, the actors of education and culture must also be prepared to adjust to the various exist-developments. School reforms need: capacity building, teacher professionalism, dynamic curriculum, reliable facilities, and infrastructure. In addition, the latest learning technology to be ready to deal with revolution 4.0 is not greatly different from the industrial world which is being faced with the challenges of the fourth generation era 4.0. The education sector is also affected by the development of massive information technology. This can be seen from the increasing demand for quality improvement in the teaching and learning process and the results rather than just relying on rigid and non-adaptive policies, which are only based on classical problems; namely, efforts to achieve equity and access to educational facilities and infrastructure.

The efforts of the education sector to adapt to the industrial revolution 4.0 bring changes in the pattern of policies oriented to the quality of learning. This is in line with the demands on how our education should be able to become a media for preparing human resources who are ready to face the challenges of the Industrial Revolution 4.0. There are various reasons express in many discussions in the public sphere, why our education must respond to the rapid changes of society in the era of the Industrial Revolution 4.0, while the development of education has not been able to follow the optimal pace due to the industrial revolution. One of the efforts that need to be done to deal with this industrial revolution is through improving the quality of teachers in order to be able to teach the material with an approach to the application of IT in the teaching and learning process.

Teachers' Abilities in Implementing Learning Information and Communication Technology in the Era of Industrial Revolution 4.0

Teachers must be able to use IT to improve the quality of teaching and learning processes in each education unit. This effort is made in order to be able to prepare superior human resources with global competencies; because even though information technology developed eminently swiftly and learning resources obtained exceedingly easily, the role of teachers as educators is not replaced by the advancement of these technologies. Educators in the industrial revolution era should increase 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 problems in future education orientation, as well as; change the performance of the education system that able to develop the quality of student learning and reinforcement application-based digitalization of education.

To face the of industrial revolution 4.0, it is necessary education that can form a creative, innovative,

and competitive generation. One of them can be achieved by optimizing the use of technology as an educational aid that is expected to produce output that able to follow or change to a better time. Indonesia also needs to improve the quality of graduates according to the world of work and the demands of digital technology. It is the time for us to leave the learning process that tends to prioritize memorization or just find one right answer from the problem. The method of learning Indonesian education must begin to turn into visionary thought processes, including honing the skills of creative and innovative ways of thinking. This is treated to deal with various technological and scientific developments. Finally, the explanation above is enough to illustrate how the industrial revolution 4.0 has infiltrated all the joints of the life of the nation, so that there is a lot of 'homework' one of them in our education land, in order to be able to produce capable human resources of adapting to the development of information technology.

III. CONCLUSION

Based on the explanation above, it can be concluded as follows:

1. To improve Teacher Competence in the Era of Industrial Revolution 4.0, the role of the teacher as an educator is able to instill the basic values of character development in students' lives. It includes the wise use of technological progress and as an inspiration for students; also, increasing the quality of human resources that can elaborate on knowledge, life skills, and mastery of information technology.
2. Teachers are able to develop curriculum in the era of industrial revolution 4.0; able to elaborate students' abilities on pedagogic dimensions, life skills, ability to live together (collaboration), and critical and creative thinking by promoting 'soft skills' and 'transversal skills', life skills and skills.
3. The Challenge of Education in the Era of the Industrial Revolution 4.0 is that education can adapt to the industrial revolution 4.0 brings changes in policy patterns that are oriented towards the quality of learning needed by educators who can form generations of creative, innovative, and positive.

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