

Literation Improvement of Indonesia's Citizens in the Era of Industrial Revolution 4.0: A Conceptual Analysis on Civic Education

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Abstract— This research was based on the changing of the world's view from Revolution Era 3.0 to 4.0. The main problem is 'Are the now day's materials of Civic Education still sufficient to provide citizen's literacy or competencies to live in the Revolution Era 4.0? In order to answer the problem, the library research was used. For analyzing the data, the writers used the content analysis method. The finding of this research are Competence or literacy needed is encultured through citizenship education containing at least three aspects to achieve someone becomes a good citizen among others. First aspects is knowledge; The second aspect is Value and Attitude and The third aspect is skills. Entering and living in the fourth industrial revolution or revolution 4.0 is not just applying the three literacies aspects explained above, the citizen also needs more new literacies, namely information and technology, English and good humanity.

Keywords: *industrial revolution 4.0, Civic Education, literacy*

I. INTRODUCTION

The industrial revolution has been experienced by people almost all over the world, including those in Indonesia. Before the industrial era, Indonesia is well-known as the agrarian country; the societies' livelihoods were highly depend on the natural resources, like agriculture and plantation. In the industrial revolution, the livelihoods paradigm was changed; there appeared factory construction to recruit most employees of processing the raw goods into ready to use items. The history of the industrial revolution begins from 1.0, 2.0, 3.0, to 4.0 industry. The term 4.0 industry is derived from a project initiated by the Germany government to promote computerized manufacturing.

In the 1.0 industry, production mechanization was developed to effectively and efficiently support human capital. Human mindset changes in the production had serious impact on the world's economic situation, social and culture. This revolution is historical noted to dramatic boost the economy during 2 centuries of increasing the average of per capita income in countries become six times. While 2.0 industry is characterized by both quality standard and production. In this period, management science was also developed for increasing manufacturing efficiency and effectiveness. For example, dealing with the work division, every employee do part of total work to achieve productivity. In addition, it was developed the mass goods production using assembly line.

In a little more advanced, 3.0 industry or known as

digital revolution is characterized by manufacturing based on automation and robots. Besides, this industrial period changes the relation and communication pattern of contemporary societies. Business practices is also changed in order to avoid the ingested. However, this industrial revolution also has the aspects that need to be evaluated. Technology develops factories to use machines than human. In addition, the sophisticated machine has the ability in multiply production. In consequence, the reductions of employees is inevitable. Besides, reproduction also has the extraordinary power. Only in hours. many products are produced that cannot be produced by employee.

The newest, 0.4 industry presents replacing three previous industries characterized by the physical cyber and manufacturing collaboration [1]. In this industrial revolution, it has been founded a new pattern when technological disruptive appears so fast and threatens the incumbent companies existence. It has been historical noted that this industrial revolution has had many victims of the big companies death. This means that the companies' size do not ensure successfulness, but the agility to win is highly needed.

The 4.0 industrial revolution era changes the concepts of work, work structure, and competency needed by working world. A survey in international recruitment company, Robert Walters, of the 2018 salary survey, mentions that the focus of business transformation towards digital platform has triggered the demand of professional human resources having the higher competencies that before. The 0.4 industrial revolution has changed paradigm of the educational quality. The paradigm changing is not just in teaching styles, but in the more essential aspect; namely the changing of paradigm on the concept of the education itself.

Education should be, at least, able to prepare the students facing three things: a) prepare them to be able to do the work that do not yet exist; b) prepare them to solve problems that do not yet exist, and c) prepare them to be able to use technology that is not yet created. It is not an easy job for today's education world. To be able to face the challenges, vital prerequisite that has to be met is how to prepare the high qualification and competence of teachers and lecturers. Hence, the role of civic education become very important in facing the changes that occur.

Based on the background of the problem above, the problem can be formulated as follows:

1. What is the Essence of Civics Education in the world of education?
2. How is Citizenship Education Literacy in facing the Industrial Revolution Era 4.0?

II. THEORETICAL REVIEW

A. Literacy

Kern [2] which defines: "literacy is more comprehensive as follows : Literacy is the use of socially, historically, and culturally-situated practices of creating and interpreting meaning through texts. It entails at least a tacit awareness of the relationship between textual conventions and their contexts of use and, ideally, the ability to reflect critically on those relationships. Because it is purpose-sensitive, literacy is dynamic-not static-and variable across and within discourse communities and cultures. It draws on a wide range of cognitive abilities, on knowledge of written a spoken language, on knowledge of genres, and on cultural knowledge.

Then in line with that Iriantara [3] explains that now literacy is not only related to the ability to read and write texts, because now "text" has expanded its meaning so that it also includes "text" in the form of visual, audiovisual and compilatory dimensions, so that in the "text" together cognitive, affective, and intuitive elements emerge. In the technological era as it is today, the context of a society's intellectual tradition can be said to be literate culture when the community has made use of the information they can use to communicate social and science. Based on the above explanation, it can be understood that literacy is a stage of social behavior, namely the ability of individuals to read, interpret, and analyze the information and knowledge that they can to give birth to prosperity radaban superior).

B. Civic Education

Civics has always been defined as a study of government and citizenship related to the obligations, rights, and privileges of citizens. From the various opinions above, it can be concluded that Civics is a subject that focuses on the formation of citizens who understand and are able carry out their rights and obligations as mandated by the Pancasila and the 1945 Constitution [4].

Citizenship education aims to provide competencies as follows: a. Think critically, rationally and creatively in responding to the issue of citizenship and democratic to form themselves based on the character of the Indonesian people so that they can live together with other nations. Interact with other nations in the world directly or indirectly by utilizing information and communication technology.

It can be concluded from the various opinions above that Civics aim to: a. make Indonesian citizens critical, rational, creative, intelligent, active, and democratic, b. participate in a quality and responsible manner in community, national and state activities, c. develop a culture of civilized democracy, namely freedom, equality, tolerance, and responsibility, d. interact with other nations in the world directly or indirectly by utilizing information and communication technology.

C. Revolusi Industri 4.0

Industrial revolution 4.0 is the name of the latest automation and data exchange trends in manufacturing technology. This term covers physical-cyber systems, the internet for everything, cloud computing, and cognitive computing. Some of the important issues in the 4.0 Industrial Revolution are how governments, large or small-scale industry players, academics, and the wider community face the potential generated by advances in information technology that have an influence on various forms of business models. All of which have implications for changes in the pattern of the industry itself that seeks to manage its production processes, these changes can reach the entire value chain both from rural and urban people [5].

The industrial revolution is experiencing its peak today which is marked by the birth of digital technology which has an enormous impact on human life that exists throughout the world. The fourth generation industrial revolution pushed the automation system in all activity processes. In 2017 internet technology users in Indonesia reached 143.26 million, equivalent to 54.7 percent of the total Indonesian population [6].

III. RESEARCH METHOD

The method used in this research is the library research method. According to Luo [7], the value of research in academic libraries is well-documented in the literature. Kaelan [8] in library research sometimes has descriptive and also has historical characteristics since a lot of this kind of research has a historical dimension, and so on. Therefore, library research will face data sources in the form of books that are very large in number so that they require adequate methods. For this reason, in library research, collecting books must be gradual; there will be difficulties if not so.

Data collection techniques, in this case the author will identify discourse from books, papers or articles, magazines, journals, web (internet), or other information related to the writing title to look for things or variables in the form of notes, transcripts, books, newspapers, magazines, etc. related to the study of Increasing citizen literacy in the revolutionary era 4.0. Then the steps are as follows:

1. Collecting existing data through books, documents, internet magazines (web).
2. Analyze the data so that the researcher can conclude the problem being studied.

The data analysis technique used in this study is the data analysis introduced by the Miles and Huberman models with the following steps: data reduction (data reduction), data display and description of conclusions or verification the literation needed by Indonesia citizens to regionally, nationally, and internationally live in the 21st century.

IV. RESULTS AND DISCUSSION

A. The Essence of Citizenship Education

Regarding citizenship education, Nogueira [9] says that "The issues related to conceptions of Civic Education allow us to see that there is a strong framing of values education". Furthermore, Yoldas [10] says that "Civic education is a legal system. That means that Citizenship Education will remain the subject of future empirical investigations because it is repeatedly confronted with new challenges in the life of democracy.

In accordance with the concept of Butts [11], 'The origin of the idea of citizenship is based upon membership in political community regulated by rather than upon the laws of making membership in a family or tribe, kinship, religion, ethnic background or other inherited status. Then, USAID (1994: 10) describes the course of study that teaches students that are necessary to live in a state orth society. That is why PKn aims to educate people to live in a democratic country. Citizens must have the ability and knowledge to be able to participate in political life, matters relating to the public interest and other aspects. Students must understand how "to guard against tyranny of majority, allow everyone, including those in the minority, to freely and fairly participate in political and civic life influencing their government and public policy decisions [12].

From some of the meanings of the citizenship term, it can be concluded that the concept of citizenship is a teaching that contains patterns of relations between individuals and the State. The intended relationship is a public relation because being a citizen means being a member of the political community, in this case the State. The political community has many aspects in it such as ideology, politics, economy, social, culture, security, rights, obligations and others. All of these aspects are regulated by law which is based on a process that applies in a particular country [13]. And the Civics that should be citizens is educated to have awareness and participation in public life, including criticizing the policies made even by the government [14].

Citizenship education for the community is intended so that all elements of community members can individually know, understand, understand and implement manners, orderly and act in accordance with the norms of the applicable law in society. It is not very smart if an individual in the community does not know and understand the aspects that need to be considered in his public life. Throwing garbage into the river, obeying traffic regulations, orderly on the road, getting used to queuing are examples of commendable behavior that must be educated to the public so that people live in an orderly and peaceful manner.

Butts (1980) also proposes 10 (ten) basic concepts of Civics, which include:

1. *Justice*
2. *Freedom*
3. *Equality*
4. *Diversity*
5. *Authority*
6. *Privacy*

7. *Due to process*
 8. *Participation*
 9. *Personal obligation and public good*
 10. *International human rights*
- Completing this teaching material, USAID (1994) also proposes basic concepts and teaching materials that must be included in Civics, namely: *Knowledge*
1. *knowledge based*
 2. *history*
 3. *geography (Culture and economic)*
 4. *economic System*
 5. *political system*
 6. *social system and institution*
 7. *world reality*
 8. *humanities*
 9. *moral education*
 10. *alternative social arrangement*
 11. *differences (ethnic, cultural, racial, political)*
 12. *human rights*
 13. *element of true democratic (rights, solidarity, tolerances, respect)*
 14. *country constitution*
 15. *country government*
 16. *multiculturalism*
- a. *Values :*
1. *respect (self and other)*
 2. *principle of democratic life*
 3. *respect and defend human rights*
 4. *care about other*
 5. *souvereignty of people*
 6. *justice*
 7. *freedom*
 8. *equality*
 9. *authority*
 10. *diversity*
 11. *privacy*
 12. *due to process*
 13. *participation*
 14. *responsibility (personal. Civics, social)*
 15. *rule of law*
 16. *civility*
 17. *truth*
 18. *tolerance*
 19. *assistance of bothers*
 20. *civic sense*
- b. *Skills:*
1. *critical thinking*
 2. *independent thinking*
 3. *problem solving*
 4. *literacy*
 5. *communication/dialog*
 6. *decision making*
 7. *assessment of political situation*
 8. *cooperation*
 9. *protection and promotion of ones interests and values*
 10. *productive participation in work force*
 11. *political, social, civics participation*
 12. *community service*
 13. *personal and social responsibility*

14. *dealing with dealing with differences*
15. *leadership*

B. Civics Literacy in the Era of Revolution 4.0

Based on all the Civics concepts described above, there are at least three literations of citizenship education in the era of the Industrial Revolution 4.0; namely:

1. Information Technology Literacy
 - a. Understanding Information Technology Literacy

Topaloglu [15] in parallel with the rapid developments in informatics and technology, the qualities that are expected from an individual have also changed. Today, utilizing the available technologies to get the information changing and growing constantly is not a privilege but a must. The individuals are required to know how to access to information, how to utilize it for their needs and to keep up with the developing technology. Based on the above definitions, literacy is defined as an ability consisting of aspects of science, critical thinking skills, and decision making in efforts to use technology/innovation of human work effectively, especially in education. Meanwhile according to Maryland Technology Education State Curriculum, technology literacy is the ability to use, understand, regulate and assess an innovation that involves processes and science to solve problems and expand one's abilities. More detailed National Academy of Engineering and National Research Council of the National Academy explains that technology literacy is an understanding of technology at a level that enables effective use of modern technology which consists of three main components, namely knowledge, ability and critical thinking, as well as making decision. Thus, it can be understood that technological literacy is an ability that consists of aspects of knowledge, critical thinking skills, as well as decision making in an effort to use technology/ innovation resulting from human work effectively especially in the world of education.

- b. Number of Internet Users

Quoted from Taufikul report [16] on bisnis.com website that the number of internet users in Indonesia increased by 17 million over the year to January 2019, up 13% compared to the 2018 period, based on data released by Hootsuite Inc. As a result, the total internet users in the country currently reach 130 million, or 56% of the total population reaching 268.2 million. The report entitled *The Global State of Digital in 2019*. Report stated that active social media users in Indonesia this year also increased by 20 million (13%) to 150 million, or the same as the number of internet users. Meanwhile, those who use social media through mobile devices have reached 130 million, up 10 million (8.3%) over the past year. On the other hand, in the period January 2018-January 2019 there was a decline in the registration of mobile device users (sim cards) to reach 19% or reduced by 83 million. This is probably related to the policy of re-registration of SIM cards or prepaid cards applied by

the government. However, despite decreasing, the ratio is still high, reaching 133% of the population. From these data it can be understood that the increase in Internet users in Indonesia has an impact on increasing the amount of educational content that can be accessed online. Many websites provide free tutorials on mathematics that can be accessed by anyone, anywhere and anytime.

- c. Technology Literacy in Citizenship Education

In the Industrial Revolution 4.0, the use or use of technology in Civics learning is very important. Because of the inclusion of technology in education, it influences various aspects of Civic Education learning, including: What kind of civic education should be taught? How is Civic Education taught and learned by students? And how to assess in Civic Education learning.

As future citizenship education teacher candidates, students should be provided with the skills needed in the 21st century. Therefore, the ability to use and utilize technology must be mastered by prospective Civic Education teacher students in Indonesia. One effort that can be done by the university is to incorporate or integrate technology literacy into the Civic Education curriculum itself. That is way, it will give birth to teacher candidates who have good competency values to face future prospective students.

2. English Literacy in Citizenship Education

In the world of industrial revolution 4.0, students as prospective teachers are required to think analytically, critically, creatively, and solve problems. To support these efforts, it requires entering literacy strategies in learning, so that they can package learning comprehensively and can mobilize all participants' abilities. Students regarding their attitudes, knowledge and skills on the basis of providing good literacy knowledge to them. To achieve this, of course, prospective citizenship education teachers need to strive to systematically and continuously improve the student literacy skills.

Future teachers are supposed to understand and be fluent in English. Because English is one of the international languages needed in society to socialize with each other. It is very necessary for good, formal and informal learning to achieve the target and in accordance with the demands of the curriculum. One of the skills that must be possessed and developed by students is language skills and understanding English texts. MAP development of literacy skills in schools will help improve students' learning abilities. That is why the use of text and/or teaching materials that are varied, accompanied by good planning in learning activities is very likely to be able to improve student literacy skills. This is as revealed by Kisyani [17] that literacy is often associated with reading and writing activities, but along with the development of science and knowledge, literacy is interpreted as an understanding of various texts that will help the development of life and its various aspects

because the text is a representation of life individuals and communities in their respective cultures.

3. Literacy of Humanism

Jigna in the CS Canada journal [18] emphasized that "To learn well, we must give students chances to develop freely". This statement means to produce good learning; the teacher must provide opportunities for students to develop freely. This was immediately responded by the Director General of Learning and Student Affairs, Intan [19] in the 2018 Ristekdikti Rakernas event that the Era of Industrial Revolution 4.0 Learning, where universities need to reorient the curriculum, hybrid/blended learning, and life-long learning. This means that we must be able to adapt in using and utilizing technology well. In addition to technology literacy, English language literacy that is equally important is humanism literacy. Human literacy is important to survive in this era, the goal is so that humans can function well in the human environment and can understand interactions with fellow humans. Therefore, a method is needed to develop the cognitive capacity of students: a higher order mental skill, critical & systemic thinking, is very important to survive in the era of industrial revolution 4.0.

Furthermore, UNESCO explains that literacy ability is the right of every person and is the basis for lifelong learning. Literacy skills can empower and improve the quality of individuals, families, communities. Because it is a "multiple effect" or can have an effect on a very wide area, literacy skills help eradicate poverty, reduce child mortality, population growth, and ensure sustainable development, and the realization of peace. Illiteracy, however, is a barrier to a better quality of life. It can be said that humans have a natural desire to develop, to be better, and also to learn. And it can also be said that Emotion is a very strong characteristic that appears from the humanistic school. Because thinking and feeling go hand in hand, ignoring emotional education is the same as ignoring one of humanity's greatest potentials. We can learn to use our emotions and benefit from this humanistic approach just as we get from education that emphasizes cognition.

It can be said that humans have a natural desire to develop, to be better, and also to learn. Steelwater [20] Said Humanistic values have continued to inform philosophies of political life, human rights, and the nature of meaning and enter into debates over the environment, the role of science. This means that Emotion is a very strong characteristic that appears from the humanistic school. Because thinking and feeling go hand in hand, ignoring emotional education is the same as ignoring one of humanity's greatest potentials. We can learn to use our emotions and benefit from this humanistic approach just as we get from education that emphasizes cognition.

Therefore, agents need to be in the development of humanism literacy, if in the mother's family is the key agent of humanism literacy, then in college or on campus which is the key to humanism literacy is the lecturer or teaching staff. because he becomes an agent of literacy for humanism for his students. The lecturer is a school for students' intellectual, spiritual and emotional development. One part of that aspect

includes humanism to build a friendly and virtuous generation. This new literacy is a vehicle to address the challenges of the Industrial Revolution 4.0 era which culminated in strengthening humanism.

V. CONCLUSION

In order to become a citizen who is well perceived by the Industrial Revolution 4.0, various types of competencies or other term, like literacy is needed. The necessary competency or literacy is encultured through citizenship education. There are three literacies that are felt to be very necessary to support citizens' abilities in facing this global challenge. First, technology literacy, where people can develop their potential whether their knowledge, attitudes and skills through the use of technology effectively and efficiently. Second, English literacy. good citizens can be seen from how they interact with the outside world. To socialize internationally, the bridge is English. Third, literacy of humanism. To face the challenge of revolution 4.0, not enough with technology and English alone, it needs to be balanced with humanism literacy in order to build a generation that is friendly and virtuous.

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