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JURNAL ADMINISTRASI DAN MANAJEMEN PENDIDIKAN

World Class University: Quality Parameter Higher Education in the Era Revolusi Industri 4.0 and Society 5.0

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Abstract: The purpose of this research to describe World Class University (WCU) as a parameter of the quality of higher education that is able to be integrated in the management system in universities. This research uses mixing methods design with Concurrent Embedded Qualitative domination techniques. Aspects of the syntax sequence are carried out simultaneously. Data analysis is done through two stages, the first is individual case data analysis and the second is cross-case data analysis. The validity is checked with credibility, reliability, dependability, and confirmability. Results, WCU based on criteria AREI: (1) Academic, (2) Research, (3) Employability, and (4) International. WCU has an effective strategy in synergizing the era of digitally system contribution in building a quality culture and responding to global developments. In this study, quality emphasis on zero-defect must be realized and supported by commitment, competence, synergist, collaboration, actualization, and strategy as the key in universities' work towards WCU.

Keywords: World Class University, Quality Parameters, Higher Education, Industrial Revolution Era 4.0, Society 5.0

the era of the Industrial Revolution 4.0 and Society 5.0 gave birth to a global competitive edge, which is a big challenge for the role of higher education institutions in creating a generation of qualified and competent national civilizations and able to compete in the global era. This era marked by a rapid increase in quality in various fields, including the field of education. Digitally system, Quality productivity, internationalization are indications of that era. Distance, which was previously an obstacle, is now able to synergize with the global system which leads to infinite space and distance is no longer a barrier. Unlimited mobility indicates that, the industrial revolution integrates cyber technology and technology automation. The vision of the industrial revolution describes the realization of the internet of things in building stability and quality productivity of higher education (Cedillo et al., 2019). There are three areas where human beat machines that are key to future job creation is (a) creative endeavors, (b) social interaction, and (c) physical dexterity and mobility (Salimova et al., 2019). Based on this explanation, the era of Industrial Revolution 4.0 and Society 5.0 emphasized the integration of technology, virtual space, and humans by producing a collaborative community. Building a system order not only nationally but global. In addition, the era of the industrial revolution 4.0 made a very significant simultaneous contribution to life, including in the field of education which can be accessed globally. However, if we carefully examine the era of the industrial revolution 4.0, there is more emphasis on the economic and technological dimensions. Social impacts need to be considered in depth because life is not only about machines but also about the development of quality human resources (Zambon et al., 2019). The importance of socio-emotional has high flexibility in supporting innovation (Pereira et al., 2020) Society 5.0 seeks to place humans at of center of innovation by utilizing the sophistication of Industry 4.0 technology, its main goal is to develop superior and quality human resources who are qualified in global competition. This explanation indicates that the industrial revolution 4.0 era had a very significant influence and impact on life, including in the field of education.

Answering these problems universities as an agent of change, in practice, it must be able to give birth to a generation of civilizations that are superior, qualified, and competitive in the global era. World Class University (WCU) is an urgent and vital matter that must be faced in the millennial era and is a parameter to recognize the quality of a university globally. Mishra & Kushwaha, (2016), higher education and particularly university education is recognized as a key force for modernization and development. To be qualified towards WCU, universities must be able to adapt and innovate and require a quality-based education management system. Human Resources (HR) as the implementer of a system or policy should emphasize the conception of quality. Because, the excellence factor in realizing its realization is human resources as a concentration of talent. Given that WCU is a quality parameter that reflects the quality of higher education, there are many efforts made by universities to make it happen.

Indonesia has 4655 tertiary institutions, both public and private, both under the auspices of the Ministry of Education and Culture, Directorate of Higher Education and under the auspices of the Ministry of Religion. The number of tertiary institutions has increased quite rapidly, based on 2017 data as many as 3256 in 2018 as many as 3293 in 2019 as many as 4655. The growth from 2017 to 2018 was 1.14%, while the growth in 2018 to 2019 was 44.36%. However, the increase in the quantity of universities has not been able to keep pace with the growth in quality. This shows that out of 4655 only 22 universities were successful in joining the WCU. The rest, other universities are still not able to compete, This is indicated because the universities management system has not been fully able to rely on quality in every process and currently the rankings of Indonesian universities are still in positions 292 to 901 in the QS World University Ranking. Hickman, (2017), argues that universities have a crucial effect on national civilization. To be able to build its existence, of course in realizing it to become a world-class university, it requires a precise strategy in its implementation system which focuses on four main criteria in WCU, namely: (a) research, (b) teaching, (c) employability, and (d) international. argued that universities have a crucial effect on the nation's civilization. To be able to build its existence, of course in realizing it to become a world-class university, it requires a precise strategy in its implementation system which focuses on four main criteria in WCU, namely: (a) research, (b) teaching, (c) employability, and (d) international. argued that universities have a crucial effect on the nation's civilization.

As a follow-up and innovation related to improving the quality of higher education strategy in the higher education quality management system which has a very strategic role in producing human resources. In this context, the system to produce the quality of education is of course an urgent and vital matter in its implementation. Educational institutions as a vehicle for producing quality, superior, and character academics have become a necessity in its management system to prioritize quality-based principles. In essence, the quality of educational institutions is a crucial matter whose existence needs to be prioritized and continuously improve as a reflection of quality parameters in an all-global era.

This study aims to describe that WCU is a measure of the quality of higher education that is able to synergize and collaborate and become a basic component in creating a superior academic community capable of competing in the global era of industrial revolution 4.0 and society 5.0.

LITERATURE REVIEW

Industrial 4.0 and Society 5.0

The era of the industrial revolution 4.0 and society 5.0 is a change in the era of analog technology to digital technology. The industrial era 4.0 is an era where the interconnected with cyber in increasing the potential and value of the manufacturing process where in this case the Internet of Things (IoT), Big Data, Artificial Intelligence is evidence of a very significant development (Bahrin et al., 2016). Evidence of this development needs to be empowered in building an education delivery system that has accessibility across regions, countries, and even continents. This is in line with the opinion (Rojko, 2017). Whereas Society 5.0 is a human-centered society which is able to form harmony between progress in the economic field through solving social problems using a system that is able to remove the barrier between the virtual and physical world. This is in line with the opinion (Nakanishi & Kitano, 2018) where

in Industry Society 5.0 new values are created through an innovation that is able to eliminate social inequalities in society such as region, race, age, gender and language. Society 5.0 has the possibility of providing products and services that are able to suit various kinds of individual and group needs. This is in line with the statement (Fukuyama, 2018) where the goal of Society 5.0 is to create a society that is able to fully enjoy life/contribute in solving the challenges of society globally. From this, it can be seen that the concepts in the industrial revolution 4.0 and society 5.0 do not have a significant difference where the industrial 4.0 era uses Artificial intelligence (AI) while Society 5.0 focuses on the human component.

In the context of higher education, in order to be able to face global competitive, of course it must be able to synergize, collaborate, and build a system of quality strategy for education delivery based on think globally but act localy. Higher education must always be quality oriented. Because, quality is the main thing in giving birth to an academic community that is able to represent the needs of the era. Digitally systems, collaboration, synergy are things that need to be empowered in building quality so that when the quality is built, WCU becomes a fact of representation of the institution.

Quality Parameter in Higher Education

Higher education is the main actor responsible for skilled human resources (Kivunja, 2014). Higher education as an agent of change printer should be quality oriented in every management of its management system. In practice, this is a fundamental principle in providing excellent service to stakeholders with the main objective of customer satisfaction. (Undang-Undang Nomor 12, 2012), states that the function of education is to develop competence and character and become a civilized and intelligent nation. There are at least five dimensions of meaning inherent in tertiary institutions, namely: (1) scientific dimensions; (2) education dimension; (3) social dimension; (4) the corporate dimension, and (5) ethical dimensions (Sayidah, 2019). The quality of education as an embryo of quality improvement and civilization is an integral part of an educational process and is a continuous improvement.

Quality has many criteria which are always changing. However, it generally includes the following elements: (a) meeting customer expectations, (b) concerning aspects of products, services, people, processes and the environment, and (c) constantly evolving criteria (Raza & Irfan, 2018). The explanation of the quality above explains that, basically, quality is always changing and has criteria that are always developing. Quality is dynamic, which is always identified with the existence of products, services and processes including internal and external conditions. In line with this, (Peraturan Menteri Pendidikan dan Kebudayaan Nomor 3, 2020) concerning National Higher Education Standards in article 1 paragraph (1) states that, the national standard for higher education is a unit of quality parameters which includes national education standards plus research standards, and standards of dedication to Public. The characteristics of higher education quality, apart from being indicated by the fulfillment of predetermined standards and strategy,

The quality parameter is not only focused on input-process-output but also outcome. To be able to produce quality outputs and outcomes, of course, the implementation system must be based on quality management based on zero defects. One indicator of quality higher education can be seen from the implementation of the Tridharma of higher education, namely: (1) teaching, (2) research, and (3) community service and from the cluster system that has been rolled. Based on this explanation, in an educational organization or institution, of course, it does not only require a leadership role in the main wheel of its journey. However, it also requires other supporting elements that are able to become a supporting system in its management process. Among others, solid management, administration, organization. The combination of the three elements of education is closely related to efforts to improve the quality of education.

World Class University (WCU)

WCU is a university that has superior quality, both in terms of management, academic freedom, restriction, complete facilities, publications, and internationalization (Yeravdekar & Tiwari, 2014). WCU is one dimension to quality productivity in higher education (Sheil, 2010). (Turner, 2014),

"University league tables and rankings are now serious matters, forming the basis of national policy for higher education in some cases, and attracting the attention of the World Bank. Suggests that there are policy lessons to be taken from the league tables at both national and institutional levels. Based on The Times Higher Education Supplement/(The Times Higher Education Supplement, 2016) WCU criteria include: research quality with a weight of 60%, job readiness of graduates 10%, Criteria in the system (Quacruarelly Symond World Class University, 2020) namely Academic Reputation (40%), Employer Reputation (10%), Faculty Student Ratio (20%), Citation per Faculty (20%), International Student Ratio (5%), and International Staff Ratio (5%). These criteria are the development of four essential components in WCU, namely: (1) research, (2) teaching, (3) employability, and (4) internationalitation. This must be able to be fulfilled an effort to realize WCU by prioritizing its quality in continuous improvement. Based on the explanation, WCU is the main requirements for universities in Indonesia in showing the quality of their existence globally. WCU refers to standard standards or criteria that can comprehensively represent the quality of a tertiary institution. In fact, there are many indicator criteria in WCU, both from the ranking by the QS WUR, Webometrics, Academic Ranking of World Universities, 4ICU, and The Times Higher Education Supplement. However, based on various research studies by synergizing the main essence of international ranking institutions, the embodiment of WCU is oriented towards quality management which is focused on four main criteria, namely: (1) Academic, (2) Research, (3) Employer, and (4) International . To realize WCU, several universities in Indonesia are increasingly trying to strengthen themselves through quality assurance. Various strategies, plans, visionary ideas,

METHODS

This study used mixing methods research design. Namely combining qualitative and quantitative research with Concurrent Embedded Qualitative domination techniques. The design was carried out with a qualitative initial research design, then strengthened by quantitative data with different weights. Syntax sequence aspects are carried out simultaneously and qualitative weights dominate. The design justification is in the form of reconstructing the generalization of qualitative findings reinforced by quantitative findings. Concurrent embedded models can be selected by determining which approach dominates other approaches (Mukhadis, 2018). The justification of this research design seeks to reconstruct a generalization of the qualitative findings reinforced by quantitative findings. In the process, placing a qualitative model which is represented as the main research method in this study. While the quantitative method as a reinforcing method or secondary method. In practice, the implementation of data collection for the two methods is carried out simultaneously.

Qualitative data collection techniques through interviews, observation, and documentation. Quantitative data through a linkert scale questionnaire. Qualitative data analysis includes data condensation, data diplay, and conlusion and quantitative through quantitative descriptive by looking at the average percentage level of quality achievement in each research focus. Qualitative data analysis was carried out in two stages: individual case data analysis and cross-case data analysis. Checking the validity of the data with four criteria: (1) credibility, (2) reliability, (3) dependability, and (4) confirmability. Quantitative data analysis through quantitative descriptive.

FINDINGS AND DISCUSSION

Management of Planning Strategy

The results showed that (WCU) as a quality parameter of higher education in the process must always be adaptive and innovative in the development of the times. Synergization, collaboration, and actualization of the touch features of the industrial 4.0 era which represent more digital systems are the main things in supporting the management system of its implementation. Higher education certainly must have superior and innovative strategies to make it happen. Strategy as a potential action that requires decisions at the top management level and a lot of company resources. Strategy affects the

long-term sustainability of a future and is oriented (Kotler et al., 2008). This is in line with the dynamic demands of a global competitive orientation towards the quality of quality human resources. Society 5.0 brings a quality perspective to be the main thing in reflecting human's abilities and personality in a global context.

In practice, strategic management is a process of developing a comprehensive plan, and delivered with a competitive movement and also using an operational approach, which is then applied to the organization to move in the desired direction, strengthen market position, and the ability to compete, and achieve performance targets. In the formulation of a strategy, it produces a decision and allocation of resources based on the principle of zero defect (Suwandiyanto, 2010).

The higher education strategy must be designed, formulated, compiled and managed in accordance with the university's vision, mission, goals and objectives, internal and external environmental analysis, need assessment, and priority scale. Found that the fact that universities in Indonesia that have been able to achieve WCU implement based on Regulation of the Minister of Education and Culture Number 3 of 2020 concerning National Higher Education Standards in the form of compliance with Internal Quality Standards (SPMI), External Quality Standards (SPME), and Higher Education Standards which are adjusted to the four main pillars of the criteria in WCU namely AREI: (1) Academic, (2) Research, (3) Employer, and (4) International. The criteria is the result of a mapping of various variants of the international ranking system. The formulation of plans is based on the vision, mission, strategic planning, policies, and environmental conditions of the university. Its practice is supported by competent actors who formulate quality plans and superior strategies that are the key to the success of achieving quality. The programs are formulated with a blanded system that aims to reach a wider range of quality services to be obtained by stakeholders. AREI criteria become the basic point in directing the pace of higher education in achieving its goals by being principled in efforts to synergize and collaborate globally with a system based on quality in each of its educational services. This is the main requirement in this innovation management strategy in representing the quality of the tertiary institutions that are owned.

Implementation of the Tactical Management Strategy

As a follow-up to the plan that has been prepared, the plan is implemented as a concrete form of action realization. This is in line with the theory put forward by (Hunger & Wheelen, 2011) that the implementation of a quality plan is an action from the results of environmental scanning, strategy formulation, strategy implementation, and evaluation and control. As an effort to realize WCU, universities must meet international ranking criteria. In general, there are many international ranking criteria such as QS WUR, The Times Higher Education / THE, Webometric, 4ICU, and so on. Even though it is managed by different rating agencies and has different numbers and weights in each criterion, in essence there are 4 main indicators in international ranking, namely: (1) Academic Criteria (A) elaborated through Academic Internationalization programs which describe programs related to the academic field in the form of synergy between tertiary institutions and the global world. This criterion has a high weight in the assessment criteria. This criterion from QS WUR has a high weight of 40% while in the ranking system THE WUR is 30%. These criteria are emphasized on the learning environment, in line with the Tridharma of higher education, namely in the field of education/teaching, the learning system is managed by building an innovative learning ecosystem through Cyberkampus, the use of blended learning, and the construction of Learning Management Systems (LMS) as online learning media; (2) Criteria for Research (R), through research and publication as a form of development of scientific treasures and providing useful values for the environment, the nation, the state, and the global world; (3) Employability criteria, learning and development center programs to monitoring and evaluating the implementation of personnel administration and strengthening service culture and superior performance; and (4) International Criteria, through Database Integration, global cooperation and collaboration. learning and development center programs to monitor and evaluate the implementation of personnel administration and strengthen service culture and superior performance; and (4) International Criteria, through Database Integration, global cooperation and collaboration. learning and development center programs to monitor and evaluate the implementation of personnel administration and strengthen service

culture and superior performance; and (4) International Criteria, through Database Integration, global cooperation and collaboration.

The tactical development of higher education superior quality plans in realizing a World Class University emphasizes three essences that must be fulfilled, namely: (a) variety based positioning, which is based on industrial products or services, (b) need based positioning, based on customer needs, and (c)) access based postioning, which is based on the segmentation of customers who have different access (Lestari, 2013). In the variety based positioning, the position of higher education is still in the range of 229 in the world class university rankings. So that the improvement and improvement of all components of the education delivery system must be based on the principle of zero defects. This can be indicated in the tactical development of a quality plan not only based on a need assessment but also an environmental analysis both internally and externally through Strength, Weakness, Opportunity, Thread (SWOT) analysis as an innovative strategy as a key in the education delivery system. The implementation process of higher education quality plans The strategy is carried out from four stages, namely: (1) environmental scanning, (2) strategy formulation, (3) strategy implementation in sustaining quality (strategy implementation), and (4)) follow-up evaluation.

In practice, through quality assurance. PDCA cycle (Plan, Do, Control, and Act) as a means of ensuring the implementation of the strategy. The results of the strategy implementation represented in the PDCA cycle include seven components, namely: (1) Vision, mission are the main basis for developing higher education quality, with an indication of 85% as the foundation of a university in planning its quality improvement; (2) strategic planning, it is indicated that 87% is a higher education quality plan contained in the Strategic Plan; (3) objectives, setting goals for both short, medium and long term indications of 89%. That is, there is an increase in more than the composed plan; (4) expansion of the performance improvement program, indicated by 84%; (5) implementing a performance improvement program, 91% this is the highest percentage in this strategy. In accordance with the theory that implementing a management strategy will increase performance (Löfving, 2016); (6) periodic evaluation, 87% of the results are the same as the strategic planning component; and (7) eliminating the problem factor, the percentage is 89%.

Development of a Tactical Management Strategy of Higher Education Based on AREI

Based on the results of data analysis, the research results were obtained as following. First, the formulation of a PTN quality plan in realizing WCU is based on four main criteria for WCU, namely AREI: (1) Academic, (2) Research, (3) Employability, and (4) International. The criteria is the result of a mapping of various variants of the international ranking system. The formulation of plans is based on the vision, mission, strategic planning, policies, and environmental conditions of the university. Its practice is supported by competent actors who formulate quality plans and superior strategies that are the key to the success of achieving quality.

Management of the quality of higher education is crucial in the process of delivering education. (Kuteeva & Airey, 2014), encouragement of world-class universities to create convergence in improving the quality of higher education through its management system. Higher education management is an affiliated structured system of various related components whose functionalities are tight and coherent so as to create a synergistic and solid coherence. The compensation processes mutually according to its function as a supporting system that is interrelated with one another.

In practice, higher education quality management does not just stop with administrative management, but is embedded in every component of the implementation of the Tridharma of higher education. According to (Salmi, 2017), as for the main factors in creating quality management to realize an international reputable university or WCU, world ranking higher education quality management has three main characteristics, namely: (1) having a high ratio and concentration between international lecturers, students and researchers, (2) having profiles and government policies that favor higher education quality management processes, and (3) have abundant resources to create a good learning environment and have sufficient funds to carry out further research.

CONCLUSION

World Class University is able to become a quality parameter that is synergized in every program rolled out by a quality-oriented university. In order to be able to synergize and collaborate in the era of the Industrial 4.0 and Society 5.0, strategic management planning through four main pillars in world quality parameters, namely AREI: (1) Academic, (2) Research, (3) Employability, and (4) International become the basics. In its implementation, the strategy is synergized in programs that have global accessibility that are well managed through the PDCA cycle. Quality improvement and development are standard things that must be realized without compromising the values and identity of the university.

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