

DEMOCRATIC EDUCATION BASED ON ICT IN THE INDUSTRIAL REVOLUTION ERA 4.0

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ABSTRACT

The education sector is one of the main keys in improving the quality of the nation's quality. In this era of globalization, improving the quality of human resources becomes a priority in the parameters of a nation's progress. The development of the education system continues to be perfected by not eliminating the wisdom of our character as a great and dignified nation. This is an era where artificial intelligence and the internet of think have produced various derivative products. This change has brought us to the condition of a global, paradoxical society and information society. In facing the challenges of the digital era, of course, getting all the support from all levels of society. Education should be managed democratically by looking at developments, challenges and all the opportunities that arise, so that democratic education education in this industrial revolution era is a must and no longer waits for our readiness.

Keywords: Democratic Education, ICT, Industrial Revolution 4.0

INTRODUCTION

Education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and the skills needed by themselves, society, nation and state. As time goes by and the times are growing, there are changes in behavior and human behavior changes from time to time. Likewise, this has also changed the development of the education system in the world and in Indonesia. The education system is a strategy or method used in the teaching and learning process to achieve the goal so that students can actively develop the potential that is within them.

The education sector is one of the main keys in improving the quality of the nation. Previously, the government had developed a strategy for physical development to increase the nation's progress. However, in this era of globalization, improving the quality of human resources has become a priority benchmark in the parameters of a nation's progress. The national education system has been continuously perfected and adapted to the development of science and technology in addition to the very dynamic socio-cultural conditions of society. The development of human life civilization which has been based on information and communication technology has taken place very rapidly and quickly. An era where artificial intelligence (artificial intelligence) and the internet of think (IoT) with various forms of derivative products and in various aspects of life. This era is known as the era of the industrial revolution 4.0 (IR 4.0), which is an exchange of data and the latest automation in industrial and manufacturing technology. The term includes cyber-physical systems, internet for everything, cloud computing, and cognitive computing. Which is characterized by a futurist phenomenon that is synonymous with the paradox phenomenon of global society and information society (information society).

The information society is known for the emergence of information behavior related to all human behavior related to information sources and channels. Information

behavior is an attempt to find information with a specific purpose resulting from the need to fulfill that purpose. The information society also has economic, social and political activities, through the production, consumption and distribution of information so that it is characterized by the exchange of information and communication technology with high intensity. The characteristics of the information society are as follows: 1) having high information needs in their interactions, 2) using information and communication technology in social activities, learning, business activities, or others, 3) having the ability to quickly exchange digital data over long distances. (Straubhaar, Larose & Devenport, 2012).

When associated with the world of education, the development of ICT / ICT has also had a considerable impact. Most of the educational activities in schools, both administrative and learning, have been exposed to technological developments, although at different levels. The four levels of technology are: emerging, applying, infusing, and transforming (Anderson in Fiska Ilyasir, 2019). At a low level, perhaps schools only have one or a limited number of computers, so that learning is focused on introducing information technology. Conversely, at a high level, schools are already integrated with ICT where all activities are integrated with ICT, school routines already use information technology into the learning process. With the inclusion of ICT in the learning process, the form of interaction that occurs will also change. Learning resources are no longer limited to what is physically available, but also non-physical resources that can be accessed anytime and anywhere.

Even though the development of education has not been able to optimally keep up with the speed of the industrial revolution, one effort that needs to be made to face this challenge is through improving the quality of teachers so that they are able to teach material with an ICT application approach in the teaching and learning process so that it is not getting further out of date and results in quality. graduate of. This effort is made in order to be able to prepare superior resources with global competence and be able to adapt to the current era with all the speed and ease of access obtained. The role of the teacher in this case is irreplaceable in improving the quality of the teaching and learning process at every level of education.

Likewise if we look at it from the perspective of democratic education. Changes in the dynamics of learning caused by technological developments further emphasize that democratic learning is inevitable. Learning by using the right method and can adapt to social development which is believed to help develop a spirit of democracy in students. In terms of facing the challenges of the digital era, it is hoped that the support of various parties will be provided. The government, together with the community and all stakeholders, should seriously rethink various matters related to strengthening the education system in the face of industrial revolution 4.0, this is because change is a necessity and does not wait for our readiness. Therefore, it is hoped that ICT-based learning will be able to support and facilitate the teaching and learning process as well as the delivery and presentation of material will be more interesting and fun and generate student interest and provide many benefits in education and especially create democratic education.

1. RESEARCH METODOLOGY

This research is a qualitative research which is included in the category of library research. This research was conducted by searching for data by observing/observing in depth to find temporary answers before the research is followed up. This research is based on literature with journal sources or reference books. Data collection was carried out using documentation, namely journals related to education, ict in education and democratic education. The analytical method used is through the stages of data reduction, data display, and drawing conclusions or drawing conclusions.

2. RESULTS AND DISCUSSION

1. Democratic Education

A learning society has special characteristics, namely giving freedom to its members to develop themselves, learn according to their interests and needs as long as they do not conflict with the foundations of a state and society. The freedom that society has in choosing and fulfilling learning needs is in accordance with the spirit of educational democracy in Indonesia. Democracy education is essentially an effort to guide students towards maturity in democracy, namely by socializing and transforming democratic values with the aim of forming behavior that can reflect the life of a democratic society and state.

Democracy education has the goal of preparing students as citizens who are able to think critically and act democratically through learning activities that instill awareness of three things, namely: 1) democracy is a form of social life that guarantees the rights of its members as citizens, 2) democracy is a the learning process for the community (learning process), 3) the environment of democratic life depends on the ability and success of the community itself in transforming democratic values (freedom, equality, and justice) and the level of loyalty of members to a democratic political system (Sihono, 2011).

One of the characteristics of democratic education is the implementation of providing education that concerns civic values and skills (civic values and civics skills). This becomes a focus of the implementation of learning by educational institutions, both formal and non-formal. Parents (informal) as the main education for children, do not need to focus on their children's education in the field of citizenship as long as formal and non-formal education have carried out their duties, teach students the skills and virtues of citizenship by continuing to collaborate with parents in instilling values. - democratic values in the family.

In a democratic society, schools have a dual function to help develop the knowledge and skills needed by individual students to live a life based on freedom and shared values. Democratic education requires a political context that requires togetherness which is manifested in the form of representation of all education stakeholders in decision making. This will affect the institutional structure, the content of the educational curriculum, the challenges faced by the community can also form a diverse education system.

The embodiment of schools that carry out the educational process and instill democratic values and attitudes can be seen based on four aspects of education, namely: 1) the student aspect, 2) the teacher as a facilitator, 3) the material dimension, and 4) the managerial dimension. First, the aspect of students with reference to lifelong education which assumes that education lasts from birth to the end of life. So that school cannot be separated from life and school is life itself. The implication of this perspective is that students are the main actors in the educational process. Sources of education, learning references for students are the lives experienced by students in their own social activities, not the subjects in the curriculum. Learning activities emphasize the development of student creativity, tolerance, independence, and responsibility.

Second, the teacher as a learning facilitator and motivator for students. These two functions will appear if students are positioned as subjects in learning. As a facilitator and motivator, the teacher can position himself more as a giver of encouragement and motivation to students so that they can improve their competence and meet their needs, increase their critical perspective in developing various alternative solutions what they have learned during the educational process. Third, the aspect of the material dimension, namely the educational material developed in democratic education is based on the social problems experienced by students (problem oriented). In learning the teacher conveys teaching materials that are lifted from real

problems faced by students in the community environment, so that theoretical material can be correlated with the reality of their lives. In delivering the teacher is required to be active, creative, and dare to bring discourses that are considered controversial to discuss negative issues.

Fourth, the managerial dimension is the management of education implemented based on decentralization. Education policy is dominated by decisions made at the regional, school, and class levels. This decentralized management will trigger teacher creativity and innovative power which is much needed. On the side of this managerial dimension it can realize democratic educational and learning practices, so as to be able to produce democratic, creative, tolerant, and independent individual outputs. The ultimate goal of all this is to create a democratic society.

2. Development of ICT / ICT and Teacher Readiness

The development of ICT which has been felt by the whole community on the other hand will also require schools as part of society to make adjustments in the implementation of the learning process. School is a meeting place for teachers and students or students. Teachers have the urge to carry out the educational process, while students are students or individuals who wish to educate or learn. The synergy of the two will shape the interaction of learning in schools. Technological developments with different conditions have changed the administrative and learning aspects of the school. Schools have entered the computing era at this time.

The first stage of ICT/ICT adoption is emerging. The use of ICT at this stage tends to be personal, such as limited use of the internet, use of word processing applications, making lists or presentation materials, using e-mail and searching for information on web pages. Learning activities are focused on introducing technology and teachers focus on personal development. The emphasis on learning activities at this stage using ICT is the initiation of the use of tools and increasing awareness of the importance of technology in learning. However, learning at this stage is still dominated by teacher-centered activities.

The second stage is applying / implementation. At this stage the school has acquired ICT equipment that is more widely used in all elements of the school. At this stage it is usually triggered also because of a national policy in which various strategies for using ICT are tried out. Teachers are more emphasized on the use of software for drawing, designing, modeling, and various learning simulations. Education personnel use ICT in terms of carrying out administrative task management and school management. Gradually the teacher will be more confident in using ICT in the learning that he is good at and does. There is still a lot of preparation that takes a lot of time to use ICT in learning.

During the infusion stage, almost all classrooms were equipped with computers, including offices and libraries. The school has access to an internet connection and other supporting equipment. Increasing the ability to master ICT for teachers and education staff is a necessity. In this stage the teacher has carried out an integration involving different knowledge and skills from various subjects. Curriculum begin to reflect and incorporate subject areas to reflect real-world application of knowledge and skills. This planting stage can be said to be part of the final stage, namely the transformation stage. The biggest challenge at these two stages is how teachers are able to transform all their routine activities by using ICT in all aspects of learning as a whole.

The stages of ICT transformation in schools are marked by the integration of all learning activities with daily activities. Furthermore, integrated ICT is becoming part of organizational routines. The focus of learning space in the classroom has moved from teacher-centered to student-centered, which applies learning to the real world. With rapid development, students will be able to study anywhere and anytime. Teachers are required to continue to develop themselves and improve their quality in learning management skills, both related to the use of media, methods, learning

techniques, which are in accordance with technological advances. Teachers are no longer the only source of learning. Various learning materials and resources can be presented in the form of books, films, audio, video, photos, CDs, or other forms of media. Computer equipment and other audio-visual equipment are elements of new forms of learning facilities and equipment. However, it is still necessary to have a combination of teachers, facilities, and learning resources, all of which interact so that learning objectives in the classroom can be achieved.

3. Democratic Teachers in the Era of the Industrial Revolution 4.0

In the current era of education, the existence of a teacher is no longer seen as a charismatic figure, but the ability of a teacher to be able to communicate and adapt to technological developments has become part of his excellence as an educator. Teachers in the digital era are required to be creative and innovative because old-style learning systems and patterns are no longer in accordance with the conditions of today's students. The impact of the accelerated development of ICT in recent years is that information and knowledge are temporary and fleeting, requiring constant and ongoing updating. The development and improvement of personal abilities is something that cannot be ignored. This progress has radically affected the development of the world of education, from the point of view of the truth of knowledge, to the use of appropriate methods to teach that knowledge and abilities in learning both in face-to-face classes and outside the classroom both online. This change in place of learning becomes a transition from the face-to-face analog era to the digital era which does not require it, is also considered important.

The function of ICT in education is divided into seven functions, namely: 1) Knowledge repository, 2) Learning aids, 3) Educational facilities, 4) Competency standards, 5) Administrative support, 6) School management tools, and 7) Infrastructure education. The use of ICT / ICT in learning provides many advantages and advantages for both students and the teacher himself. As a facilitator and motivator in ICT-based learning, the teacher positions himself more as a motivator so that his students continue to explore and develop what they have learned during the educational process. Teachers are also expected to be able to change and create a learning culture that can create an atmosphere for the formation of students' character as members of a democratic society.

The era of the industrial revolution 4.0 has also changed the perspective on education. The changes made are not only in the way of teaching, but far more essential, namely the change in perspective towards the concept of education itself. In the ability to be able to face the challenges of the industrial revolution 4.0, quality teacher qualifications and competencies must be prepared. The teaching profession is currently becoming competitive, there are at least five teacher qualifications and competencies in the 4.0 era which include:

Educational competence, competency in educating/learning based on the internet of things as a basic skill in this era.

Competence for technological commercialization, having the competence of an entrepreneurial attitude with technology for the results of student innovation.

Competence in globalization, a world without barriers, no cultural stuttering, hybrid competence, global excellence solving national problems.

Competence in future strategies, having the competence to be able to predict exactly what will happen in the future and its strategy, by way of joint lectures, joint research, joint resources, staff mobility and rotation, understand SDG'S and so on.

Counselor competence, bearing in mind that in the future the child's problems are not related to understanding teaching materials, but are more related to psychological problems, stress due to increasingly complex and severe pressures.

In the challenge of an educator does not stop at the ability to apply information technology in the teaching and learning process, but there are 6 competencies that are expected to be owned by this 4.0 teacher, namely as follows:

Critical thinking and problem solving. An ability to understand a complex problem, connect information with one another, so that perspectives emerge and find solutions to a problem. Teachers in this era must be able to mix learning so that they can export these competencies to students.

Communication and collaborative skills, a skill that must be applied by teachers in learning in order to construct communication and collaboration/cooperation competencies.

Creativity and innovative skills. The industrial revolution 4.0 requires students to always think creatively and innovatively. This is necessary in order to be able to compete and create jobs based on the industrial revolution 4.0.

Information and communication technology literacy. ICT literacy is the obligation of teachers at this time so that they are not left behind by students and are able to form students who are ready to compete.

Contextual learning skills. When the teacher has mastered ICT, contextual learning will be easy to do. With ICT abstract material will be able to display more real in learning.

Information and media literacy. Many social information media are cultivated by students. Social media seems to be a powerful communication medium used by students and one of the learning media that teachers can use. The presence of digital classes that are social media can be utilized by teachers with learning that lasts without space and time limits.

In terms of facing the challenges of this digital era, the support of various parties is expected. All stakeholders must rethink various matters related to strengthening the education system in the face of the industrial revolution 4.0. Besides that, teachers also have to face another, namely the global community. The era of globalization requires teachers to improve their professionalism as educators who are familiar with the terms competition, transparency, efficiency and high quality learning outcomes. Teachers are expected to be able to further develop intellectual, emotional, and moral intelligence in realizing a democratic education, capable of transforming democratic values (freedom, equality, and justice) to students.

3. CONCLUSION

Democratic education in the era of the industrial revolution 4.0 requires the role of teachers who are able to adapt themselves to ICT / ICT developments in the field of learning. Development is not a threat to teachers to improve the quality of learning that adheres to democratic principles. The educational needs of students can be met by taking advantage of the technology available in schools. Besides that, changes and developments in the form of learning resources in schools are an opportunity for teachers to facilitate students so that they are able to utilize these resources to meet their learning needs. The rapid and rapid development of ICT/ICT requires teachers to be able to motivate students about the importance of continuous learning until the end of their lives. Teachers are also expected to be able to realize democratic education that is able to instill democratic values in students.

Besides that, educational technologists also have two consequences that must be faced, namely: 1) personally must be able to adapt to various changes in order to exist and contribute positively, especially changes in educational technology, 2) as professionals must continue to develop their professionalism in order to create various innovations effective learning and learning as a solution to learning problems

that will be faced by students. To be able to deal with this, a number of competencies must be continuously mastered and developed.

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