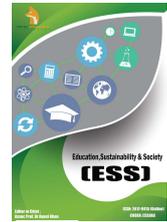


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RESEARCH ARTICLE

MULTICULTURAL EDUCATION SYSTEM VALUE ENGINEERING MODEL IN STRENGTHENING NATIONAL IDENTITY IN THE ERA OF THE INDUSTRIAL REVOLUTION AND SOCIETY 5.0 (R&D STUDY IN TEBU IRENG HIGHER EDUCATION IN EAST JAVA)

Ade Tutty Rokhayati Rosa

Postgraduate School of the Islamic University of Nusantara (UNINUS) Jln. Soekatno-Hatta No. 530 Bandung West Java Indonesia.

*Corresponding Author Email: adetutty@uninus.ac.id / rosatraxnov@gmail.com

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ABSTRACT

The Industrial Revolution led to disruption of the teaching profession. One real impact of the problems of education in the digital age is the failure of multicultural education of national identity began to fade in the younger generation especially in higher education. The urgency of research is the challenges faced by the government and universities, namely how to prepare, map the workforce in the profession of education graduates in the face of the industrial revolution 4.0 and society 5.0. The purpose of the research is the importance of understanding multicultural education for resources including: (1) Solving various problems of an institution related to managing the multicultural education value system formed, so that they survive in the midst of the development of science and technology; (2) Providing strengthening of multicultural education and National Identity, equipping students with various digital-based skills. (3) Creating an Engineering Model of an education system that is able to strengthen the new literacy movement in Era Society 5.0 becomes a great opportunity for Indonesia. The research method uses qualitative methods with trials, field research, literature and social media, providing certain training, (coding, information management, real-time accounting needs to stakeholders). Research solutions include: (1) Cultivating educational value systems for adaptation to the development of science and technology and formulating strategic policies in various aspects, enhancing the nation's competitiveness, being able to provide research-based learning infrastructure. The results of the research include: The achievement of strategic objectives of research-based tertiary institutions, strengthening national identity that is creative, innovative, characterized, with integrity so as to produce skilled graduates in aspects of data literacy, technological literacy, human literacy, through human digital approaches, digital based expertise. Conclusion that: Engineering Model in multicultural education systems based on information technology and digitalization is one solution to realize quality education, character, there are aspects that will restore the glory of human civilization, namely aspects that collaborate with each other physically, digitally, and biologically, as well as complemented by the presence of spiritual aspects means that Revolution Society 5.0 is the new future of humanity.

KEYWORDS

Engineering Model, strengthening national identity, revolution society 5.0.

1. INTRODUCTION

The background of the research include: (1) The challenges faced by the government and universities are how to prepare and map the workforce of graduates of education in the face of the industrial revolution and society. (2) The curriculum and methods of education have not adjusted for changes in the business climate, an increasingly competitive industry and follows the development of science and technology; (3) Universities have not yet strengthened the ability to respond to the needs of the world of work, business, industry with innovation and cross-disciplinary curricula; (4) Current developments have changed the national, global economic, social, cultural and political landscape. (5) There is a negative impact caused by the revous of industry 4.0 especially for young people

of Indonesia, ranging from radicalism, discrimination, fading of local culture, criminal acts from social media and the real world resulting from a lack of understanding of the management of multicultural education, strengthening literacy in the formation of integrated millennial generation character, because higher education is an organization as a reference for innovation, and is most responsive to the development of information technology and knowledge (Asl et al., 2012).

Research problems, namely the industrial revolution and the Society 5.0 have changed the appearance of the world where information technology has become the basis of human life (Marquardt, 2002; Mcelroy, 2002). Everything becomes borderless with unlimited use of computing and data power because it is influenced by the development of massive internet and

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digital technology as the backbone of the movement and connectivity of humans and machines (Rizal et al., 2017). How to create a learning process that is more contextual and scientific in order to shape the character of students who are scientist-minded and have a system of educational values so that the demands of producing quality graduates (Donovan, 2006). The urgency of research is the challenge faced by the government and universities, namely how to prepare and map the workforce in the teaching profession of education graduates in the face of the industrial revolution and society 5.0.

2. LITERATURE REVIEW

2.1 The Concept Of Society's Industrial Revolution

"The Fourth Industrial Revolution". in his book Klaus Schwab explains, that the industrial revolution towards society 5.0 has changed lives, mindsets and ways of working humans (Griffith Institute for Higher Education, 2008). In its development, it presents challenges and impacts for the younger generation to change in the mindset of the Indonesian nation. A group researchers explained that industry 4.0 and society 5.0 were characterized by an increase in digitalization of manufacturing driven by four factors: 1) increased data volume, computing power, and connectivity; 2) the emergence of analysis, capability and business intelligence; 3) the occurrence of new forms of interaction between humans and machines; and 4) improvement of the Scientific Speech of Professor of Education in Vocational Digital instruction in the physical world, such as robotics and 3D printing and implemented in the development by the community (Harsono, 2005). The basic principle of the revolution is the incorporation of machines, workflows, and systems, by applying intelligent networks along the chain and the production process to control each other independently, which has brought digitalization and automation of the internet mix with manufacturing (Roach et al., 2000).

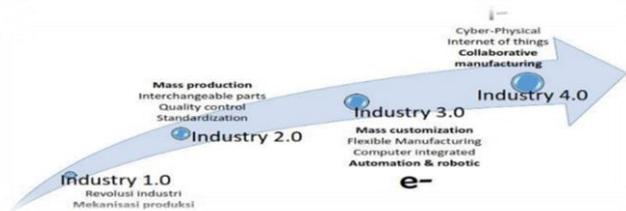


Figure 1: Industrial Revolution and Society 5.0

Industrial revolution 4.0 and society 5.0 also have an impact on the world of education in Indonesia, starting with the digitalization of the education system which requires every element in the education sector to be able to adapt to the changes that occur and their implementation in the development of literacy in society (Savery, 2006; Poonpan and Siriphan, 2001). In the world of education, it has a positive impact with more progress and the development of a more selective system of learning and understanding in society, but also has a negative impact on the world of education if it is not able to answer the challenges that arise in today's digital era (Tilaar, 2004).

2.2 The Influence Of Multicultural Education In The Industrial Revolution And 5.0 Society For Universities

The Industrial Revolution and Society 5.0 became a hot topic discussed in the scope of Indonesian higher education. Revolution in general is known as a change in the way of work that focuses on data management, industrial work systems through advances in technology, communication and increased work efficiency related to human interaction (Waris, 2009). Data becomes the organization's main need in organizational decision-making processes that are supported by unlimited computing power and data storage systems. Quantity is no longer the main indicator for a college in achieving success, but the quality of its graduates. The success of a country in facing the industrial revolution and society is closely related to innovation created by quality resources, so that universities must be able to answer the challenges to face technological advances and competition in the workplace / industry (Alavi et al., 2005).

2.3 Strengthening Multicultural Education And National Identity Era Of The Industrial Revolution And Society 5.0

Through the understanding of true multicultural education, starting from a multicultural based curriculum, innovation in multicultural education subjects at every level of education, the role of educators in implementing multicultural values or diversity in the university (Widayati, 2010). foster an attitude of social care from an early age, sensitivity to discrimination. The challenge of Indonesian education itself is how education is more innovative and creative by utilizing existing technological developments, education that has values of local cultural characteristics. Heckeu et al. Added that the challenges of the industrial revolution and society also gave changes to the social system in education in Indonesia and in society. First, changes in demography and social values. the growth of process complexity which includes; technical skills, process understanding, learning motivation, tolerance, decision making, problem solving and analytical skills. One of the real impacts of the problem of education in Indonesia today is the failure of multicultural education and literacy that is integrated for the younger generation and national identity which has begun to fade away in the younger generation of school children up to higher education.

3. METHODOLOGY

3.1 Road Map for Analysis of Research Phase

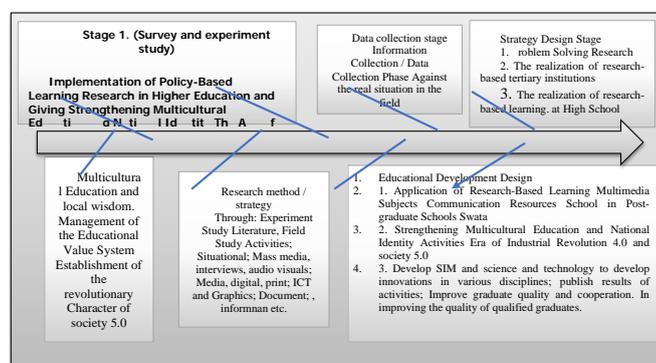


Figure 1: OSHIKAWA Research Framework Model

3.2 Plans For Activities Include The Following: Preparing Steps

1. Awareness, that is, PBM must be aware of the development of the industrial revolution by looking at opportunities and changes that will occur.
2. Education, namely 1) putting pressure on educational institutions to adjust relevant curricula for study programs following digital connectivity, 2) providing certain trainings, such as coding training, information management in shared platforms, and real-time accounting needs of stakeholders.
3. Professional Development, namely improving the performance of professional organizations Educators and education along with professional development programs to make online and face-to-face presentations about the development of the 5.0 society revolution.
4. Reaching Out, which is where the control of resource data is getting less, so it is very important to understand the environment by conducting transdisciplinary mix of adviser
5. Identify and implement Industry 4.0 scenarios and society 5.0.
6. Integration of the use of the internet in all production lines in the industrial world that utilizes the sophistication of technology and information in the field
7. Preparation to make learning systems more innovative in higher education such as adjusting the learning curriculum, and improving students' abilities
8. Cyber University programs are held / sought, such as distance learning lecture systems, thereby reducing intensity
9. Implementation of Research-Based Learning in Higher Education to create learning processes that lead to activities of analysis, synthesis, and

evaluation as well as improving the ability of students and lecturers in terms of assimilation and application of knowledge.

10. Evaluation of the Implementation of Research-Based Learning, Determining Objectives and Objectives of the Application of Research-Based Learning in Higher Education

11. Making a Strategy to achieve the goal of realizing research universities

Methodology explain about what research method used, how the data collected and proceed quantitatively or qualitatively to get more explanation in the result and discussion.

4. RESULT AND DISCUSSION

In the context of a multicultural education perspective in the era of society 5.0 is a form of view that puts forward the principle of togetherness of cultural characteristics and local circumstances, this view is generally influenced by the historical reality and conditions of various differences that can be used as a vehicle to improve human status and humanity. In the era of industrial revolution and society 5.0, multicultural education which is an important value in education must be fought for, because it is needed as a foundation for the establishment of a democracy in a region, human rights and the welfare of its people.

One effort to realize the value of multicultural diversity in educational strategies is not only aimed at making it easy to understand the lessons learned in the classroom, but also raising awareness to always behave humanist, pluralist, and democratic which is the main value in socializing that is implied. In management systems the value (theological, physical, logical, ethical, aesthetic and psychological) of multicultural education also emphasizes a philosophy of cultural pluralism into the education system based on equality principles, mutual respect and acceptance and understanding the moral commitment to a social justice that can later be used as the main value in order to be able to answer a variety of horizontal and vertical conflicts in the world of education in the era of industrial revolution 4.0 and 5.0 society that is currently developing.

To overcome the various challenges and problems of integrating the management system of the value of multicultural education with national identity can be done in the following ways:

- 1) Integration of multicultural education based on local wisdom in curriculum design. Learning theory in a multicultural curriculum that pays attention to social, cultural, economic, and political diversity and value systems, should no longer be based solely on learning psychological theories that are individualistic and place students in a value free condition, but must also be based on learning theory placing students as social, cultural, political, and living beings as active members of society, nation, and the world; Optimizing citizenship education in an effort to strengthen national identity based on multicultural and local wisdom owned by the Indonesian people;
- 2) Placement of multicultural education as an educational philosophy, educational approach, field of study and field of study. Multicultural education as an alternative means of solving social conflicts. The diverse spectrum of Indonesian people's culture is a challenge for the world of education to process these differences into assets, not a source of division. At present, multicultural education has two major responsibilities: preparing the Indonesian people to face the flow of foreign cultures in the era of globalization and unite their own nation which consists of various cultures. as an alternative means of conflict division, which was previously owned when dealing with social and cultural realities in the era of globalization and the 5.0 society revolution.
- 3) Creating a multicultural society in the era of industrial revolution and society 5.0, the realization of social order and security in people's lives that ensure the smooth productivity of citizens, and economic life that brings prosperity to the Indonesian people with the integrity of the Education Value System, to encourage economic growth and national competitiveness the digital era includes: (1) Preparation of more innovative learning systems in higher education such as adjusting the learning curriculum, and improving the ability of students in terms of

data Information Technology (IT), Operational Technology (OT), Internet of Things (IoT), and Big Data Analytic, integrating physical, digital and human objects to produce competitive and skilled higher education graduates, especially in the aspect of data literacy, technological literacy and human literacy; (2) Reconstruction of institutional policies of higher education that are adaptive and responsive to the industrial revolution and society 5.0 in developing the transdisciplinary and study programs needed. In addition, Cyber University programs are being pursued, such as distance learning lecture systems, thereby reducing the intensity of lecturer and student meetings. Cyber University is expected to be a solution for the nation's children in remote areas to reach quality higher education; (3) Preparation of human resources, especially lecturers and researchers as well as responsive, adaptive and reliable engineers to deal with the industrial revolution 4.0. In addition, the rejuvenation of infrastructure and construction of educational, research and innovation infrastructure also needs to be carried out to support the quality of education, research and innovation; (4) Breakthroughs in research and development that support the Industrial Revolution 4.0 and the ecosystem of research and development to improve the quality and quantity of research and development in Universities, R & D Institutions, LPNK, Industry, and Society; (5) Breakthrough innovation and strengthening innovation systems to improve industrial productivity and improve technology-based startup companies.

5. CONCLUSION

In creating innovative and adaptive resources for technology, it is needed adjustment of learning facilities and infrastructure in terms of information technology, the internet, big data analysis and computerization. Universities must be able to provide the learning infrastructure; so that it is expected to be able to produce graduates who are skilled in aspects of data literacy, technology literacy and human literacy. So that it will have an impact on increasing business productivity and technology-based industries, such as those that are currently emerging. The next challenge is the revolutionary reconstruction of the higher education curriculum, such as the redesign of the curriculum with a human digital approach and digital-based expertise. Information technology-based lecture systems are one of the solutions to creating quality higher education that has a multidisciplinary, character and multicultural in an essential and comprehensive culture of society.

Give an Example of the Application of Course Research-Based Learning in Higher Education to: (1) Identify and implement Industry and society scenarios 5.0. So that the realization of research-based higher education institutions, the realization of research-based learning and high literacy; (2) Making a strategy to achieve the goal of the realization of research-based learning and the implementation of research-based learning in universities to be sensitive to self-introspection so as to be able to detect its position amid the development of knowledge and ICT; (3) Describe the influence of the industrial revolution and society for higher education today with science-based learning as a solution; (4) Looking for and finding solutions to deal with these challenges, there are 3 things that need to be considered so that the quality of HR is in accordance with the needs of the job market / industry based on digital technology.

So the quantity problem is the number of qualified and competent human resources and according to industry needs to encourage economic growth and national competitiveness; (5) Implementing curricula and learning in higher education is encouraged in the direction of the revolution and the 5.0 society industry. Thus education and industry must be able to develop industrial transformation strategies by considering the competent human resources sector in their field. For this reason, Higher Education is required to formulate strategic policies in various aspects ranging from institutions, fields of study, curriculum, resources, and cyber university development, and risks to innovation. The industrial revolution 4.0 with the development of 5.0 society must be responded to quickly and appropriately by all stakeholders in the scope of higher education in order to be able to increase the nation's competitiveness amid global competition in an integrated and transparent manner.

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