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Content

Learning Based on Information Technology and Learning Strategy Communication in Facing Industrial Revolution Era 4.0

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Abstract: The educational world in Indonesia experiences a phenomenon in the face of the era of industrial revolution 4.0, this can have a significant impact on the world of education. Many scientists, experts, organizations, educational institutions, universities make strategies in facing the era of industrial revolution 4.0. One of them conducted by the Federation of Information and Communication Technology Teachers) held a workshop in Jakarta, 6-7 October 2018 themed "Dynamics of ICT / Informatics Learning Policies in the Age of Industrial Revolution 4.0 and Increased Competence of ICT/Informatics Teachers on 21st Century Learning". This study aims to determine the ICT-based learning strategies applied at Public Senior Scondary School 1 Sungai Rotan in the face of the Industrial Revolution 4.0 era. Sources of data obtained by researchers from teachers as the object of research at Public Senior Scondary School 1 Sungai Rotan and obtained from the latest information in the world of education related to the era of industrial revolution 4.0. The data of this study were collected using the method of documentation and direct interviews with subject teachers. The findings of the data obtained were then analyzed by researchers that at Public Senior Scondary School 1 Sungai Rotan had a reliable strategy in facing the era of industrial revolution 4.0 because it was proven in every learning that all teachers had applied ICT-based learning, the use of laptops (computers) and the internet was the wrong one that should not be ignored which is integrated in the curriculum.

Keywords: Learning Strategies; Information and Communication Technology; Industrial Revolution 4.0

1. Introduction

Learning Information and Communication Technology (ICT) and Information Technology is very strategic for us to convey to students so that they are ready to face the era of industrial revolution 4.0. Schools also, of course, have programs especially ICT Teachers should be able to prepare their students to face the 4.0 industrial revolution. They need to equip students with strengthening character education, literacy, and Critical Thinking Skills, Creativity, Communication, Collaboration and Computational Thinking competencies republika.co.id: 11 October 2018), delivered at a workshop entitled "Dynamics of ICT/Informatics Learning Policy in The era of Industrial revolution 4.0 and Increasing Competence of ICT / Informatics Teachers on 21st Century Learning". Communication technology that continues to progress will affect the pattern of public communication later (Sudarwan, 2010). According to Tandeur, et.al., (2006): "Information and Communication Technology (ICT) plays an important role in society when we take into account the social, cultural and economic role of computers and the Internet." So that it can be said that integrating ICT in life especially in the aspect of education is very important at this time (Kristiawan, 2014).

In the face of the industrial revolution era 4.0, teachers should be able to use ICT as

a learning resource, one of which is by using internet access, because the internet is an unlimited source of information. In addition to the teacher being able to use ICT as a learning resource, the teacher is also able to create creative and innovative learning that is integrated with the ICT Use Profile. In the journal Rusi Restiyani, et al: According to Suhendar cited by Aloysius (2009), creative and fun learning is very important, because it can help students succeed in learning, create solutions to problem-solving, greatly affect students' lives, give rise to happy and satisfied. Starting from this, the author wants to explore more about information relating to ICT-based learning in the face of the industrial revolution era 4.0.

The world will now enter the era of industrial revolution 4.0, marked by an era of disruptive innovation. Disruptive innovation helps create new markets and disrupts or destroys existing markets and ultimately replaces existing technologies. In 2020 experts predict that the world will enter the Era of Industrial Revolution 4.0. The beginning of the industrial revolution 4.0, when human roles were replaced by machines or robots because there will be many emerging sophisticated robots, supercomputers, autonomous vehicles, 3D printing, and optimizing the functioning of the human brain with genetic editing and neurotechnology development. This progress may look sophisticated and amazing, behind it all there are losses caused by the industrial revolution. Quoting the results of the annual International Forum with the theme "Mastering the Fourth Industrial Revolution" in 2016, the 4.0 Industrial Revolution will cause disruption or disruption not only in the business sector, but also in the labor market, and the education world also has an impact against the era of industrial revolution 4.0.

Facing this challenge, the world of education is required to change, including education and learning strategies at the level of primary and secondary education. The era of the industrial revolution 4.0 can also change the perspective of the world of education. Changes made are not just a way of teaching, but far more essential, namely a change in the perspective of the concept of education itself. According to Martadi (2011) Education must at least be able to prepare their students to face three things: a) preparing children to be able to work whose jobs currently do not yet exist; b) preparing children to be able to solve problems that have not yet emerged, and c) preparing children to be able to use technology that is now not found in technology. It can be said that homework is not easy for the world of education.

No exception in learning, change can be done by reorienting the curriculum to build competency in the era of industrial revolution 4.0 and preparing Information and Communication Technology-based learning for example with online learning in a hybrid or blended learning (online learning). The purpose of all this is to improve and improve the quality of education carried out continuously by the Government and education providers both public and private schools. Efforts to improve the quality of education, especially starting from the teacher, because the teacher as an educator is the spearhead whose tasks and functions are directly related to students, the teacher has the main task in learning in school to create a pleasant learning atmosphere so that it has a positive impact on student

achievement. Especially in the face of the era of industrial revolution 4.0.

From the problems above, the researcher wants to explore more about ICT-based learning that is applied at Public Senior Scondary SCHOOL 1 Sungai Rotan in the face of the era of industrial revolution 4.0. and it is very important to study because revolution 4.0 will bring changes to the world of education in Indonesia, especially at Public Senior Scondary School 1 Sungai Rotan where researchers conduct research.

Learning Strategies

Efforts to organize education in schools that involve teachers as educators and students as students are realized by the existence of teaching and learning interactions or learning processes. In the context of this implementation, teachers consciously plan their teaching activities systematically and are guided by a set of rules and plans about education that are packaged in the form of curriculum. The strategy applied is an effort to obtain success and success in achieving goals. In accordance with the opinion of Sanjaya in Mustafiyanti argues that learning strategies are a learning activity that must be done by teachers and students so that learning objectives can be achieved effectively and efficiently. It can also be interpreted as an attempt by the teacher to use several teaching variables (goals, materials, methods, and tools, and evaluation) in order to influence students to achieve the stated goals (Mustafiyanti, 2014).

Developments in Information and Communication Technology (ICT) the activity of the learning process is characterized by the occurrence of educative interactions, namely interactions that are conscious of goals, methodologically rooted from the educator (teacher) and pedagogical learning activities on the students and process systematically through the design stage, implementation, and evaluation. Learning does not occur instantly but processes through stages characterized by certain characteristics. The first stage involves students' mental processes to the maximum in the learning process. The second stage builds a dialogical atmosphere and a continuous question and answer process that is directed at improving and improving students' thinking skills which in turn can help students to acquire the knowledge they construct themselves. Learning is an effort of educators to realize the process of acquiring knowledge, mastering skills, and forming attitudes and beliefs in students. In other words, learning is a process that facilitates students to learn well and can produce effective learning processes as expected.

According to Ali (2005), the main factor causing ineffective learning in the classroom is the use of media and inappropriate learning strategies. Making the right learning media according to Sardiman (1993) will be able to overcome the problem of passive attitudes of students which ultimately lead to excitement in learning and allow students to learn on their own. Various processes and aspects of student knowledge in the classroom can be developed by the teacher by offering different media and learning strategies. Selection of the right learning strategy is a demand that must be fulfilled by a student. In the teaching and learning process, the teacher must have a strategy, so that students can learn effectively and efficiently, hit the expected goals (Roestiyah, 2008).

Learning strategies related to the success of the teaching and learning process

whose results will determine the achievements to be achieved by students. According to Sanjaya (2008) strategies are prepared to achieve certain goals, meaning the preparation of learning steps, the use of various facilities and learning resources are all directed towards achieving goals. Furthermore, Sanjaya (2008) argues, that there are still many teachers in Indonesia who use the same learning strategy for all subjects, besides that most teachers in Indonesia use their own will-oriented learning strategies. This means that there are still many in Indonesia who cannot choose the right learning strategy for one particular subject matter which causes low student learning outcomes.

Information and Technology Technology in learning has had a very significant impact on all aspects of human life. The impact caused by this development is the more open and widespread information, knowledge from and throughout the world penetrates boundaries, distances, places, space and time. Its influence extends to various lives, including the field of education. According to Sudarwan, the progress of ICT has changed the way of life and lifestyle of Indonesian people in carrying out their activities and activities. The existence and role of ICT education have brought a new era of the development of the world of education, but this development has not been balanced with the increase in human resources that determine the success of the world of education in Indonesia in general.

This is more due to our lack of human resources to utilize information technology in the education process. In the learning process requires methods, media, and strategies. The choice of methods, media, and strategies is not just determined by the tastes and willingness of the teacher. The selection depends also on the nature of the task, the nature of the learning goals that must be achieved Ability, talent, prior knowledge and age of students must be considered by a teacher. Now the use of educational technology media is able to overcome the problems in teaching so that it can provide a set of principles that are used to underlie optimal teaching methods and techniques, namely by using this ICT media.

The use of ICT or Information and Communication Technology (ICT) in the world of education has resulted in increasingly narrowing and even fusion of the dimensions of space and time which have been the determinants of speed and the successful mastery of science and technology by humanity. Various efforts to improve the quality of education are always carried out. It can be said that the world of education today lives in the world of media, where learning activities have moved towards the reduction of conventional learning material delivery systems that prioritize the lecture method, and are replaced with a modern learning material delivery system that emphasizes the role of learners and the use of ICT. Application of learning activities that emphasize competencies related to process skills, the role of learning media becomes increasingly important. Well-designed and creative learning by utilizing ICT, within certain limits will be able to increase the likelihood of students to learn more, understand what is learned better, and improve the quality of learning, especially in order to improve the achievement of competence.

In general, educational technology media has uses as follows: a) Clarify the presentation of the message so that it is not

too verbalistic (in the form of mere written or oral words); b) Overcoming the limitations of space, time and sense power, such as objects that are too large can be replaced with reality, images, frame films, films or models. Small objects can be helped with micro projectors, frame films, films or images. Motion that is too slow or too fast can be helped by time lapse or high-speed photography. Past events or events can be displayed again through recording films, videos, film photo frames or verbally. Objects that are too complex (eg machines) can be presented with models, diagrams, and others. Concepts that are too broad (volcanoes, earthquakes, climate, etc.) can be displayed in the form of films, pictures, etc.; c) By using educational media appropriately and varied, it can be overcome by the passivity of students. In this case, ICT media is useful to generate enthusiasm for learning, Enables more direct interaction between students and the environment and reality, and Enables students to learn on their own according to their abilities and interests; d) With the unique nature of each student coupled with a different environment and experience, while the curriculum and learning material is determined equally for each student, the teacher will experience many difficulties when all of them have to be overcome on their own. Especially if the background of the teacher's environment with students is also different. This problem can be overcome with ICT media, namely with its ability to provide deep stimuli, equalize experiences, and give rise to the same perception.

ICT is one of the effective media in learning because with ICT it can be developed an interesting learning environment so that it can answer and meet individual learning needs by preparing learning activities with effective ICT media to ensure learning occurs. This ICT-based learning system is the last or fifth revolution in the learning system. According to research conducted by Eric Ashby in RuPublic Senior Scondary School et al, the revolution that occurred was as follows: 1) The first revolution occurred when people handed over their children's education to a teacher either in a hermitage, college, boarding school or school; 2) The second revolution occurs when writing is for learning purposes. Through this writing can open very wide access, so that information can be stored and recalled; 3) The third revolution occurs along with the discovery of printing machines so that learning materials can be presented through print media, such as textbooks, modules, magazines, and others; 4) The fourth revolution occurs when the use of electronic devices in learning activities such as radio, tape recorders and television for the distribution and expansion of education; 5) The fifth revolution is now with the packaging and use of technology, information and communication (ICT) in learning. Especially computer and internet technology for the benefit of increasing learning activities. (Mukminan: 2014)

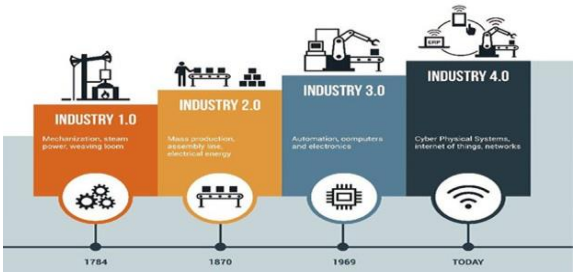
Industrial Revolution 4.0

Hearing the word Industry 4.0 certainly seemed strange or something new, even though the term industrial 4.0 was born from the idea of the fourth industrial revolution. The European Parliamentary Research Service in Davies (2015) states that the industrial revolution took place four times. The first industrial revolution took place in England in 1784 where the discovery of steam engines and mechanization began to replace human work. The second revolution occurred at the end of the 19th century

where production machinery powered by electricity was used for mass and rapid production activities. The use of computer technology for manufacturing automation from 1970 became a sign of the third industrial revolution (Davies: 2015)

The present rapid development of sensor technology, interconnection, and data analysis has led to the idea of integrating all of these technologies into various industrial fields. The emergence of ideas and ideas that are predicted to become the next industrial revolution. Attention to number four on the term Industry 4.0 refers to the fourth revolution. Industry 4.0 is a unique phenomenon compared to the three industrial revolutions that preceded it. Industry 4.0 was announced a priori because the real events had not yet occurred and were still in the form of ideas. (Drath: 2014)

The industrial revolution is experiencing its peak now with the birth of digital technology which has a massive impact on human life throughout the world. The latest industrial revolution or fourth generation pushes automation systems in all activity processes. The increasingly massive internet technology not only connects millions of people around the world but also has become the basis for online trade and transportation transactions. (Slamet: 2014) The emergence of the online transportation business is another trend in Indonesia such as Gojek, Uber and Grab, besides that online businesses also emerge all forms of electronic goods, clothing, food, medicine and airline ticket reservations, trains online and everything is installed as an application on an Android mobile like Belibi, Bukalapak, Facebook, Twitter, Instagram, Path, Kuskus, Market Place, and others. This shows the integration of human activities with information technology and the economy is increasing. The development of autonomous vehicles, drones, social media applications, biotechnology, and nanotechnology increasingly confirms that the world and human life have fundamentally changed.



2. Research Methods

The research method is a technique or way to find, obtain, conclude or record data, both in the form of primary data and secondary data used for the purpose of compiling a scientific work and then analyzing factors that are related to the subject matter so that there will be a truth data obtained. According to Sugiyono (2011): Research methods are scientific ways to obtain data with specific purposes and uses. In this study, the author uses a type of qualitative research that is inductive in nature, namely qualitative research does not start from the deduction of theory but starts from information obtained from the field or empirical facts. The author goes directly to the field, learns a process or discovery that occurs naturally, records, analyzes, interprets and reports and draws conclusions from the process. According to Sugiono (2011). Qualitative research methods are research methods based on postpositivism philosophy used to examine the condition of natural objects and analysis of data inductive/deductive and the results of qualitative research emphasizes the meaning rather than generalization.

In this study, the researcher tried to dig up information about ICT-based learning and analyze the results of the research as well as the relevant theories related to the ICT-based learning strategy. The object of this research is Public Senior Scondary School 1 Sungai Rotan, Muara Enim Regency, Academic Year 2018/2019. The data collection technique used in this study was to use observation and direct interviews with subject teachers regarding ICT-based learning. Opinion (2005) states that the study of documents is "how to collect data through written relics mainly in the form of archives and also includes books on opinions, arguments relating to the problem of investigation. An interview is a question and answer process in research that takes place orally done by two people or more face to face listening directly to information or information (Supardi, 2006).

Another opinion expressed by Sugiyono (2001) interview is a meeting of two people to exchange information and ideas through question and answer so that meaning can be constructed in a particular topic and by interviewing, researchers will know more in-depth things about participants in interpreting situations and phenomena what happened was impossible to find through observation. In analyzing data, researchers make in the form of summaries or summarize data in a form that is more easily understood and interpreted (Sukardi, 2004). Miles and Huberman (in, Sugiono 2011), suggest that the activities in qualitative data analysis are carried out interactively and take place continuously until complete so that the data is saturated.

3. Results and Discussion

This research was conducted at Public Senior Scondary School 1 Sungai Rotan, located in Sukarami village, Sungai Rotan Sub-District, Muara Enim Regency. The researcher chose the research site here because this school had been accredited "A" and the learning had used computer and internet devices. Or it can be said that the school has implemented ICT-based learning. The object of this study is those subject teachers will be taken data or information in favor of ICT-based learning strategies using the method of documentation and direct interviews. From the results of the documentation obtained by the researchers in the form of learning devices made by the teacher, it was found that all documents of the learning device had referred to the 2013 curriculum in class X and XI and class XII still referred to the 2006 curriculum (KTSP). One component of the learning device is the Learning Implementation Plan (RPP) made by the teacher as a learning scenario. According to Nana (2009), RPP is a written plan is a curriculum document, while a curriculum that is operated in the classroom is a functional curriculum (Syaodih, 2009).

The lesson plan made by this subject teacher is written that the teacher in his learning method has applied ICT-based learning, the means that are used as learning media are laptops (computers), LCD projectors and internet (E-learning), teaching materials and learning resources used already related to ICTs such as electronic books or e-books, so the subject matter gained by students is broader and learning is more creative, innovative and fun. The results of interviews with researchers with Refli Chandra ICT subject teachers who taught in class XII IPA, (7 November 2018) that ICT applied at

Public Senior Scondary School 1 Sungai Rotan is something used in learning, besides students can use computer devices as well as information media through the internet. In addition, the teacher utilizes learning with E-books or electronic books, one of the technologies that use computers to display multimedia information in a concise and dynamic form. The workings of e-books can be integrated with sound, graphics, images, animation, and the movie shows so that the information presented is richer than conventional books. Students also do not have to record pages of material in the book, they only need to copy material from the Teacher through a flash disk, email, or even just open the web which contains more complete information.

The ICT-based learning strategy carried out at Public Senior Scondary School 1 Sungai Rotan is a form of business so that students are not clueless (stuttering technology) with positive use of computers/laptops and internet users. In addition to students already familiar with ICT and internet learning so that in the implementation of computer-based National Exams (UN) students are not confused or have difficulty using computers. From 2016 Public Senior Scondary School 1 Sungai Rotan has conducted a Computer-Based National Examination (UNBK) Results of Interviews with Teachers/Persistent Swasono, (November 5, 2018).

The results of the above research show that ICT-based learning strategies really need to be applied to every subject especially in facing the era of industrial revolution 4.0. ICT learning is very necessary not only to face that era but also in the current era all have used ICT and internet in every activity. Impact of the industrial revolution era 4.0 in the world of education to be ready to face it. Menristekdikti gave direction related to the impact of industry 4.0, namely by the existence of "digitizing the system", inevitably demanding both students, educators, students, and lecturers to be able to quickly adapt to existing changes. The learning system that was originally based on face-to-face directly in class, it is not impossible to be replaced with a learning system that is integrated through the internet network (online learning). (Rahayu, 2018).

In addition (merdeka.com, 2 May 2018) according to the Education Minister Muhadjir Efendy, one of the preparations for the Industrial Revolution 4.0 is to revise or redesign the curriculum as a reference for learning in schools. It is expected that the ability to think critically, creatively and innovatively, as well as the ability and communication skills, have skills, ability to work together and collaborate, as well as confidence or self-confidence. So this is capital that is very much needed to be able to enter the 21st century, and mastering will get along in industry 4.0. This means that the world of education, namely educators and students must be able to master ICT supported by the ability to think critically, creatively, innovatively and have qualified skills.

4. Conclusion

The development of information technology that is increasing rapidly in the digital era is now an unavoidable influence on the world of education. In the digital era, the world of education requires always and constantly adjusting technological developments to efforts in improving the quality of education, especially adjusting the use of information and communication

technology for the education world, especially in the learning process. ICT learning in general aims to make students understand information and communication technology tools in general, including computers (computer literate) and understand information (information literate), meaning that students recognize the terms used in information and communication technology. The role of information and communication technology in learning, in addition to helping learners in learning also have a role that is quite influential for teachers, especially in the utilization of facilities for the sake of enriching their teaching abilities. By having knowledge in the use and utilization of ICTs, students are expected to be able to face the era of industrial revolution 4.0 and be able to adjust to their knowledge and be able to innovate to produce something useful for the interests and progress of the nation towards the changing era of digital revolution 4.0

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References

Ali. (2005). Strategi Belajar Yang Berkesan. Kuala Lumpur: Percetakan CS.

Anggota IKAPI Kampus UNESA, Martadi. (2011). Bunga Rampai Pendidikan Karakter Strategi Mendidik Generasi Masa Depan. Unesa University Press. Cet.1

Ariyanti H. (2018). Hadapi Revolusi Industri 4.0, Mendikbud akan rancang ulang kurikulum diakses 18 November 2018 dari :https://www.merdeka.com/peristiwa/hadapi-revolusi-industri-40-mendikbud-akan-rancang-ulang-kurikulum.html.

Davies, R. (2015). Industry 4.0 Digitalisation for productivity and growth. Diakses 19 November 2018 dari: http://www.europarl.europa.eu/RegData/etudes/BRIE/2015/568337/EPRS_BRI(2015) 568337_EN.pdf

Drath, R., & Horch, A. 2014. Industrie 4.0: Hit or hype?[industry forum]. IEEE industrial electronics magazine, 8(2), pp. 56-58.

Emzir. (2011). Analisis Data: Metodologi Penelitian Kualitatif. Jakarta: Rajawali Press.

Hadari, N. (2005). Metode Penelitian Bidang Sosial. Yogyakarta: Gadjah Mada University Press.

Kelana, I. 2018. Guru Perlu Siapkan Siswa Hadapi Revolusi Industri 4.0 di akses tanggal 27 November 2018 https://republika.co.id/berita/pendidikan/eduaction/18/10/11/pgf1im374-guru-perlu-siapkan-siswa-hadapi-revolusi-industri-40

Mukminan, Penerapan Teori Belajar dalam Media Media Pembelajaran Berbasi TIK untuk meningkatkan Kualitas Pendidikan (Makalah dalam seminar Nasional dengan tema "Pemanfataan Media berbasi Teknologi Informasi dan Teknologi dalam meningkatkan kualitas Pendidikan, 18 Agustus 2014

Mustafiyanti. (2014). Strategi Pembelajaran. Lampung : Darussalam Press

Nana, S.D. (2009). Pengembangan kurikulum: teori dan praktik. Jakarta : Remaja Rosdakarya

Rahayu, I.D, (2018). Opini: Revolusi Industri 4.0 dan Pengaruhnya Pada Sistem Pendidikan diakses tanggal 22 November 2018: http://kamilpasca.itb.ac.id/opini-revolusi-industri-4-0-dan-pengaruhnya-pada-sistem-pendidikan/

Restiyani dkk. 2018. Profil Pemanfaatan TIK sebagai Media dan Sumber Belajar. diakses tanggal 22 November 2018 http://journal.uinjkt.ac.id/index.php/edusains/article/download/1100/977

Roestiyah. (2008). Strategi Belajar Mengajar. Jakarta: Bina Aksara.

Rosyadi, S. (2014). Revolusi Industri 4.0: Peluang Dan Tantangan Bagialumni Universitas Terbuka

Sanjaya, W. (2005). Pembelajaran dalam Implementasi Kurikulum Berbasis Kompetensi. Jakarta: Kencana.

Sanjaya, W. (2008). Perencanaan dan Desai Sistem Pembelajaran. Jakarta: Kencana

Sardiman. (1993). Interaksi dan Motivasi Belajar Mengajar. Jakarta : Rajawali Press.

Sudarwan, D, (2010). Media Komunikasi Pendidikan: pelayanan profesional pembelajaran dan mutu hasil belajar, Jakarta: Bumi Aksara.

Sugiono (2011). Metode Peneltian Pendidikan Pendekatan Kuantitatif, Kualitatif, R&D, Bandung : Alfabeta

Suhartoko. 2018. Guru bagi Generasi Milenial di Era Revolusi Industri 4.0 di akses tanggal 27 November 2018 http://www.girimu.com/2018/03/08/guru-bagi-generasi-milenial-di-era-revolusi-industri-4-0/

Sukardi. (2004). Metodologi Penelitian Pendidikan, Kompetensi dan Prakteknya. Jakarta: Bumi Aksara.

Supardi, M.d, (2006). Metodologi Penelitian. Mataram: Yayasan Cerdas Press

Tandeur Jo, et al. (2006). Curricula and the use of ICT in education: Two worlds apart, British Journal of Educational Technology 38.