

Citizenship Competence Era of the Industrial Revolution 4.0 Vocational Education

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Abstract— Industry 4.0 this term originates from a project to promote computerization of manufacturing which was initiated by the German government, and the basic principle of industry 4.0 is the incorporation of machines, workflows, systems. The era of industrial revolution 4.0 is very influential in human life which is marked by rapid internet technology including the development of education. In the era of industrial revolution 4.0, there are many challenges faced in learning both for students and for teachers in vocational education, the content of practical teaching materials cannot enrich or adapt to the dynamics of society and the swift globalization. This is very important if it is associated with Citizenship Education which cannot be separated from the life that continues to grow, so in the midst of this global life, it is necessary to have better civic knowledge, civic skills, to face increasingly sophisticated lives. In this article, we argue that to improve citizenship competence in the industrial revolution 4.0 vocational education era is to develop 21st century based learning, digital literacy and technology become the main roles in this era balanced with human literacy and as the main foundation in carrying out this life is to believe to God.

Keywords: *industrial revolution 4.0, citizenship competency, 21st century based learning*

I. INTRODUCTION

Education today is growing very rapidly, with the advancement of technology having an important role in facing the increasingly sophisticated outside world. In the era of industrial revolution 4.0 there were many challenges faced by both teachers and students, especially vocational education, so in the era of industrial revolution 4.0 citizenship competencies needed were multi-dimensional in accordance with the needs of the times, globalization demand civic education to develop civic competence involving civics knowledge, civics skills and disposition civics which are multidimensiona [1]. Based on his quotation above, Citizenship Education in the face of the era of globalization should develop citizenship competence, which consists of knowledge of citizenship, citizenship skills, and character or character of citizenship. Citizenship competence is very closely related to citizenship education subjects, especially in Vocational High Schools, the current conditions need to be developed both in material, methods, media, sources, evaluation. In order for graduates from a school to be ready to use in the world of work in accordance with their field of

expertise even to be able to open their own jobs, constraints and limitations faced by Civics learning: first is instrumental input especially related to the quality of teachers /and limited facilities and learning resources, and the second is environmental inputs, especially those related to the conditions and situations of political life in a less democratic country [2]. One study that shows that high school graduates, diplomas and tertiary institutions are still less competent in terms of Oral and written communication, critical thinking and problem solving, work ethics and professionalism, working in teams and collaborating, working in different groups, using technology, project management and leadership [3]. the report of the International Labor Organization (ILO) states that the latest figure for unemployment in 2015 is estimated at 197.1 million people and in 2016 the estimate increased to 2.3 million reaching 199.4 people. An additional 1.1 million unemployed is estimated to increase the number of global calculations in 2017. [4] stated that the number of Indonesia's open unemployment rate (TPT) decreased to 7,00 million and most graduates from SMK, in terms of educators or teachers were also not good.

Based on the above background it is necessary to review, and this article aims to illustrate how revolutionary 4.0 4.0 Vocational Education citizenship competence after first discussed the importance of Citizenship Education in the 21st century, citizenship competence and vocational education in the industrial revolution era 4.0.

II. THEORETICAL REVIEW

A. *Citizenship Education in the 21st Century*

Education is a very valuable investment for the future generation because one of the nation's advances is seen from the advancement of the world of education. Then with planned education will produce students who are by following the expectations of the country and the state, not only intelligent knowledge but noble and have a strong foundation in religion. education at this time is to anticipate and adapt to the various demands and dynamics of change that are currently and will take place in the 21st century, the Indonesian nation must further hone the skills needed to deal with every revolution in

education in the 21st century (Koesoema; 2007, Sulistiwati; 2012, and Slamet 2014) in [5]. This 21st Century Era affects everything in life that occurs in a society characterized by rapid technology, information that cannot be separated from this life, Morais and Ogden (2011: 449). Citizenship develops into global citizenship, which can be understood as a multidimensional construction that depends on the interrelationships between the dimensions of social responsibility, global competence, and global citizen involvement, in [6]. So that in carrying out their lives, citizens are very affected by the conditions that exist in both the area and the city and have become a necessity to use them. The mission of citizenship education teaches students and PKn teaching materials and their living environment actively-participatory, creative, democratic and humanistic [7]. Therefore, with the learning of Citizenship Education, students are expected to be active, participatory and creative and be able to innovate in all fields accompanied by democratic attitudes and a sense of humanity.

Through this citizenship education, students can become Indonesian citizens who are not only good but also critical, active, intelligent, solutive and have a well-informed knowledge of qualified citizenship, [8]. Eight characteristics of the ideal 21st- century citizens: 1. Ability to see and to approach problems as members of the global community, 2. Ability to cooperate with others in a cooperative manner and accept responsibility for roles/ tasks in society, 3. Ability to understand accept, appreciate and be able to accept cultural differences, 4. The ability to think in a critical and systematic way of thinking, 5. The desire to resolve conflicts in a non-violent manner, 6. Desire to change his lifestyle and consumptive habits to protect the environment, 7. Ability to behave positive and protect human rights, 8. Desire and ability to participate in politics at the local, national and international level [9].

Teaching citizenship and citizenship competencies is framed by active citizenship in a national and/ or European context, namely by explaining political rationality and discursive practices that underlie the teaching assumptions of citizenship competence, [10]. Changes and developments in society, students must be equipped through citizenship education with new knowledge to acquire attitudes and skills that enable them to actively contribute to the community and conceptual framework of citizen education in the 21st century, the first dimension is information that refers to new skills for access, evaluate and regulate information in a digital environment, the second dimension is Communication which not only refers to social interaction but also effective communication and collaboration and virtual interaction, the third dimension is Ethical and Social Interaction which refers to social responsibility and how one's actions affect community, so the impact is being a digital society, Ananiadou & Claro (2009) in the results of [11].



Figure 1 Citizenship Education the 21st Century. Source: <https://www.moe.gov.sg/education/education-system/21st-century-competencies>.

Thus through civic education can deliver citizens who are broad-minded and globalized, in accordance with the needs of the times, because for now we cannot avoid the rapid progress of increasingly sophisticated technology to become a digital society.

B. Citizenship Competence

Citizenship Education is tasked with fostering the development of knowledge and abilities of students regarding roles, tasks, rights, obligations, and responsibilities as citizens in various aspects of life in the state [12]. Learning Citizenship education is not only the knowledge that the teacher gives to his students but there must be a balance between attitude, knowledge, and skills so that it can be applied well in everyday life. In teaching PKn, the teacher must have an in-depth understanding that Civics contains the content of citizenship competencies. Three important components that must be owned by citizens are knowledge of citizenship, skills of citizenship and disposition of citizenship [13]. Also besides, the National Standards for Civics and Government (Center for Civic Education, 1994) formulate the main components of civic competences is a civic education objective which includes "knowledge of citizenship, citizenship skills, and character of citizenship" [14]. The term civic competence refers to the knowledge, attitudes, values, and skills needed for participation in civil and political life so that it can play the role of citizens to become active citizens [15]. These three components cannot be separated from each individual in living this life, and part of this component of knowledge of citizenship is manifested in form five important questions, namely: (1) What is the life of citizenship, politics, and government; (2) What are the foundations of the political system; (3) How the government formed by the constitution embodies the goals, values, and principles of democracy; (4) relations between a country and other countries and their position in an international problems; (5) What is the role of citizens in democracy? [13]. Knowledge is an important thing to initiate learning for students, another opinion regarding the knowledge of citizenship is both historical and contemporary, such as the understanding of the structure and mechanics of constitutional government and knowing who the local political actors are and how democratic institutions function [16]. In this case, citizens know the history, structure, and mechanics of government and legislation in force, know

political actors and how democratic institutions function. Civic skills include intellectual skills and participation skills, [14]. Another opinion about Civic skills is the ability to understand data about government and local issues, and skills that help students resolve conflict as part of a group, [16]. Citizenship skills possessed by citizens can understand and analyze data about government and local issues, and skills that help students resolve conflicts that exist in life.

The Civic disposition implies that both public and private characters are important for the maintenance and development of constitutional democracy. Developing and living from three circles in homes, schools, communities, and civil society organizations. A Private character consisting of moral responsibility, self-discipline, and respect for human dignity and dignity of each individual is mandatory and the public character of caring as a citizen, politeness, rule of law, critical thinking, and willingness to listen, negotiate and compromise are character that is very necessary for democracy to run successfully. [14]. This can give birth to citizens who are responsible and have good ethics in living a democratic life.

C. Industrial Revolution 4.0 vocational education

Industry 4.0 this term originates from a project to promote the computerization of manufacturing which was initiated by the German government. With the development of sophisticated technology, for now, human power can be replaced with robots because it was cheaper, more effective and efficient reasons. A number of advantages and other reasons for adopting the concept of industrial revolution 4.0: (1) shorter time to market for new products, (2) increasing customer response, (3) enabling custom mass production without significantly increasing overall production costs, (4) a more flexible and friendly work environment, and (5) more efficient use of natural and energy resources [17].

The challenges of industry 4.0 are industry readiness, reliable workforce, ease of socio-cultural regulation, diversification and job creation. While the opportunities for industry 4.0 are: ecosystem innovation, competitive industrial base, investment in technology and integration of Small and Medium Enterprises and entrepreneurship [18]. In facing these challenges and opportunities it is used as a motivation for vocational education to further improve the quality of graduates in the future. The solutions to face the challenges of education in the revolutionary era 4.0: 1). Suitability of curriculum and policies in education, 2) readiness The solutions to face the challenges of education in the revolutionary era 4.0 are: 1). Suitability of curriculum and policies in education, 2) readiness of human resources in utilizing ICT, optimizing the ability of students, and developing the values (character) of students, 3). The Readiness of educational facilities and infrastructure of human resources in utilizing ICT, optimizing the ability of students, and developing the values (character) of students, 3). The Readiness of educational facilities and infrastructure [19].

Vocational education as education that is different from other types of education must have the following characteristics; 1) oriented to individual performance in the world of work; 2) special justification on real needs in the

field; 3) curriculum focus on psychomotor, affective, and cognitive aspects; 4) the benchmark for success is not limited to school; 5) sensitivity to the development of the world of work; 6) need adequate facilities and infrastructure; and 7) the existence of community support, [20]. This must be balanced with supportive skills for the future. Three predicted skills become skills that are needed in the future or in the industrial era 4.0. namely: 1) digital literacy, 2) technology literacy, and 3) human literacy, [21]. With the new literacy, students are expected to get used to digital use, technology development and can socialize with the wider community. Adaptation of the new literacy movement can be integrated by adjusting the curriculum and learning system in response to the industrial era 4.0. The term civic competence refers to the knowledge, attitudes, values, and skills needed for participation in civil and political life so that it can play the role of citizens to become active citizens the strategy that must be carried out by the school principal in improving human resources in the field of computer science engineering and infrastructure in the development of the digital revolution 4.0 is to be process-oriented and to master the 4C formula that is critical thinking, creativity, communication, and collaboration [22]. The learning response that needs to be developed for Vocational Schools is 21 st-century learning, [23]. Skills that must be possessed by each individual in the 21st century according to [3]: "the most important demand in the 21st century: learning and innovation skills, (ii) information, media and technology skills, (iii) life and career skills ". As an explanation Figure 1 shows the rainbow scheme of 21st-century knowledge-skills:

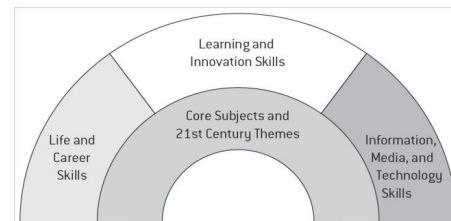


Figure 2: 21st Century Knowledge Skills Rainbow Scheme, Source: [3]

21st-century skills and the industrial era 4.0 needed must be integrated into the elements of vocational education. Starting from the learning system, education unit, students, to educators and education staff [23]. With the integration of 21st century skills in the industrial era 4.0, this greatly paved the way into the world of more advanced education that fits the needs of the times. Important components that need to be learned in the development of future students in the 21st century are (1) basic foundation components, (2) basic ability components, and (3) basic skills, [24]. Thus the intelligence that arises is not only the knowledge but creates spiritual intelligence.

III. RESEARCH METHODS

This study uses literature studies, which systematically elaborate from various concepts about citizenship competencies sourced from journals, books, relevant research to construct citizenship competence in industrial-era 4.0 vocational education.

IV. RESULTS AND DISCUSSION

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Three citizenship competencies are components that cannot be separated from each citizen, so they can create a good country. Global citizenship education is important to reflect constructively about the values, assumptions, and strategies of key actors who aim to provide answers to fundamental questions about the nature, purpose, and application of education for a variety of contexts, needs, and conditions for local education, [25]. With the rapid development of technology, we cannot leave our identity as a reference in life. People must be educated in all forms of contemporary mediated expression and far beyond print media, the importance of media education for citizenship teaching and social studies and examining approaches to citizenship through media literacy, one of which is the website, [26]. Elements that exist in vocational education as part of the chronosystem must strengthen the new literacy movement (digital literacy, technology literacy, and human literacy). Strengthening was carried out to provide added value and competitiveness of graduates of vocational education in the industrial era 4.0. Interaction and integration between departments with industrial content 4.0, [23]. Can be seen the picture below:



Figure 3: Chronosystem of Vocational Era of Industrial Education 4.0. Source: [23]

The purpose of Vocational Education is the level of education process of adolescent children who are directed to be skilled in certain fields of work and ready for a career [27]. Vocational education is printed besides they are ready to work in the industrial world, they must also be ready to create jobs and do not rule out the possibility that in fact many of them continue to pursue higher education. Seeing the various urgencies of SMK in facing the era of the industrial revolution 4.0 which is developing at this time, it is very necessary to support the development of soft skills that need to be provided for vocational students. The 21st Century expertise most closely related to the goals of Vocational High Schools and Vocational Education in Indonesia is Life Skills [27]. Based on basic references regarding vocational education, especially in citizenship competencies in Indonesia as well as several definitions that are relevant to the research themes outlined, interpretations of citizenship competencies that must be owned are citizenship knowledge,

citizenship skills and citizenship dispositions. Where these three components will offset in running a global life full of challenges in the 4.0 revolution era.

With the competency of knowledge possessed by citizens can know the history, structure and mechanics of government and the applicable legislation, know political actors and how democratic institutions function. Citizenship skills possessed by citizens can understand and analyze data about government and local issues, and skills that help a student resolve conflicts in life. And with the disposition of citizenship this can give birth to citizens who are responsible and have good ethics in living a democratic life. Thus graduates of vocational high schools will be fostered into good citizens to plunge at some point in the world of work or the world of industry they will even become good leaders in the companies they own.

V. CONCLUSION

The current condition of education is very challenging, especially vocational education, competition is a motivation for vocational education to be better and has the advantages and characteristics of each graduate.

Citizenship competence regarding the knowledge, skills, and character of citizens is the provision in facing the era of industrial revolution 4.0, namely developing 21st century skills-based learning, digital literacy, technology being the main role in this era balanced with human literacy, and as the main foundation for reference living this life is believing in God.

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