Analysis of the Implementation of 21st-Century Skills Based on 2013 Curriculum in Primary Level

Karisma Anggun Surya[1], Ika Candra Sayekti[1*], Siti Rahaimah binti Ali[2]
[1]Universitas Muhammadiyah Surakarta, Surakarta, Indonesia
[2]Universiti Pendidikan Sultan Idris, Tanjung Malim, Malaysia
*Email: ics142@ums.ac.id

Keywords:	Abstract
21st-century skills; *2013 curriculum;* *learning;* *elementary school*	*This study aimed to describe the integration of 21st-century skills in implementing the 2013 curriculum at an Indonesian Islamic Elementary School and the challenges and solutions associated with implementing 21st-century skills at the Islamic Elementary School. This study utilised a qualitative research and case study research design. Interviews and documentation were used to collect the data. Triangulation of methods and sources was utilised to validate data. In the meantime, data analysis was conducted using comparative analysis. The results of this study indicated that the integration and implementation of 21st-century skills at the Islamic Elementary School had been comprehensively carried out; however, several obstacles still need to be overcome. It is hoped that this research can serve as an overview of the implementation of 21st-century skills in schools so that any necessary improvements can be made to the learning process. This study implies that decision-makers in Indonesia should expand the knowledge and understanding of teachers regarding 21st-century skills. The current study reveals the implementation of 21st-century skills in primary education.*

INTRODUCTION

Background

The UNESCO survey on the educational quality of developing countries in the Asia-Pacific region showed that the quality of education in Indonesia remained poor and ranked 10th out of 14 countries (Geotimes, 2015). The low quality of education can be seen from the implementation of the curriculum and teachers' readiness to apply it on learning process. The curriculum is the means for achieving the purpose of education and is an educational guidance. The curriculum will greatly influence what direction and education will be carried out (Shobirin, 2016). The curriculum design development should prioritise environmental

protection and emphasise scientific knowledge and appreciation of nature (Yang, 2015). No matter how good a curriculum is designed, it cannot be realised if not supported by proper implementation management. Curriculum implementation is the application of curriculum objections to the educational process. The school learning process is one of the management factors that support the successful implementation of the 2013 curriculum. (Katuuk, 2014). In fact, however, many teachers have not adequately implemented the 2013 curriculum, particularly with regard to the development of 21st-century skills, which are supposed to be integral components of the 2013 curriculum. This demonstrates the necessity for an examination of the existing education system in Indonesia in order to identify a solution to improve the quality of education.

In this era, the government has obliged all schools to implement 2013 curriculum in their learning process. The curriculum also integrates 21st-century skills, which consist of *Critical Thinking skills, Communication skills, Collaboration skills, and Creativity skills* (4C Skills). Every student should have 4C skills to face the 21st-century challenges. The implementation of 21st-century skills-based 2013 curriculum will greatly influences the students to enter this millennial century (Sugiyarti, Arif, & Mursalin, 2018). Sternberg in Živkovic (2016) suggested that educational institutions emphasise memorisation too often, whereas memorisation requires repetition. However, critical thinking requires skillful analysis, evaluation, and interpretation. Technology utilisation is an important innovation in implementing education in the 21st-century (Imam Farisi, 2016). The use of information and communication technology is helpful not only to assist teachers in teaching, but also to help students face the 21st-century challenges. Education in the 21st-century requires students to have skills, knowledge, and abilities in technology, media, and information. The learning process must be able to develop life and career skills so that students are able to succeed in life and work (Wijaya, Sudjimat, & Nyoto, 2016). Undeniably, the implementation of 21st-century skills in the 2013 curriculum is still not optimal. There are many obstacles remain faced by teachers in applying 21st-century skills. The obstacles may occur due to the factors from the teacher themselves, infrastructure, or school.

It is widely acknowledged that teachers play crucial roles in preparing students to acquire 21st-century skills during the learning process. In addition to extensive knowledge of learning materials, professional teachers are also expected to have skills in using technology, designing learning activities, implementing them, and developing student skills and knowledge. In accordance with the opinion of Leaman & Corcoran (2018), teachers executing learning activities should employ effective learning strategies, examine teaching materials, comprehend student experiences, and utilise technological advancements. In the 21st century, the mindsets of educators who implement learning activities are of utmost importance. A teacher must possess three essential characteristics: adventure, endurance, and creative problem solving (Faulkner & Latham, 2016). In conjunction with the implementation of curriculum based on 21st-century skills, teachers must be able to apply creative methods and strategies to develop 21st-century skills in students. Therefore, teachers must comprehend the concept of learning in curriculum for 2013 and the application of 21st-century skills to learning. They should also be able to find the most effective means of minimising learning process obstacles..

Problem of Study

Based on the research conducted by Wangid, Mustadi, & Erviana (2014), it was found that the majority of teachers in Yogyakarta were quite ready to implement thematic-integrative learning. However, according to Wangid, their readiness to implement the 2013 curriculum required support and assistance to achieve maximum results. The reason was that there were still a lot of obstacles experienced by the teachers in implementing learning process using this relatively-new curriculum. This assumption is supported by other

research conducted by Krissandi & Rusman (2015) which stated that the obstacles occurred in implementing 2013 curriculum may come from various factors, one of which is from the teachers themselves. Most of the obstacles are experienced due to teachers' confusion over the 2013 curriculum implementation, which resulted in discrepancy between learning activities and the concept of 2013 curriculum. Another study on the teachers' readiness in implementing 2013 curriculum was conducted by Hidayati & Septiani (2015), They explained that the 2014/2015 academic year teachers in Colomadu District already knew about 2013 curriculum and comprehended it, especially the integrative thematic learning. However, this study did not observe the teachers' comprehension on 21st-century skills-based learning process. When in fact, 21st-century skills are considered crucial in implementing 2013 curriculum. This is in line with the conditions experienced at MIM Ngwaru. Most of MIM Ngwaru teachers have known and comprehended 2013 curriculum. However, the implementation in learning process is still not in accordance with the concept of 2013 educational curriculum and has not integrated the 21st-century skills yet.

Based on the explanation above, this study aimed to describe the integration of 21st-century skills in the implementation of 2013 curriculum at MIM Ngwaru and to describe its obstacles and solutions. It is hoped that this research could provide an overview of how 21st-century skills are integrated in the implementation of 2013 curriculum at MIM Ngwaru, as well as the obstacles and the solutions made by the teachers and schools.

State of the Art

Several studies integration of 21st-century skills in the implementation of 2013 curriculum. First, Faulkner & Latham (2016) reported the qualities teachers need in teaching in the 21st-century. Second, Sugiyarti, Arif, & Mursalin (2018) describe the influences of the implementation of 21 st century skills-based 2013 curriculum to students to enter this millennial century. Hidayati & Septiani (2015) developed the teachers' readiness in implementing 2013 curriculum. Meanwhile, Krissandi & Rusman (2015) which stated that the obstacles occurred in implementing 2013 curriculum may come from various factors, one of which is from the teachers themselves. Leaman & Corcoran (2018) which stated that in executing learning activities, teachers should use effective learning strategies, examine teaching materials, understand student experiences, and utilise technological developments. Meanwhile, Živkovic (2016) suggested the importance of critical thinking, skillful analysis, evaluation, and interpretation. Katuuk (2014) suggested some management aspects that support the successful implementation of 2013 curriculum, one of which is the learning process at school. On the other side, Shobirin (2016) suggested that curriculum will greatly influence what direction and how education will be carried out. Yang (2015) explain The development of curriculum design should prioritise environmental protection and emphasise scientific knowledge and appreciation of nature. The last ones, related to 21st-century skills. Wijaya, Sudjimat, & Nyoto (2016) describe the education in the 21st-century requires students to have skills, knowledge, and abilities in the fields of technology, media, and information. The learning process must be able to develop life and career skills so that students are able to succeed in life and work.

Gap Study & Objective

Based on the explanation, the integration of 21st-century skills in the implementation of 2013 curriculum is very important to developed life and carrier skills of the student. There are only a few studies about the integration of 21st-century skills in the implementation of 2013 curriculum. Based on the background, this study aimed to describe the integration of 21st-century skills in the implementation of 2013 curriculum at MIM Ngwaru and to describe its obstacles and solutions. The present study's findings would be very important to create effective solutions to the issue regarding the 21st-century curriculum, especially in elementary schools.

METHOD

Type and Design

The type of research used in this study was qualitative research. Qualitative research is a research used to observe natural objects, in which the researcher is the key instrument (Sugiyono, 2010).

Data and Data Sources

The object in this study was the 21st-century skills based-2013 curriculum. The subjects in this study were the 5th grade students of MIM Ngwaru, the 5th grade thematic teachers, and the principal of MIM Ngwaru Plosorejo. The primary data source for this research were the interviews with the teachers and students of MIM Ngwaru (see Table 1). Meanwhile, the secondary data sources were the curriculum-related documents owned by the school, such as: RPP (Rencana Perencanaan Pembelajaran/Learning Implementation Plans) and LKPD (Lembar Kerja Peserta Didik/Student's Worksheet) and other documents used in learning.

Data Collection Technique

Data collection techniques used in this research were interviews and documentation. Interview is a dialogue conducted by an interviewer to obtain information from an interviewee (Salim & Haidir, 2019). This technique was conducted to obtain data about the integration of 21st-century skills in the implementation of 2013 curriculum at MIM Ngwaru, as well as its obstacles and solutions. The interview instruments were compiled according to several indicators of 21st-century skills which encompassed 4C skills. Raniah, Effendi, & Liliawati (2018) identified the indicators in 4C skills as follows: 1) indicators in critical thinking skills that consist of: a) problem solving-based learning; b) analysing and asking questions; c) selecting and collecting information from various sources; d) drawing conclusions based on the results of problem solving; e) using interactive media. 2) indicators in collaborative skills that include: a) students being able to work effectively and systematically in groups; b) teachers motivating students to be responsible for themselves in completing group assignments; c) students developing an attitude of respect and mutual help between group members. 3) indicators in communication skills, namely: a) teachers providing space for students to communicate with other students or with the teachers; b) students being able to convey ideas and express their thoughts both verbally and in writing; c) teachers accustoming students to interact with different people, for example through learning outside the classroom/school. 4) indicators in developing creativity, namely: a) teachers developing learning innovations that challenge students to think fluently, flexibly, originatively, and in detail; b) students presenting what they learned in new and original ways according to their creativity. The construct of this interview instrument has been validated by the supervisor. Meanwhile, documentation is a complementary technique to observation and interview methods in qualitative research (Sugiyono, 2010).

Data Validity

The data validity test was carried out by combining technical and source triangulation. Technique triangulation means using different data collection techniques to obtain data from the same source, while source triangulation is a technique to obtain data from different sources using the same technique (Sugiyono, 2010).

Data Analysis

The data analysis technique used in this research was componential analysis technique. In componential analysis, the data sought are not those that are similar, but those that have differences. The data were obtained through triangulation data collection techniques so that a number of specific and different dimensions for each element are found (Sugiyono, 2010).

RESULT

The Integration of 21st-Century Skills Implementation

Based on the interview results and documentation conducted by the researchers from July 13 to August 15, 2020 of the teachers, 5th grade students, and school principal; data were obtained from various indicators of 21st-century skills as follows:

Critical thinking and problem-solving skills

Table 1. Interview Results and Analysis of Theme 1 Sub-theme 1 Lesson 1 Learning Plan

Indicator	Interview Results	Learning Plan Analysis Results
Indicator 1: problem solving-based learning	Learning process was carried out by the teachers by using problem solving questions that were adjusted to the learning material	The teachers had not yet written the questions in the learning plan. Students worked on assignments according to handbooks, such as determining the main idea.
Indicator 2: analysing and asking questions	The activity of analysing questions was carried out by conducting joint discussions. The students were stimulated by the teachers to understand the questions.	In theme 1 sub-theme 1 lesson 1, students were not asked to analyse the questions. Instead, they analysed a text and a picture. Questioning activities were written in interactive dialogue.
Indicator 3: selecting and collecting information from various sources	It was done by providing explanations and directions to the students, as well as adjusting materials to the information sources needed, such as textbooks, experimental activities, observations, and group discussions.	The sources of the information needed had been written, such as: Literature review, interviews, discussion, and observation. In addition, the media used in learning had also been written.
Indicator 4: drawing conclusions based on the results of problem solving	The teachers stimulated the students to draw conclusions by asking questions related to the material or problems being discussed.	It had been written in the learning steps. Students were asked to compare their friends' opinions and then drew conclusions from the opinions that have been explained.
Indicator 5: using interactive media	Interactive media had already been used. It was usually used in the form of electronic and non-electronic such as teaching aids.	The media had been written in the learning plan, namely: manuals, picture slides, and material slide as seen in Figure 3.

Based on Table 1, it can be concluded that the learning process at MIM Ngwaru has applied critical thinking and problem solving skills even though there are still some flaws in the implementation. The students have been able to develop critical thinking skills by solving problems, asking questions, gathering information, and drawing conclusions. However, in analysing questions, they still need help from the teachers. The 5th grade

teachers have also tried to develop students' critical thinking skills by creating problem-based questions and using interactive media to stimulate student curiosity.

Collaboration skills

Table *2*. Interview Results and Analysis of Theme 1 Sub-theme 1 Lesson 1 Learning Plan

Indicator	Interview Result	Learning Plan Analysis Results
Indicator 1: students being able to work effectively and systematically in groups	It had been executed in learning by carrying out group activities.	Collaboration skills could be seen in the learning plans, specifically in discussion activities.
Indicator 2: teachers motivating students to be responsible for themselves in completing group assignments	It had been executed by providing the students with positive inputs and giving them a time limit to do assignments.	It could be seen in the learning step. Students formed groups and shared responsibilities as emcees, journalists, etc.
Indicator 3: students developing an attitude of respect and mutual help between group members	It had been carried out pretty well. The students were motivated by rewarding them. In addition, points were deducted from the students who did not want to help with group assignments.	It had been written in the RPP. Students explained their own group's opinion and teachers confirmed it, then guided them to write conclusions.

Based on Table 2, it can be concluded that MIM Ngwaru teachers have developed student collaboration skills through group activities. Students are accustomed to join group activities so that they could develop a sense of responsibility and mutual respect. Students' responses in these activities varied, but the teacher tried to motivate them to carry out group assignments as well as possible.

Communication skills

Table **3**. Interview Results and Analysis of Theme 1 Sub-theme 1 Lesson 1 Learning Plan

Indicator	Interview Result	Learning Plan Analysis Results
Indicator 1 : teachers providing space for students to communicate with other students or with the teachers	The teachers provided space for the students to communicate, either through discussion or question-and-answer activities between teachers and students, or between students and students	It had been written in the learning plan. Teachers stimulated students' communication skills through discussion activities.
Indicator 2: students being able to convey ideas and express their thoughts	The teachers had given motivation. For example, they would not blame the students' opinions.	It was shown in the learning steps. Teachers gave opportunities for all students to express their opinions in discussion activities.

Indicator	Interview Result	Learning Plan Analysis Results
both verbally and in writing		
Indicator 3: teachers accustoming students to interact with different people, for example through learning outside the classroom/school	It had been done by carrying out outing class activities once a semester.	The outing class activities had not been written in the learning plan.

Based on Table 3, it can be concluded that MIM Ngwaru teachers have implemented communication skills in learning. Activities that are usually carried out by the teachers in developing student communication skills are discussion. Students can express their opinions verbally or in writing and teachers will not blame the students' opinions. They are also trained to develop their communication skills with others outside the school, one of the activities that has been carried out is an outing class which is conducted once a semester.

Creative thinking skills

Table 4. Interview Results and Analysis of Theme 1 Sub-theme 1 Lesson 1 Learning Plan

Indicator	**Interview Result**	**Learning Plan (RPP) Analysis Results**
Indicator 1: teachers developing learning innovations that challenge students to think fluently, flexibly, originatively, and in detail	The teachers gave the students freedom to present what they had learned according to the students' creativity, including the freedom to present their findings.	It had been written in the learning plan with the use of various teaching methods and strategies, such as using a scientific approach and a cooperative learning strategy.
Indicator 2: students presenting what they learned in new and original ways according to their creativity	The teachers had motivated the students by giving them the opportunity to draw conclusions and present their findings.	It was shown in the learning steps. Teachers provided the opportunity for students to make paragraphs according to the main ideas that had been found, and to draw conclusions on the discussion results.

Based on Table 4, it can be concluded that the teachers have implemented the skills to develop students' creativity by choosing fun learning strategies and creative teaching aids. They also give students the opportunity to draw conclusions and present their findings.

The Obstacles and the Solutions in the Implementation of 21st-century Skills at MIM Ngwaru

Based on the results of the interviews conducted by the researchers from July 13, 2020 to August 15, 2020 of the 5th grade teachers, 5th grade students, and the principal; data were obtained as follows:

Table 5. The Obstacles and the Solutions in the Implementation of 21st-century Skills at MIM Ngwaru

Obstacles Experienced	Solutions Executed by the Teachers	Solutions Executed by the School Principal
The lack of variation in using problem-solving questions in learning process	Using alternative questions from other sources. such as the internet or teachers' handbooks	
Students' low ability in analysing problem-solving questions	Teachers accustomed students to make questions and work on problem solving questions regularly	
Limited media and learning resources	If possible, teachers made their own learning media according to the discussed material and their creativity. Meanwhile, one of the ways that the teachers took to minimise the limitations of learning resources was to utilise the available resources as much as possible and look for other learning sources if possible	Conducting training programs or *workshops*, as well as regular monthly guidance with the principal
inconducive class conditions during group activities	Teachers gave a time limit for students to complete group assignments	
Group activities that only focus on answering questions to develop problem solving skills	There were no specific solutions that had been executed by the teachers. However, for several times, they conducted group activities with simple observations and experiments even though the students mostly answered the questions in writing.	
Students' low participation in discussion activities	Teachers provided points for students who were active in discussion. The teachers also tried not to blame students' opinions so that they would not be afraid to express their opinions.	

Based on the Table 5, it can be concluded that in implementing 21st-century skills on the 5th grade learning process, the teachers still experienced several obstacles. The main

obstacles came from the teachers' own factors. Teacher ability to develop and plan learning activities is considered very important in achieving learning objectives. Therefore, right solutions are needed to minimise these obstacles. Solutions are not only carried out in terms of strategies, methods, and learning models, but also must be able to improve the teachers' ability to develop learning process. One of the efforts done by the school principal to improve teachers' teaching skills is providing them with opportunities to attend training or workshops.

DISCUSSION

The Integration of 21st-century Skills Implementation

The 2013 curriculum applied at MIM Ngwaru has been adjusted to comply with 21st-century skills. The teachers have arranged lesson plan that could develop students' skills so that the students are able to think critically and analytically through problem solving and group activities. In addition, the teachers also develop students' communication skills and their creativity in developing ideas. Hereafter, we will elaborate the discussion of 21st-century skills that have been observed by the researchers and the research results that have been found in MIM Ngwaru.

Critical thinking and problem solving skills

MIM Ngwaru Plosorejo has developed students' collaboration skills through group activities. Students are accustomed to join group activities so they can develop a sense of responsibility and mutual respect. This is in accordance with the opinion of Mahanal (2014) which defined collaborative skill as a skill to work together in groups effectively and respect each other. Students are trained to develop a willingness to help each other, to compromise, and to be responsible for the given assignments. Students' responses in these activities varied, but teachers tried to motivate them to carry out group assignments as well as possible. The teachers realised that every time group activities were carried out, students became more interested and enthusiastic. However, due to the group activities, classroom conditions were often inconducive. Therefore, the teachers should be able to choose the right strategy to organise the class. The 5th grade teachers usually give students a time limit to do the assignment and provide new activities for students who have completed the assignment so that they don't disturb the other students. Furthermore, the teachers provided rewards and deducted points from students who did not want to help with group assignments. This is as shown in table 2. Pratiwi, Ardianti, & Kanzunnudin (2018) revealed that conducting group activities repeatedly under teachers' guidance and direction can improve students' collaboration skills and their learning outcomes.

In implementing group activities for the 5th grade students at MIM Ngwaru, the teachers only focus on problem solving with written method. Students are given assignments to solve problems just by reading the questions and answering them. This is not in line with the research conducted by Pratiwi, Ardianti, & Kanzunnudin (2018) which stated that in carrying out group assignments, students should not only been given memorising tasks, but they also need group activities arranged by the teacher to be challenging and fun.

The teachers have tried to develop students' senses of responsibility by providing them with positive inputs. It is hoped that the teachers can make the students be responsible for the given assignments. The teachers also accustom students to do group assignments. They will get accustomed and willing to share assignments in time being. Gradually, students also became more responsible for their duties because they not only get input from the teacher, but also from their peers. This statement shows that students' senses of responsibility in doing assignments can be formed through group activities. This is in line with the research

conducted by Umar (2011) which explained that group learning can improve student learning outcomes. Group activities can train students to understand their position as social beings, to form good relations between friends, to responsible, and to understand the rights of others.

Collaboration skills

The teachers have developed students' collaborative skills through group activities. Students are accustomed to do group activities so they can develop a sense of responsibility and mutual respect. This is in accordance with the opinion of Mahanal (2014) which defined collaborative skill as a skill to work together in groups effectively and respect each other. Students are trained to develop a willingness to help each other, to compromise, and to be responsible for the given assignments. Students' responses in these activities varied, but the teachers tried to motivate them to carry out group assignments as well as possible. The teachers realised that every time group activities are carried out, students become more interested and enthusiastic. However, due to the group activities, classroom conditions are often inconducive. Therefore, the teacher should be able to choose the right strategy to organise the class. The 5th grade teachers usually give students a time limit to do the assignments and provide new activities for students who have completed the assignment so that they don't disturb the other students. Furthermore, the teachers also provide rewards and point deductions for students who did not want to help with group assignments. This is as shown in table 2. Pratiwi, Ardianti, & Kanzunnudin (2018) revealed that conducting group activities repeatedly under teachers' guidance and direction can improve students' collaboration skills their learning outcomes.

In implementing group activities for the 5th grade students at MIM Ngwaru, the teachers only focus on problem solving with written method. Students are given assignments to solve problems just by reading the questions and answering them. This is not in line with the research conducted by Pratiwi, Ardianti, & Kanzunnudin (2018) which stated that in carrying out group assignments, students should not only been given memorising tasks, but they also need group activities arranged by the teacher to be challenging and fun.

The teachers have tried to develop students' senses of responsibility by providing them with positive inputs. It is expected that the teachers could make the students be responsible for the given assignments. The teachers also accustom students to do group assignments. They will get accustomed and willing to share assignments in time being. Gradually, students also become more responsible for their duties because they not only get input from the teacher, but also from their peers. This statement shows that students' senses of responsibility in doing assignments can be formed through group activities. This is in line with the research conducted by Umar (2011) which explained that group learning can improve student learning outcomes. Group activities can train students to understand their position as social beings, to form good relations between friends, to responsible, and to understand the rights of others.

Communication skills

The teachers have applied communication skills in learning activities through class discussion. Students are given the freedom to convey ideas and express their thoughts both verbally and in writing. They are also accustomed to have good relationships with other people from different backgrounds. According to the teachers, students' communication skills should be developed so that they have the ability to relate to other people in their lives. Raniah, Effendi, & Liliawati (2018) explains that communication skill is a skill in expressing all thoughts verbally or in writing to develop self ability to face the 21st-century challenges.

During discussion activities, students can express their opinions verbally or in writing and the teacher will not blame their opinion. Students are also trained to develop their communication skills with other people outside the school, one of the activities carried out is an outing class which is conducted once a semester. However, there are some students who still reluctant to get involved in discussions. They tend to keep silent when asked to speak out in front of the class, but talk a lot with their friends. This is in line with the research conducted by Wahyuni (2015) which suggests that some individuals have anxiety to speak in public, so they need some experiences to be able to communicate. As an effort to develop students' communication skills, they must be accustomed to deal with other people. Not only in classroom or at school, but they also should connect with the community.

Creative thinking skills

The teacher have applied skills to develop students' creativity by choosing fun learning strategies and creative teaching aids. The teacher also provide students with opportunity to draw a conclusion and present their findings. The implementation of creative thinking skills in 5th grade students at MIM Ngwaru is carried out by giving students the freedom to conclude and present their work according to the information obtained from the information gathering activities.

Based on the interview results and the RPP analysis, it can be concluded that even though the teacher has tried to develop innovations in learning, some students still have difficulties in developing their ideas and need the teachers' help to stimulate them. The indicators of creativity skills implementation can be seen in table 4. This is not in line with the opinion of Febrianti, Djahir, & Fatimah (2016) Creative thinking is a process to develop ideas and generate new thoughts that have a broad scope, which includes thinking fluently, flexibly. originatively, and in detail.

The Obstacles and the Solutions in the Implementation of 21st-century Skills at MIM Ngwaru

Based on the obtained data, the elaboration of the research results is as follows: the 5th grade teachers realised that there are still many obstacles that occur during the implementation of 21st-century skills in the classroom. The obstacles may come from various factors, such as student, infrastructure, government policies, and the teachers themselves. When in fact, the main key to successful learning lies in the quality of the teachers. This is in accordance with the opinion of Krissandi & Rusman (2015) which stated that a teacher's function is as a knowledge transformer for students who guides students in the process of seeking knowledge and skills.

From the students' factors, it is found that there are a lot of students who are still not familiar with 21st-century learning which demands critical, collaborative, communicative, and creative thinking. The difference between social and economic backgrounds is one of the major obstacles in achieving maximum 21st-century education. This difference creates different levels of students' creativity and focus in learning, especially in developing critical thinking skills. This situation becomes a challenge for the teachers in applying 21st-century skills. In addition, the lack of adequate infrastructure makes learning less effective, so that each skill cannot be implemented properly.

A good teacher in 21st-century education is a teacher who can work with students to find out how to do something, how to know something and how to use something. Therefore, in learning process, a teacher must be able to stimulate students to strengthen their curiosity, identifying ability, and problem solving skills. The research result indicates that the teachers still lack of skills in controlling the class, encouraging students' activeness and creativity, and guiding them to formulate their ideas to solve problems. This is in line with the opinion of Hadisaputra, Hakim, Muntari, Hadiprayitno, & Muhlis (2018) which states that the role of teachers in the 21st-century education is as a guide, a discussion

director, and an assessor of student progress. The teachers' understanding in the implementation of 21st-century skills is still considered lacking. This can be seen in the lack of variation in using the problem-solving questions and the ineffectiveness of problem-solving activities undertaken.

The teachers have done various ways to minimise the existing obstacles, such as utilising the existing media and learning resources optimally. They also choose strategies and methods that fit students' characters. Another way is taken by the school in order to improve the quality and ability of teachers in teaching. One of them is by conducting training programs or workshops, as well as regular monthly guidance with the principal. This is in accordance with the research conducted by Hadisaputra, Hakim, Muntari, Hadiprayitno, & Muhlis (2018) which stated that training programs on improving the skills of science teachers in Mataram as the 21st-century "Role Model" in learning science showed satisfactory results. Conducting training programs divided into 4 stages could increase teachers' understanding on how to implement practicum models according to the 21st-century needs. Therefore, the implementation of training programs on 21st-century skills will greatly influence the improvement of teacher quality and understanding in implementing 21st-century skills.

CONCLUSION

The integration of 21st-century skills in learning process at Islamic Elementary School Ngwaru is as follows: 1) Critical thinking and problem solving skills are carried out by working on problem-based learning. However, there are some indicators of critical thinking skills that have not been carried out optimally, such as training students to analyse a question and develop learning resources. 2) As for collaboration skills within groups of 5th grade students, the teachers only focus on solving problems with written methods. More often, students do group assignments by completing and answering questions. 3) Communication skills have been implemented well. The teachers provide space for students to communicate through class discussions. 4) Creativity skills is developed by giving students the freedom to convey the results of their work. However, there are indicators in developing creativity skills that remain unexecuted by the teachers. They have not developed educational innovations that can stimulate students to think fluently and flexibly, and also to present their original ideas or in new ways. The obstacles in implementing 21st-century skills on the 5th grade students are: a) the lack of variation in using problem-solving questions; b) students' low ability in analysing problem-solving questions; c) limited learning media; d) inconducive class; e) group activities that only focus on answering questions; f) students' low participation in discussion activities. The solution is to develop Islamic Elementary School teachers' skills by including them in training programs or workshop; which are expected to improve their skills in teaching.

The authors hope that this research will have an impact on the implementation of 21st-century skills based-2013 curriculum at Islamic Elementary School Ngwaru towards a better direction. It is expected that this research could be used to resume other researches on the 21st-century skills implementation. Furthermore, it is hoped that this research could be used as an overview of the 21st-century skills implementation at schools, so that any solutions can be made to implement the skills better in learning process.

REFERENCES

Faulkner, J., & Latham, G. (2016). Adventurous lives: Teacher qualities for 21st-century learners. *Australian Journal of Teacher Education*, *41*(4), 137–150. https://doi.org/10.14221/ajte.2016v41n4.9

Febrianti, Y., Djahir, Y., & Fatimah, S. (2016). Analisis Kemampuan Berpikir Kreatif Peserta

Didik dengan Memanfaatkan Lingkungan pada Mata Pelajaran Ekonomi di SMA Negeri 6 Palembang. *Jurnal Profit*, *3*(1), 121–127. DOI : 10.36706/jp.v3i1.5561

Geotimes. (2015). Kualitas Pendidikan Indonesia, Peringkat 10 dari 14 Negara. In *Redaksi Geotimes*. https://geotimes.co.id/arsip/kualitas-pendidikan-indonesia-peringkat-10-dari-14-negara/

Hadisaputra, S., Hakim, A., Muntari, Hadiprayitno, G., & Muhlis. (2018). Pelatihan Peningkatan Keterampilan Guru IPA sebagai Role Model Abad 21 dalam Pembelajaran IPA. *Jurnal Pendidikan Dan Pengabdian Masyarakat*, *1*(2), 274–277. https://jurnalfkip.unram.ac.id/index.php/JPPM/article/view/874

Hidayati, Y. M., & Septiani, T. (2015). Studi kesiapan guru melaksanakan kurikulum 2013 dalam pembelajaran berbasis tematik integratif di sekolah dasar se-kecamatan colomadu tahun ajaran 2014/2015. *Profesi Pndidikan Dasar*, *2*, 49–58. Doi: 10.23917/ppd.v2i1.1494

Imam Farisi, M. (2016). Developing the 21 St-Century Social Studies Skills Through Technology Integration. *Turkish Online Journal of Distance Education*, (January), 16–30. https://doi.org/10.17718/tojde.47374

Katuuk, D. A. (2014). Manajemen Implementasi Kurikulum : Strategi Penguatan Implementasi Kurikulum 2013. *Cakrawala Pendidikan*, (1), 13–26. DOI: https://doi.org/10.21831/cp.v1i1.1858

Krissandi, A. D. S., & Rusman. (2015). Kendala Guru Sekolah Dasar Dalam Implementasi kurikulum 2013. *Cakrawala Pendidikan*, (3), 457–467. DOI: https://doi.org/10.21831/cp.v3i3.7409

Leaman, H., & Corcoran, R. (2018). Teacher Action Research in Elementary Soocial Studies. *Inquiry in Education*, *10*(2). https://digitalcommons.nl.edu/ie/vol10/iss2/5/

Mahanal, susriyati. (2014). Peran Guru Dalam Melahirkan Generasi Emas Dengan Keterampilan Abad 21. *Seminar Nasional Pendidikan HMPS Pendidikan Biologi FKIP Universitas Halu Oleo*, *1*(September), 1–16.

Pratiwi, I. A., Ardianti, S. D., & Kanzunnudin, M. (2018). Peningkatan Kemampuan Kerjasama Melalui Model Pproject Based Learning (PjBL) Berbantuan Metode Edutainment pada Mata Pelajaran Imu Pengetahuan Sosial. *Refleksi Edukatika : Jurnal Ilmiah Kependidikan*, *8*(2). https://doi.org/10.24176/re.v8i2.2357

Raniah, D., Effendi, R., & Liliawati, W. (2018). Profil Keterampilan Abad 21 Pada Pembelajaran Project Based Learning (PjBl) Materi Gelombang bunyi. *Prosiding Seminar Nasional Fisika (SINAFI)*, 19–24.

Salim, D. . M. P., & Haidir, D. S. A. M. P. (2019). *Penelitian Pendidikan: Metode, Pendekatan, dan Jenis* (1st ed.; M. . Ihsan Sartya Azhar, ed.). Jakarta: Kencana.

Shobirin, M. (2016). *Konsep dan implementasi Kurikulum 2013 di Sekolah Dasar*. Yogyakarta: Deepublish.

Sugiyarti, L., Arif, A., & Mursalin. (2018). Pembelajaran abad 21 di sd. *Prosiding Seminar Dan Diskusi Nasional Pendidikan Dasar*, 439–444.

Sugiyono, P. D. (2010). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta CV.

Umar, E. (2011). Peningkatan Hasil Belajar Siswa Sekolah Dasar Melalui Belajar Kooperatif Tipe Jingsaw. *Jurnal Inovasi*, *8*(September 2011), 102–111. https://ejurnal.ung.ac.id/index.php/JIN/article/view/733

Wahyuni, E. (2015). Hubungan Self-Effecacy dan Keterampilan Komunikasi dengan Kecemasan Berbicara di Depan Umum. *Jurnal Komunikasi Islam, 5 (1). DOI: https://doi.org/10.15642/jki.2015.5.1.51-82.*

Wangid, M. N., Mustadi, A., & Erviana, V. Y. A. (2014). Kesiapan Guru Dalam Pelaksanaan Pembelajaran tematik-Integratif Pada Kurikulum 2013 di DIY. *Jurnal Prima Edukasia*, *2*(2), 175–182. DOI: https://doi.org/10.21831/jpe.v2i2.2717.

Wijaya, E. Y., Sudjimat, D. A., & Nyoto, A. (2016). Transformasi Pendidikan Abad 21 sebagai Tuntutan Pengembangan Sumber Daya Manusia di Era Global. *Prosisding Seminar Nasional Pendidikan Matematika*, *2*, 263–278. Malang.

Yang, C. (2015). *Education for Appreciating Environment — An Example of Curriculum Design of Natural Aesthetic Education in Taiwan*. *8*(5), 88–100. https://doi.org/10.5539/ies.v8n5p88

Živkovic, S. (2016). A Model of Critical Thinking as an Important Attribute for Success in the 21st-century. *Procedia - Social and Behavioral Sciences*, *232*(April), 102–108. https://doi.org/10.1016/j.sbspro.2016.10.034