

## The Analysis of 21<sup>st</sup> Century Learning Implementation and Competency Achievement of Junior High School Students in 3T Regions

Gunadi Gunadi<sup>1✉</sup>, Haryono Haryono<sup>2</sup>, Eko Purwanti<sup>2</sup>

<sup>1</sup> SMP Negeri 3 Tanah Pinoh Barat Melawi Regency, Indonesia

<sup>2</sup> Pascasarjana, Semarang State University, Indonesia

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### Abstract

Providing students with competency is one of the challenge of 21<sup>st</sup> Century learning. The competencies include critical thinking and problem solving skills, communication and collaboration, creativity and innovation, as well as information literacy and technology media. This study aims to analyze the implementation of 21<sup>st</sup> century learning and the achievement of competencies of junior high school students who are in the frontier, outermost, and least developed areas of Melawi Regency, West Kalimantan Province. The method of this study was descriptive-analytic qualitative with the type of the research was case study. The results shows that the implementation of 21<sup>st</sup> century learning at Junior High School in the 3T region shows a moderate or medium category. The scores for each indicator are: planning (70.4%), learning implementation (73.4%), and assessment and evaluation (70.8%). The achievement of the 21<sup>st</sup> century competence of students gets medium category. The scores for each indicator are: critical thinking and problem solving skills (54%), communication skills (73%), collaboration skills (70%), creativity and innovation (48%), and information and media literacy (60%). The implication of this research is for the prospective teachers or new teachers who work in the 3T region. So that, they would know the conditions and prepare various strategies and learning approaches to apply based on the local conditions in improving students' competency.

✉ Correspondence address:

Bukit Raya RT 1 RW 0, Tanah Pinoh Barat

Melawi, West Kalimantan, Indonesia

E-mail: gunadioke@gmail.com

## INTRODUCTION

The era of Industrial Revolution 4.0 was marked by the rapid development of Information and Communication Technology (ICT) which has influenced people's habits and lifestyles. Life becomes freer, multicultural, interconnected, and globalization is also increasingly a part of everyday life. Life challenges and competition has increased, jobs are getting tougher, many jobs are replaced by robots that can run automatically, work tirelessly, and have low cost (Haryono, 2017). All the needs of human can be served by machines quickly. Artificial Intelligence (AI) technology can find out the daily habits of humans, what they like and don't like, products that are commonly used, problems that they face, and even technology can better recognize humans. The dependence on information technology makes us live in two worlds, namely the real world (physical space) and the virtual world (cyberspace) which cannot be separated. It is called the Society of 5.0 era (Deguchi et al., 2020). In essence, to compete and live successfully in the current era is not enough just to have routine skills, but we must change, think critically, be creative and innovative, and have interpersonal and intrapersonal skills.

The skills to learn and innovate are the 21<sup>st</sup> century competencies that students must master to succeed in their life. These skills include critical thinking and problem solving, communication and collaboration, creativity and innovation, and information and media literacy.(Trilling & Fadel, 2009). This competence can be taught through learning in schools by applying the 21<sup>st</sup> century learning. The principles of the learning include: student-centered learning, holistic, interactive and integrative, participatory, personalized learning, project / problem based, encouraging collaboration and communication, civilizing creativity and innovation, using appropriate learning tools, learning contextual and relevant to the real world, and empowering metacognition (Muhali, 2019; Zubaidah, 2016). The support systems needed to create are 21<sup>st</sup>

century curriculum standards, professional development, learning methods, assessment systems, and learning environments (Batelle For Kids, 2019).

Factors affecting the implementation of 21<sup>st</sup> century learning include the quality and competence of the teachers. Increasing teachers' understanding of 21st century competencies and applying them in the teaching and learning process is an important effort to do. The education paradigm shift encourages us to continue improving self-competence. The teacher is a major component in successful teaching and learning process (Harahap, 2018). Teachers must initiate one step of change. They need to change traditional teacher-centered learning into student-centered learning. Apart from the quality of teachers, the availability of facilities and infrastructure in schools is also the implementation of 21<sup>st</sup> century learning. Learning methods will change significantly towards the application of digital technology. The availability and ability to take advantage of ICT facilities in learning (ICT literacy) is important for all stakeholders to have (Syahputra, 2018).

The problem of education that still occurs today is the gap between the frontier, outermost, and least developed (3T) regions and urban areas (Ministry of Education and Culture, 2019). The 3T regions generally have the same characteristics. They do not have public infrastructure such as good asphalt roads, electricity and telecommunications networks, limited health facilities, and low human resources (Situmorang & Ayustia, 2019). The obstacle in implementing the 21<sup>st</sup> century learning in the 3T regions is preparing competent students and be ready to face the progress of the times by utilizing the limited learning environment and technological equipment. It is interesting to know how the implementation and the competency achievement of 21<sup>st</sup> century learning in the 3T region.

The previous study on the topic has been conducted by Mulyani (2018) at SMK N 1

Salatiga. The results shows that the competency of students is not evenly distributed, even though the learning process has been carried out and adjusted to achieve the 21<sup>st</sup> century competence. Andrian & Rusman (2019) in the special region of Jakarta also stated that the implementation of 21<sup>st</sup> century learning has been carried out well in its planning, implementation, assessment and supervision. Some of these studies only discussed the aspects of achieving students' competence, or aspects of implementing learning only. The current research examined the results of the achievement of students' competencies and analyzes the learning implementation process. In addition, this research was conducted in junior high schools in the 3T regions.

The purpose of this study is to analyze the 21<sup>st</sup> learning implementation and competency achievement of the students which include "4 Cs": creativity and innovations, communications and collaborations, critical thinking and problem solving, as well as information and media literacy (ICT Literacy) in junior high schools.

## **METHODS**

The method of the research was qualitative and the type of the research was case study. A case study is a series of scientific activities carried out intensively, in detail and in order to gain knowledge about programs, events or activities (Rahardjo, 2017). The research design consists of three stages, namely the orientation or description stage, the reduction stage, and the selection stage (Sugiyono, 2014). At the orientation stage, the researcher described the data based on the findings. In the reduction stage, the researcher focused on a specific problem by sorting and selecting important and useful data. At the selection stage, the researcher described the predetermined focus in more detail, the information obtained can be descriptive, comparative, and associative.

The focus of this research was about the 21<sup>st</sup> learning implementation and competency

achievement in junior high schools in the 3T region. The research locations were in five schools. The respondents of this study were 3 principals, 26 teachers, and 15 students. The implementation included three main things namely planning, implementing, and evaluating the learning process. The competency achievement included critical thinking and problem solving skills, communication and collaboration skills, creativity and innovation, and information and media literacy. The data collection was carried out by the researcher himself using interview techniques, questionnaires, and documentation. Data analysis in this study used a model of Miles & Hubberman (1994) where data analysis in qualitative research was carried out during data collection and after data collection for a certain period. Qualitative data analysis was used interactively and continued to completion. The data analysis processes were data collection, data reduction, data presentation, and conclusion. The data validity was done by using triangulation technique, which was checking the data through various sources and methods.

## **RESULTS AND DISCUSSION**

### **The Implementation of 21st Century Learning**

The implementation of 21<sup>st</sup> century learning is part of the standard process. This study only focuses on the three activities carried out by the teacher, namely planning, implementing, and evaluating the learning process. Apart from these three stages, there are actually still some stages which are following-up and supervising (Andrian & Rusman, 2019). Following-up is part of the evaluation stage, while supervising is usually carried out by the principal as supervisor. The recapitulation value of the implementation of learning carried out by the teacher are as follows:

**Table 1.** The results of questionnaire for the implementation of 21st century learning by teachers

| Process                         | Score (%) |    |    |    |     | Total of the Score | Percentage |
|---------------------------------|-----------|----|----|----|-----|--------------------|------------|
|                                 | SS        | S  | KD | TS | STS |                    |            |
| Planning                        | 9         | 53 | 25 | 10 | 4   | 92                 | 70.4       |
| Lesson Plan Preparation Process | 15        | 77 | 8  | 0  | 0   | 106                | 81.5       |
| Review                          | 10        | 50 | 25 | 10 | 6   | 91                 | 69.6       |
| Supervision                     | 8         | 65 | 27 | 0  | 0   | 99                 | 76.2       |
| Learning Loads of 21st century  | 2         | 19 | 38 | 29 | 12  | 71                 | 54.2       |
| Implementation                  | 16        | 48 | 25 | 9  | 2   | 95                 | 73.4       |
| Utilization of ICT              | 10        | 40 | 31 | 15 | 4   | 88                 | 67.4       |
| Environmental Utilization       | 33        | 32 | 19 | 13 | 3   | 99                 | 76.2       |
| Integrated Learning             | 12        | 69 | 19 | 0  | 0   | 102                | 78.5       |
| Participative and Collaborative | 8         | 52 | 31 | 8  | 1   | 93                 | 71.5       |
| Evaluation                      | 15        | 41 | 30 | 11 | 3   | 92                 | 70.8       |
| Instrument Making               | 12        | 31 | 46 | 8  | 4   | 88                 | 67.7       |
| Assessment process              | 15        | 58 | 25 | 2  | 0   | 101                | 77.3       |
| Value processing                | 15        | 40 | 21 | 18 | 6   | 88                 | 67.9       |
| Utilization Assessment          | 17        | 36 | 29 | 18 | 0   | 91                 | 70.3       |

Theoretically, the minimum value for obtaining the questionnaire is 26, the maximum value is 130. The percentage value of acquisition is divided into five scale ranges. With a moderate / sufficient scale is 60, the scale is obtained as in Table 2:

**Table 2.** The Range and category scale of theoretical value

| Scores (%) | Category  |
|------------|-----------|
| < 45       | Very low  |
| 45 - 59    | Low       |
| 60 - 73    | Moderate  |
| 74 - 87    | High      |
| 88 - 100   | Very high |

a. The the 21<sup>st</sup> century learning planning

All teachers have compiled a lesson plan. Based on direct confirmation to the teacher, it was found that the teacher compiled the lesson plan independently with the principles of effective, efficient, and student-oriented. Some teachers get the lesson plan from *MGMP* activities and adjust it to schools' needs. In terms content, teachers are familiar with the concept of 21<sup>st</sup> century competence but they have not implemented it specifically and explicitly in the developed lesson plans, so that its

implementation is still tentative. Careful planning and integrating 21<sup>st</sup> century competencies will make learning efficient and produce better knowledge construction (Stehle & Peters-Burton, 2019). The principle of school has also supervised the existence of the lesson plan for each teacher, but it is still limited to the existence of the lesson plan documents and has not examined the content or substance of the lesson plans. The absence of a mentoring and monitoring program in the preparation of lesson plan makes the content and quality of the lesson plans diverse. There are only a small proportions that have implemented active and innovative learning and included the 21<sup>st</sup> century competency content. Teachers need more time and training to make lesson plans that combine 21<sup>st</sup> century skills. Less optimal supervisory function is due to the limited availability of facilities and the lack of competence of school principals and supervisors.

b. The implementation of 21<sup>st</sup> century learning

Based on the analysis, the implementation of learning, it can be explained that: first, some teachers have used ICT facilities such as computers (laptops) and projectors, while others have not used them. It is because of the lack of available tools and skills of teachers in

using ICT. The use of ICT tools is still limited for displaying subject matter. Advances and developments of technology have changed the 21<sup>st</sup> century learning scenario. The use of technology will be emphasized more. Teachers are required not only to teach core subjects, but also to train students with the skills of 21<sup>st</sup> century, one of it is by integrating technology (Shafie et al., 2019). Based on direct confirmation with the teacher, he said that the teacher still experience difficulties in using ICT tools. During the process of teaching and learning, students only become the audience and the teacher explains the material with the help of video or animation shows. At the end of teaching and learning process, students still have difficulty to express what they have learned. So it can be concluded that the use of ICT is still not optimal. Supposedly, the use of multimedia in learning such as real-life videos or contextual-based multimedia can give the concrete problems so they can improve their critical thinking skills (Putra et al., 2015).

Second, the use of the surrounding environment as a source and learning media is important. Most of the teachers try to take advantage of the environment around the school to implement meaningful learning. When teachers can create a learning environment that supports student to inquire activities, it will be easier for them to construct their knowledge (Anagün, 2018). Activity-based learning can provide opportunities for students to develop their potential, interests, and talents. Maintaining environmental cleanliness to teach a culture of clean living, not littering, and caring for school gardens to teach environmental care are the examples of how the teachers can use environment as a media for teaching. The environmental scope is still in the school area. The obstacle experienced by the teacher when they try to learn outside is controlling students' activities, so that it is not really conducive.

Third, the implementation of integrated learning is carried out by integrating subject with the daily life of students, or by applying team teaching. Based on the results of the

questionnaire, all teachers apply relevant to students' daily life by implementing project-based learning and problem-based learning (English & Kitsantas, 2013). The integration of education with the family is carried out by establishing communication with the parents. The implementation of team teaching is carried out by the teacher only in terms of cultivating characters of the students.

Fourth is the teachers' participation and collaboration in the learning process. This has been carried out by accompanying and directing students in the teaching and learning process in the classroom. Collaborative learning will teach collaboration skills between students and teachers and between fellow students (Care et al., 2016). Teachers can accompany and provide learning support anytime and anywhere outside of the classroom with good communication, but unfortunately the use of ICT is not optimal so that students' participation and collaboration with teachers outside the classroom is still not optimal. According to Nichols (2019) there are four basic principles that become references in 21<sup>st</sup> century learning. They are: learning must be student-centered, learning must encourage collaboration between teachers and students and between students and students, learning must be connected to real-world contexts outside of school, and learning must be integrated with the social environment of the community. Participation of family in education can be improved by establishing communication between parents and teachers, this has a positive impact on student development (Ünsal & Ağçam, 2019).

### c. Assessment and Evaluation

In the assessment of the 21<sup>st</sup> century competency, it is not much different from the authentic assessment of the 2013 curriculum. It is not only by answering questions, but also using various techniques and instruments (Winaryati, 2018). The process of making instruments for assessment is still measuring the students' cognitive domains and the assessment instruments to measure the competency achievement of 21<sup>st</sup> century have not been

explicitly implemented. Monitoring of the assessment instrument is still limited to the availability of the instrument, it has not yet reached the substance or strategy of developing the instrument. In fact, there are many forms of assessment instruments and techniques that teachers can develop to measure the competency achievement of 21st century. The high-order thinking skills (HOTS) has been done by the teacher, but the lack of interest and low average ability of students make it difficult for teachers to get a higher level.

The process of implementing the assessment is still dominant with the technique of working on competency test questions and it is carried out at the end of the lesson. The teacher's assessment of the learning process has been carried out by using observation techniques to assess students' attitudes and character. The 21<sup>st</sup> century competency assessment will be more effective and illustrate actual outcomes using various assessment techniques and instruments. Assessment should be carried out from the readiness of students, the process, and learning outcomes. But it has not been optimally. The weak point in the evaluation of learning is the use of the results and following-up of the results of the assessment. The results of the assessment are used as a reflection to improve the learning process. The principal has supervised the assessment of each subject, but mostly evaluating the achievement of the material and cognitive competences. Meanwhile, the competency achievement of 21<sup>st</sup> century has received little attention. Research conducted by Ismail et al. (2018) about principal leadership in improving teacher competence stated that academic supervision activities are to foster and improve the quality of teacher not to find their mistakes.

### Achievement of Student Competencies

The results of data collection and analysis conducted by researchers through questionnaires to teachers and competency testing of students can be seen in Table 3 below:

**Table 3.** Students' competency achievements

| Competency                            | achievement value (%) |
|---------------------------------------|-----------------------|
| Critical Thinking and Problem Solving | 54.4                  |
| Communication                         | 73.5                  |
| Collaboration                         | 70.0                  |
| Creativity and Innovation             | 48.2                  |
| Information and Media Literacy        | 60.3                  |

The average of the competency achievement is in medium criteria. Questionnaires for teachers were conducted to obtain general information on students' competency achievement of 21<sup>st</sup> century. Meanwhile, competency testing of students was carried out to obtain a description and strengthen data from teachers. The competency test was given to 15 sample students by giving each of the 15 competency test questions to see their basic literacy and numeracy skills. The questions were adopted from the Minimum Competency Assessment (*AKM*) and *PISA* to measure and build the skills: critical thinking and problem solving, communication, creativity and innovation, and collaboration (Kurniati et al., 2016). The forms of questions are multiple choice, matchmaking, short filling, and descriptions.

Based on the results of the analysis, the achievement of students' creativity and innovation received the lowest score. The ability of students to work on problems in creative ways is also not visible. Students only work and imitate their teacher, and they get confused when they are asked to find their own way based on their creativity. According to the teachers' assessment, students' creativity in making works such as crafts is already good, but in answering the questions, they are still afraid of making mistakes or getting wrong. The ability to communicate gets the highest score. According to teachers' perceptions, students are brave and fluent in expressing (communicative) opinions verbally both during learning and in daily activities outside of learning. Students who have high communication skills tend to be smarter at solving problems (Pane, 2018). However, the

students' literacy skills in conveying ideas and writing is still low. The results of students' critical thinking and problem solving skills are still in the low category based on the students' ability to answer questions correctly and to write down the reasons (reasoning). Based on teachers' perceptions on students' grade achievement, most students still cannot reach the minimum criteria without remedies. Students' skills in critical thinking and problem solving include the ability to access, organize, evaluate, and consider various alternative solutions. One must be able to find various solutions from different points of view in solving complex problems. The students' ability to cooperate with others is in moderate criteria. In this case the teachers' assessment shows that students are able to work together in groups with instructions and guidance from the teacher. Student cooperation in working on group assignments and project assignments can be completed well. The last is students' competency in information literacy and technology. Almost all students already have a device and can use to communicate and access information. However, the utilization to access subject matter is still not optimal. Based on teachers' perceptions, students' ability to use electronic devices such as smartphones is better than teachers, but most new students use them for fun, such as playing games and social media. This opportunity can be used by teachers as a strategy to develop digital learning that can improve students' information and media competencies (Sorensen & Andersen, 2018).

## CONCLUSION

Based on the results of the study, it can be concluded that the implementation of 21<sup>st</sup> century learning in junior high schools in the 3T region has generally been implemented in the medium category. Learning plans that contain 21<sup>st</sup> century competencies is not explicitly seen in the lesson plans made by teachers. The use of ICT in the learning process is still low and has limited tools for displaying subject such as a

laptop and projector, lack of facilities and infrastructure and the ability of teachers to use ICT. Assessment and evaluation of 21<sup>st</sup> century learning is carried out based on the principles of authentic assessment of the 2013 curriculum, but the results of the assessment still focuses on cognitive material and competencies. Supervision by the principal is still limited to the existence of lesson plan documents and assessment the documents (instruments), they have not examined the substance and the procedures for their preparation. The achievement of the 21<sup>st</sup> century competence is in the medium category. The lowest student competency indicators are on creativity and innovation, while the indicators of communication skills get the highest achievement. Critical thinking and problem solving skills are still in the low category, students' skills in working together and information literacy and media technology are in the medium category.

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