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Digital Literacy as a Media to Introduce Technology for Elementary School Children

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Abstract. The development of science and technology has changed the world as industry revolution change the world. The industrial revolution 4.0 has changed the economy, employment and even society itself. Educational challenges in the era of the industrial revolution 4.0 in the form of changes in the way of learning, thinking patterns and ways of acting society, especially students in developing creative innovations in various fields. The characteristics that emerge in the 21st century digital world include the academic community must always explore the technological footprint, share in creating ideas and knowledge that will be created, interact and collaborate in social matters by looking at various aspects that will be applied. Primary school-age children must have an understanding in expressing themselves in the field of digital literacy and using media wisely. From the results of research found that children have begun to be familiar with digital devices such as television and gadgets. Not infrequently they also began to get used to spending time in front of these digital devices. This study aims to carry out physical development of motoric, socio-emotional, religious community of young children and elementary school, regarding digital literacy. The result is elementary school children can be directed to be able to think critically, think creatively, collaboratively and communicatively in using Information and Communication Technology.

Keywords: digital, literacy, elementary, school, student

INTRODUCTION ~ Besides education as an effort to foster and develop the human person in terms of spiritual and physical, must also take place gradually (Arifin, 2012). Elementary school level is the most basic level of education in formal education and has a very important role for sustainability in the secondary field. At this level, a child for the first time gets a formal education. Children will learn to read, count, write and understand concepts that will be the basis for education at the next level.

Challenges in the 21st century today, educators are faced with demands directed at preparing citizens who have: (1) the ability to think by providing students with critical thinking skills, creative, innovative, solving problems and making responsible decisions; (2) the ability to work by equipping students with the skills to work together, communicate, and collaborate; (3) the ability to use tools to work by equipping students to have information literacy and ICT literacy; and (4) skills and attitudes to become global citizens, by equipping students with nationalism, the ability to manage their career and life, and the ability to have personal and social responsibilities (Indrawati et al: 2018).

One of the processes in the study of education is marked by literacy culture. Literacy activities are activities related to reading and writing. To be able to support this literacy ability, the ability to read is an important thing. Associated with the aim of providing basic skills "read and write", the

role of language teaching is very important to improve students' communication skills, both verbally and in writing.

The development of science and technology has changed the world as the industrial revolution happened. The first industrial revolution gave birth to history when human and animal power was replaced by the appearance of machines. Next, the second generation industrial revolution was marked by the emergence of power plants and combustion motors. Then, the third generation industrial revolution was marked by the emergence of digital technology and the internet. The development of the industrial revolution from each phase has significantly changed the face of the world. Today a new round of industrial revolution is entering the phase of the industrial revolution 4.0.

The industrial revolution 4.0 has changed the economy, employment and even society itself. Industry 4.0 is an industry that combines automation technology with cyber technology. This is a trend of automation and data exchange in manufacturing technology. This includes cyber-physical systems, the Internet of Things (IoT), cloud computing and cognitive computing. The point of this revolution is to emphasize the use and utilization of information and communication technology in various fields. In this case, many aspects can change the way people think in the digital age.

Educational challenges in the era of the industrial revolution 4.0 in the form of changes in the way of learning, thinking patterns and ways of acting society, especially students in developing creative innovations in various fields. The characteristics that emerge in the 21st century digital world, among others, academics must always explore technological developments, share in creating ideas and knowledge that will be created, interact and collaborate in social matters by considering various aspects to be applied.

The digital age has many threats if not watched out first. Globally, this era could eliminate around 1 to 1.5 million jobs in a period of 10 years due to the role of human substitutes with automatic machines. In addition, 65% of people at school age will now work in a profession that has never existed today.

Educators in the industrial revolution era must improve their understanding in expressing themselves in the field of media literacy, understanding the information that will be shared with students and finding analysis to solve the problems of digital literacy academics. It is hoped that all parties must increase collaboration in future educational orientations and change the performance of the education system that can develop the quality of the mindset of students and

strengthen the digitalization of education based on applications.

A question that educators are constantly trying to find answers to and the ideal solution is how to find an ideal model of teaching and learning activities for generations that grow and develop in the 21st century. This century is marked by an industrial revolution that is entering a new phase namely the industrial revolution 4.0 . This industrial revolution is marked by the development of information and communication technology in almost all fields including education.

One aspect that becomes important in learning is literacy activities. Basically, literacy is not a new term, it's just that for some people, these words are foreign words whose meaning is unknown. The meaning of literacy today is becoming more dynamic. Literacy is not only limited to reading books. Literacy is not only based on literacy reading, but also many other types of literacy that must be mastered. In this context, educators have a very vital role in building young people who have high literacy abilities, both arithmetic literacy, technological literacy, media literacy, data literacy and others.

Digital literacy is one of the main abilities needed in the 21st century because it is able to train logical, critical, and creative thinking patterns. In the past, reading, writing, and counting were three basic things that children must master to become independent members of society. However, now we have entered the digital era marked by the presence of technology in various fields. Just as someone who is not good at reading, writing and arithmetic is at risk of being marginalized. Increasingly, someone who does not master digital literacy is also at risk of being left behind. We can lose relationships because we cannot communicate online. A store can lose a buyer because it does not master marketing via social media. In addition, the swift information from the media also makes many people easily consumed by hoax news or easily influenced by advertisements. The digital age indeed provides its own challenges for education practitioners and the general public.

The progress of a country is directly proportional to the literacy ability of its population. The higher the literacy of a nation, the higher the level of progress of the nation. But in reality, interest in reading Indonesian people is relatively low. Our society is more pleased with the culture of verbal communication or speech. We are not yet a society book reader. This condition is different from the countries around us which have made reading a routine activity every day. This condition causes the low ability to read in society in general.

True learning in the 21st century is learning that must be flexible and adaptive. However, learning must be able to stimulate the creativity and independence of the students. The essence of digital

literacy is not only reading and writing pages of paper, but also their electronic extensions on one side, reading screens and surfing the internet, and can even use digital media games.

METHOD

The development of Information and Communication Technology (ICT) has been growing rapidly and can not be dammed again, so that various fields require to use ICT as part of the field system. Besides having a positive impact on technology, there are also negative impacts caused by several aspects. One of them is the motor development of toddlers. According to Personals (on the website of the Ministry of Education and Culture.go.id., 2010) said that children will tend to be lazy to learn if they are familiar with online games, most likely children consume games that feature elements of violence without parents' knowledge, children will be threatened with a lot of bad information which flooded the internet, etc. Thus the negative impact must be overcome even though psychologically, children prefer to use the media gadget as a device to play.

This study attempts to conduct a study of the use of digital literacy for the introduction of media technology in children. This study also measures the extent to which UPI Purwakarta Labschool Elementary School children are familiar with technologies that begin with digital literacy.

The implementation of education in Indonesia aims to make the competencies taught by teachers acceptable to students, as well as to be able to master them thoroughly. Mastery of competence for students is very important, because it can become a provision when students face the dynamics of life. The process of mastering this competency sometimes experiences obstacles, because students lack understanding of what is given by the teacher.

The failure of students in mastering competencies is caused by many factors, one of which is employability skills. Employability skills require a lot of skills that are ready for a career, skilled work ability, technical expertise and academic knowledge (Majid, N., & Sudira, 2017). This ability requires a relatively long time and not instant. Students must go through many processes to get these abilities.

The hierarchy of processes and the results of competency acquisition is the development of "a hierarchy of postsecondary outcomes" according to Jones, E., Voorhees, R., & Paulson, K (2002: 8). There are 4 parts in the hierarchy and explain to each part, namely: fundamental competencies, learning processes, competencies, and demonstrations.

Obtaining competencies for students can actually be supported by a variety of media, because the process of transfer of competence requires different abilities for each student. The application of

interactive media-based learning is an alternative to support the achievement of the transfer of competence process. Students can master the knowledge needed and be able to apply that knowledge, and can behave as expected.

RESULTS

The concept of education in Indonesia has changed patterns every year. Curriculum assessment and improvement starts at each period to improve the quality and quality of education. In addition, the existence of technology is already needed in every field, including education. Utilization of this technology makes education increasingly evolve and experience a significant increase.

The development of learning patterns from time to time is adapted to the conditions and thinking design of the community at that time. In the current era, technology is a supporting factor in all fields, so the learning format has changed. Previously education must be static and have a place for the learning process. In this era, learning does not need a static place and can even be done anywhere, anytime, and in any condition. Design thinking has become more common as a way of flexibly changing learning and teaching practices (Salmon, 2017). The main characteristics of the application of Education 3.0 can be seen in the following figure.

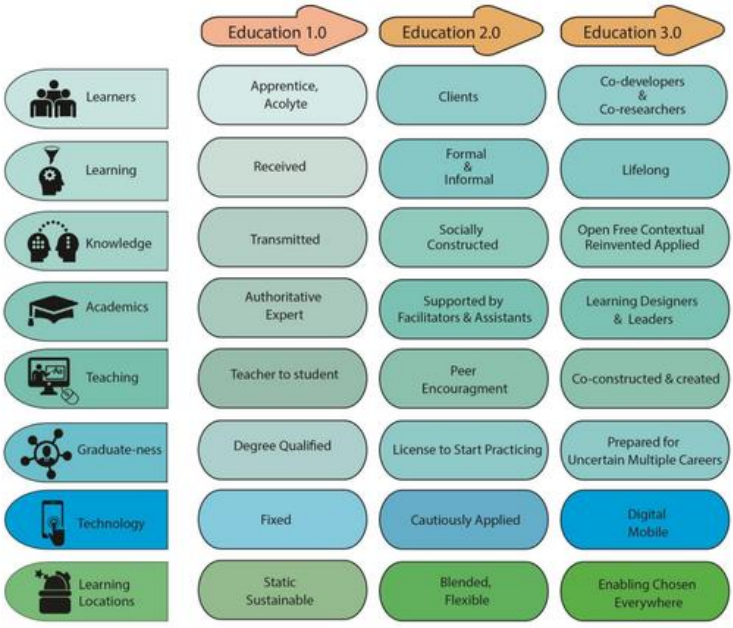

Figure 1. Differences in characteristics of Education 1.0, 2.0, and 3.0 (Salman, 2017)

Application of Education 3.0 will affect aspects of the pattern of delivery of material to students. The pattern will affect the mechanism so that students are able to master a competency taught by their teacher.

The increase in gadget users among children is getting higher along with the increasing sales in the market. In addition, the tendency of parents to give gadgets to children with reasons for communication and learning is part of an increase in gadget users in Indonesia. According to the latest data, at least 30 million children and adolescents in Indonesia are internet users, and digital media is currently the first choice of communication channels they use (Head of Information and Public Relations Center of the Ministry of Communication and Information, 2014).

At the "Labschool UPI Purwakarta" Elementary School, more than half of all students were familiar with technology. Most of them are familiar with television and gadgets. In class 1, they found that they were already familiar with technology, namely using mobile phones for entertainment activities such as watching videos on YouTube and playing some digital games. In class 2, a quite interesting fact was found. Students in grade 2 are not only familiar with gadgets but they are wiser in using them. They began to recognize some of the popular games on Android that can be played for learning as well as entertainment.

Technological developments have begun to be felt by various parties, especially with the massive application of technology in various fields. This can be seen from various activities that tend to use technology, such as: journalists get facts through the internet, the application of hospital information systems in various hospitals, cataloging and organization of data using databases that can be accessed via the web, and so on (ITB Compilation Team, 2013). Even the field of education is also not free from the influence of technology in various sectors, especially in the teaching and learning process.

At the moment we are on the threshold of the technological revolution 4.0 which will fundamentally change the way of life, the way we work and the way we work with each other in the domestic and foreign sphere. Under these conditions the community must make preparations for it.

The pattern of education in this modern era tends to be the concept of transfer of knowledge rather than the cultivation of character in children. Even the current education pattern no longer has to be in class as exemplified by several universities in Europe. Universities in Europe mostly only apply online learning by uploading modules on a regular basis by lecturers and indirectly face to face via Skype or Google Hangout (Amsyah, 2015). Online learning in the scope of higher education is currently assumed to be a repository of teaching materials, both for teachers and students (Wicaksono, 2012). So that teaching and learning activities rely solely on a capable internet network in order to run optimally. Even technology-based learning is part of the application of the concept of smart city which is applied in developed countries and began to be

developed in Indonesia. The regional government continues to keep up with the development of smart cities in their respective cities which are considered as solutions to the complicated problems of an area towards more advanced development (Republika, 2016).

Education for early childhood is the most important aspect that must be given, because competency growth and development requires maximum guidance. The world of children will not be separated from play and imaginative. So that the method of education provided is more for play and imagination. These two elements are packaged and conceptualized into the education curriculum, and are part of the theory of education for early childhood.

Children under five or early age need educational stimuli to develop their physical and spiritual potential. According to Law Number 20 of 2003 concerning the National Education System Article 1 number 14 states that Early Childhood Education (PAUD) is a coaching effort aimed at children from birth until the age of six carried out through the provision of educational stimuli to help growth and physical and spiritual development so that children have readiness to enter further education. So early childhood education focuses on laying the basis for the growth of physical development, attitudes, intelligence on intellectuals, communication through language vocabulary, and so forth.

Education for children is very different in treatment with adults and requires several stages, including: oriented to the needs of children, learning through play, having a conducive environment, using educational media, continuous learning, and using representative learning. Children's education is based on having fun, while education for adults puts forward the seriousness. These different learning patterns must be considered by educators.

Literally the method of education for children is oriented to play. Especially with the development of technology, the more complete the need to play in children. Children will feel comfortable with the presence of technology in the form of gadgets, so they don't know the time and sometimes get angry when they take the gadget. A suitable method for children's education is to utilize the advantages of technology to improve children's abilities. Collaboration between educators and gadgets is the right way, considering that children prefer to play using the technology.

DISCUSSION

From the results of this study it is necessary to find an optimal solution to still be able to help children become familiar with technology and be smart in digital literacy but not reduce their time to play. So the availability of educational content in children's entertainment in the digital world needs to be continuously encouraged.

Figure 2. Digital literacy learning to Labschool UPI Purwakarta Elementary

School visual, auditory, and language abilities can improve in children after using educational applications on gadgets. The results of a study by Joan Ganz Cooney Center (in Wulandari, PY, 2016) said that five-year-old children using the iPad educational application experienced a vocabulary increase of about 27 percent, whereas in children aged three years, experienced a vocabulary increase of 17 percent . This shows the positive role of the application of educational games that can be applied to children.

Children basically like games, because interest in a game is very high compared to other aspects. Play is a world of children that cannot be replaced by other aspects. In the case of children who prefer to play gadgets than other jobs is because in the gadget has an attraction, so the child does not want to be separated from the influence of the gadget.

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Figure 3. Children interest in operating to games education at Labschool UPI Purwakarta Elementary School

The characteristics of the gadget has an appeal for children so that its popularity increases. The gadget presents various dimensions of multimedia in one device. This complete presentation is not obtained by children in other media, so the tendency to like gadgets is very high.

Therefore the use of gadgets as interactive learning media is an alternative and the right choice to improve children's competence. Besides the child's visual abilities will increase by itself depends on continuity in play.

Figure 4. Some students try to answer simple question on digital literacy at Labschool UPI Purwakarta Elementary School

Mobile game is a game that can be run on a cell phone or cellular, so users can play it portable. Mobile games can be grouped into three categories: the first is embedded games, games that are already embedded in mobile device systems (Shiratuddin & Zaibon, 2010). The second is the SMS game which is often in the form of live contests and polls. Types of mobile games can be classified as follows: Arcade / Action for example Doom and Alien; Sports for example bowling, golf and soccer; Skills, strategies and logic, for example Sudoku; Cartoons and boards, like a monopoly; Role playing games for example final Literacy skills which include listening, speaking, reading and writing are the foundations or determinants of the success of student learning activities. As a skill that underlies other skills, literacy learning needs to get serious attention from teachers. In carrying out this literacy learning, teachers must pay attention to the needs, interests, background, and age of students.

CONCLUSION

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