Evaluation of The Implementation of 4C Skills in Indonesian Subject at Senior High Schools

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Abstract

This research aims to (1) discover to which extent the implementation of the 4C skill reaches its effectiveness and (2) reveal the supporting and inhibiting factors in the implementation of 4C skills in Indonesian subject in all senior high schools throughout Komodo District, West Manggarai Regency. The evaluation model used was the discrepancy evaluation model. The research subjects who participated in this research were two Indonesian teachers and 111 eleventh-graders in Komodo District, West Manggarai Regency. Based on the data analysis, the results reveal that the implementation of 4C skills in Indonesian subject learning in all senior high schools throughout the Komodo District is excellent. Furthermore, it is also revealed the essential factors that support the implementation namely peer support (mutual help), the seriousness of the teacher in providing equal attention to all students, and the ability of teachers to understand and execute the 4C skills learning. Meanwhile, the inhibiting factors found are the lack of textbooks as learning sources and the unconducive classroom situation/ surroundings. To improve the implementation, principals are recommended to (1) conduct regular training and discussion on the implementation of the 4C skills for the teachers, (2) periodically administer evaluation on the learning process to discover the strength and weakness of 4C skills implementation, and (3) improving the learning facilities to support the learning process. For teachers, they are advised to carry out self-assessment/ self-evaluation (assessment for learning) on the implementation of the 4C skills in their classroom.

Keywords: *Implementation of 4C Skills Learning; 4C Skills; Indonesian Subject*

1. Introduction

The success indicator of education in the 21st century is no longer merely measured by the index of achievement and the magnitude of the score which students have gained in the exam, yet it is seen from how ready and successful students are in facing the real life. Thus, schools as educational institutions are expected to carry out the learning process appropriately to help foster potential and competent students. It means that the learning process must be able to optimize the development of the students ' competencies and ensure that they can live, work, and participate in the 21st-century community (Chalkiadaki, 2018; Rose and Malcolm, 2014; Helmawati, 2019). Accordingly, the upcoming question to answer currently is which skills or competencies are needed by the 21st-century community.

Concerning the question, some previous surveys suggested 4C skills as the primary skills required in the 21st century. A survey of *Partnership of 21st Century Skills* (Bishop, 2010) found that approximately 80% of the U.S. citizen realized the urgent need for improving and developing skills in the workplace. Roughly 400 surveyed entrepreneurs revealed that more than half of the new graduates applying for a job lacked verbal and written communication skills, professionalism/ work ethics, and critical thinking/problem-solving skills. Those results encouraged the Partnership for 21st Century Skills together with educators, economic actors, and policymakers designed a framework containing the main skills of the 21st century that should be possessed by each individual. The framework contains the four primary skills namely critical thinking, collaboration, communication, and creativity, labeled as 4C skills. Similar research, conducted by Jennifer Levin-Goldberg (2012), National Education Association (NEA, 2012), and Voogt & Roblin (2012) showed that the 21st-century skills

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required to make advancement were critical thinking, communication, collaboration, and creativity. These four skills were perceived to be valuable to supplement the core subject of an educational program to prepare young generations to be part of global, informative, and insightful citizens.

Based on the previous survey, it can be concluded that critical thinking and creativity are the prominent intellectual skills of the 21st century assumed to be beneficial to improve learners' ability in problem solving and decision making through collaboration and effective communication. Therefore, these skills should be considered as important skills in the learning process at schools. The following is the elaboration of 4C skills proposed by some experts.

1.1. Critical Thinking Skill

Critical thinking skill is one of the life skills that need to be developed by learners at any level of education during their learning process at school (Alghafri and Ismail, 2014; Weaver, Samoshin, Lewis, & Gainer, 2015; Kadir, 2016; Karakoc, 2016). This idea was first proposed by Dewey (1909:8-9) who named the concept of critical thinking as "reflective thinking". According to Dewey, reflective thinking is a way of thinking that is active, persistent, and careful in weighing beliefs or building-related knowledge and in drafting conclusions.

Furthermore, some experts defined critical thinking in the learning process as a clear and rational way of thinking before assessing specific issues. In this respect, students are expected to be able to independently identify/ recognize, analyze, collect, interpret, assess/ evaluate and summarize information resulted from observation, experience, reflection, reasoning, or interaction, to establish or reinforce their beliefs and actions before taking a decision (Nugent and Vitale, 2008; Fisher, 2008; Fahim, 2012; Brown, 2015; Guo, 2016).

1.2. Creativity Skill

Creativity skill is one of the essential skills to be possessed and a key for effective learning in the 21st century. Creativity has been considered to play a significant role throughout ones' life span and is directly related to the development of knowledge and skill content (Egan, Maguire, Christophers & Rooney, 2017; Mumford & Mcintosh, 2017; Ritter & Mostert, 2017).

Within the learning process, some experts define creativity as one of the learners' abilities to create novel works (NEA, 2012; Partnership for 21st Century Learning, 2015; Treffinger, D.J., Young, G.C., Selby, E.C., & Shepardon, C., 2002). The works, furthermore, can be the works of art or new ideas/ ways to solve existing problems. Students who can do it are identified to have a strong imagination, initiatives, self-confidence, fluency (thinking fast and smoothly when expressing ideas, questions or alternative answers), flexibility (expressing ideas, answering or giving questions in many ways and from a different point of views), originality (creating uncommon or unique ways/ ideas to solve problems), elaboration (explaining objects, ideas or products in details), metaphorical skill (comparing or using analogy to make a new association between two things or associating two different things to discover new possibilities), and dare to take risks.

1.3. Collaboration Skill

Collaboration skill, in 21st-century learning, becomes a trend that shifts teacher-centered learning into collaborative learning. Students no longer consider other students as their competitors, but as mutually helpful companions to develop their potential. The held principle is "everyone is a teacher, everything is learning source, every time is learning time, and everywhere is a class". Having said that, students can continuously learn and collaborate with anyone, wherever and whenever (The Partnership for 21st Century Learning, 2015; Päivi Häkkinena, Sanna Järveläb, Kati Mäkitalo-Sieglc, Arto Ahonena, Piia Näykkib, and Teemu Valtonend, 2016).

In the learning process, collaboration is perceived as a form of cooperation among students who mutually help and complement each other to perform certain tasks aimed at developing collective intelligence and achieving the shared objectives. Students who can collaborate well have some characteristics such as dividing task/work fairly, helping each

other, understanding each other's activities, supporting each other, being responsible, working effectively and flexibly in a diverse team, being able to compromise with other team members to achieve the set objectives, and appreciating each other's contributions (Nawawi, 1984; Kivunja, 2014; Brown, 2015).

1.4. Communication Skill

Communication skill is one of the important skills of the 21st century. It plays a crucial role in people's relationships. It is seen as a very basic thing in social interaction and in building and maintaining all relationships. A research report entitled "*Are They Ready to Work*" (The Partnership for 21st Century Skills, 2015) explains that entrepreneurs/ business people place communication, both oral and written, as one of the four most important skills assessed in the common workforce. It becomes one of the skills seen and judged by job applicants.

Communication skill performed during the learning process is seen as an art of clearly and persuasively expressing or sending coherent messages, ideas, questions, and instructions. Students with good communication skills are those who can formulate comprehensive and clear ideas which are easy to understand, receive any message conveyed by other communicators, provide information and ensure recipients being well-informed, perform oral and written communication through various media, be capable of selecting the most appropriate media and ways to communicate following the message recipient character and the purpose for which the message is delivered, be able to manage and use other digital technologies and resources to express ideas, and be able to interact cooperatively in group works (Roekel, 2012; Partnership for 21st Century Learning, 2015; Susilo, 2015; Scott, 2015).

The above idea of 4C skills as the fundamental skills of the 21st-century community undeniably affects Indonesia. In this respect, Indonesia as a part of the 21st century community is demanded to develop those skills.

Therefore, to prepare the 21st-century human resources and attain the primary national vision, the Ministry of Education and Culture through the National Education Standards Agency (*BSNP*) has designed Indonesian educational objectives in the 21st century. *BSNP* stated that the 21st century national Education aims to realize the national objectives. The objectives are to make Indonesian citizens become prosperous and happy and reach a respectable and equal position among other nations in the global world by developing human resources who are independent, initiative, and capable to attain the national objectives (*BSNP*, 2010:39).

The formulation of the educational objectives in the 21st century is already in line with the formulation of the primary national vision, which is the realization of democratic and quality national education systems and climate. The vision embodies some interesting targets to achieve, one of which is to develop learners who are noble, creative, innovative, nationalist, intelligent, disciplined, responsible, skillful, and mastering science as well as technology so that in the future the quality of Indonesian citizens improves. The ultimate goal of achieving the target is to turn Indonesia into a sovereign, forward, fair, and prosperous nation (*GBHN*, 2004; Ministry of National Development Planning of the Republic of Indonesia, 2017).

One of the actual attempts of the government in achieving the national education vision and objectives is strengthening the curriculum and its implementation by formulating a more innovative learning system and developing the graduates to have the 21st-century skills. The attempt is undertaken by revising the 2013 Curriculum on its graduate competency standards, specifically on the skill dimension. According to the revised skill dimension, students should be trained to think and act critically, creatively, collaboratively, and communicatively (4C), and they should be provided with opportunities to be initiative, creative and independent following their talents, interests and physical as well as psychological development, so they will be able to contribute to the society, nation, and civilization (Litbang Kemdikbud, 2013; Appendix of Permendikbud Number 22 of 2016).

Thus, the instilled idea of the 4C skills within the standard of the learning process in the 2013 Curriculum requires the learning flow in each primary and secondary education institution to refer to the government's predefined standards. However, in the field, the practice of implementing the 4C skills within the learning process in the classroom as already mandated

in the law has not been very visible. Some research findings showed that students' critical thinking, communicating, collaborating, and creative skills were still inadequate (Yuliati, 2017; Pratiwi and Muslim, 2016; Zubaidah, 2016; Siswanto, Kaniawati & Suhandi, 2014; Saputri, Sajidan & Rinanto, 2017). This phenomenon has happened because the model of learning activities at schools emphasized more on the teaching process rather than on the learning process. Students were guided, taught, and even dictated with subject matters only which have been designed and determined by teachers, institutions, or government. These acts resulted in students' uniformity of knowledge and way of thinking. Such learning models may indirectly make learners to be restricted in developing themselves. In other words, they are indirectly not given the freedom to directly and continuously foster their creativity and abilities following their needs and real-life (Bahrudin, 2007; Pradipto, 2007:21).

SMAN 1 Komodo and SMAN 2 Nggorang are two secondary education institutions in Komodo District, West Manggarai Regency. Both institutions have carried out the 4C skills within their teaching and learning process since 2017/2018 school year, which is integrated with literacy studies, character education, and HOTS (Higher Order Thinking Skills) as mandated in graduate competency standards within Permendikbud Number 20 of 2016 and education process standards within Permendikbud Number 22 of 2016.

One of the visions of the West Manggarai Regency is improving the welfare of its community through education services. This vision embodies the expectation that the existed education framework can prepare the young generations who are ready to actively participate in the global society and manage to deal with its demands, so the welfare of the community is fulfilled. However, the economic problem becomes an obstacle faced by most of the families in the Komodo district. This problem triggers another problem that most of the high school graduates are unable to continue their education at a higher level.

Responding to the explained problem, the role of education in the Komodo district, therefore, becomes very paramount in preparing young generations who are ready to work after finishing high school. It implies that learning 4C skills as fundamental skills in preparing ready-to-work generation becomes very essential. However, to which extent the high schools have prepared the 21st century generation or ready-to-work generation through the learning process at schools cannot be measured yet. It is because the evaluation of the administered 4C skills learning in the 2017/2018 school year, after the 2013 Curriculum revision issued, had not been done. The evaluation is done previously only assessed the general aspects, leaving the specific and detailed aspects of 4C skills learning untouched (Takung, 2018). Supposedly, the evaluation of the implementation of 4C skills learning is conducted to assess to which extent the implementation is effective, and what factors are supporting and inhibiting the implementation.

Having said that, this article is intended to elaborate on two matters. First, it presents the assessment of to which extent the implementation of 4C skills in Indonesian Subjects carried out in senior high schools in the Komodo District, compared to the government-imposed standard. There were two major components evaluated namely lesson plan and learning process. (2) analyze the supporting and inhibiting factors in the implementation of 4C skills in senior high schools in the Komodo District. The evaluation had been performed on two components namely lesson plan and learning process. Indonesian Subject was chosen as the object of evaluation because this subject has some unique principles in the learning process. These principles are believed to successfully foster graduates to be independent after finishing high school. The principles are (1) providing students with opportunities to grow their curiosity in discovering information autonomously as well as learn from various learning sources, (2) employing some approaches for learning process to reach the learning objectives, (3) administering competency-based learning, (4) administering integrated learning, (5) developing learning process which is emphasizing on divergent responses that have multi-dimensional truth, (6) administering applicative skill-based learning, (7) improving the balance, continuity, and relation between hard-skills and soft-skills, (8) designing learning process that fosters or empower students to be lifelong learners, (9) implementing learning process that applies the values of being an role model (*ing ngarso sung tulodo*), building willingness (*ing madyo mangun karso*), and developing learners' creativity in the learning process (*tut wuri*

handayani), (10) utilizing ICT (information and communication technology) to improve learning's efficiency and effectiveness, and (11) providing acknowledgement on learners' individual and cultural background differences (Ministry of Education and Culture, 2016). Furthermore, the second matter to discuss is the supporting and inhibiting factors of the implementation of 4C skills in the learning process of Indonesian Subjects in all senior high schools around the Komodo District.

2. Method

This research is a descriptive study employing the quantitative approach. The evaluation model used was *Discrepancy Evaluation Model*. The research had been administered in senior high schools in Komodo District, West Manggarai Regency, Nusa Tenggara Timur. There are two senior high schools in this district namely SMAN 1 Komodo and SMAN 2 Nggorang. The sources of this research were the teachers of Indonesian subject and the 11th graders of science major in SMAN 1 Komodo and SMAN 2 Nggorang. The students as participants were chosen randomly, and the numbers of the students were determined using Slovin's formula to define how large the sample size needs to be to ensure reasonable accuracy of results. The calculation was done by dividing the total population by one plus the total population multiplied by the square root of margin error (sig. 0.05). After calculated using Slovin's formula, the research sample was 111 respondents in total, 60 respondents from SMAN 1 Komodo, and 51 respondents from SMAN 2 Nggorang. In brief, the mapping of the total population and minimal sample of each district were presented in Table 1.

Table 1. Research Population

No	School	Teacher		Student	
		Total population	Minimal Sample	Total population	Minimal Sample
1	SMAN 1 Komodo	1	1	71	60
2	SMAN 2 Nggorang	1	1	58	51
	Total	2	2	129	111

The data used in this research were gathered using a questionnaire and documentation. The questionnaire contained statement items related to the 4C skills, and it used a Likert scale with the scale ranged from 1 up to 4. Reliability estimates of the research instrument had been administered towards the field-tested questionnaire' items using *Cronbach Alpha* and the result was 0.893. The high total Alpha indicates good scale reliability.

The data gathered from the questionnaire were then analyzed using percentage analysis. The percentage was revealed by firstly determining the ideal score/ criterium. The ideal score is a score set by assuming that each respondent chooses the highest score on each question. The highest score of the instrument in this study is 4 for each item. Furthermore, the score of the gathered data was summed and then divided by the ideal score. After obtaining the quantitative data in the form of a percentage, the data were then compared to the set criteria. To classify or organize the data into data categories, the ideal score average (*Mi*) and the ideal default deviation score (*SBi*) were used to determine the classification. The ideal score average (*Mi)* is derived from one-half multiplied by the highest ideal score plus the lowest ideal score meanwhile the ideal default deviation score (*SBi*) is derived from one-sixth multiplied by the highest ideal score minus the lowest ideal score (Azwar, 2012:163).

Furthermore, the following table shows the evaluation criteria for the evaluation of 4C skills implementation.

Table 2. Evaluation Criteria

Number	Score Range	Criteria
1	X ≥ 75,00	Excellent
2	62,50 ≤ X < 75,00	Good
3	50,00 ≤ X < 62,50	Fair
4	X < 50,00	Poor

Where:

   X   = Ideal Score Average

         = ½ (100 + 12,50) = 62,50

  SD = Standard Deviation of Ideal Score

         = 1/6 (100 – 12,50) = 50,00

3. Findings

3.1. Lesson Plan

The first aspect observed in this research was the lesson plan for the Indonesian subject. The lesson plan was assessed based on an observation guideline sheet. The lesson plan was assessed based on 9 indicators, namely (1) the identity of the observed subject, (2) the formulation of core competencies, (3) the formulation of basic competencies and its indicators of achievement, (4) the formulation of learning objectives, (5) the arrangement of teaching materials, (6) the selection of learning resources, (7) the selection of learning media, (8) the selection of learning model, and (9) the formulation of learning steps. The indicators were broken down into 40 indicator items.

Base on the results of data analysis, the average total achievement of aspects of 4C skills learning planning in Indonesian subjects for both institutions is summarized in the following table.

Table 3. Achievement Score of Lesson Plan

Institution	Achievement Score	Category
SMAN 1 Komodo	92.5%	Excellent
SMAN 1 Nggorang	90%	Excellent
Score Average	91%	Excellent

3.2. Learning Process

The information on the implementation of 4C skills in Indonesian subjects in all senior high schools in the Komodo District was gathered using a questionnaire. The questionnaire consisted of 37 indicators focused on assessing several different aspects. In detail, 4 indicators were for assessing the opening activities, 31 indicators were for assessing the core activities, and 2 indicators were for assessing the closing activities. The total score average derived from the 37 indicators for both schools was categorized as good with the achievement score of 69%. The category was derived by comparing the achievement score and the criteria table (Table 2).

Furthermore, each component of the 4C skills learning in Indonesian subject at senior high schools around Komodo District is elaborated in detail as follows.

a. Opening activities

The opening activities were assessed based on four indicators. The four indicators were broken down into four statement items. Each indicator was represented by a statement item. From the data analysis, the scoring average for opening activities conducted in classes in both institutions was 72%, falling into a good category. In detail, SMAN 2 Nggorang obtained score 78%, classified as excellent, and SMAN 1 Komodo got to score 65%, categorized as good.

b. Core Activities

During the core activities, the four components of 4C skills namely critical thinking, collaboration, communication, and creativity were assessed by the students using questionnaires. The achievement score of each skill is elaborated as follows.

To assess critical thinking skills, there were 13 statement items derived from 7 indicators. From the results of data analysis, it was discovered that in general the scoring average of critical thinking learning in senior high schools around Komodo District was categorized into a fair category with a score of 62.3%. In more specific calculation, SMAN 2 Nggorang reached to score 63%, fallen into good category, and SMAN 1 Komodo reached score 62%, fallen into a fair category.

Furthermore, for collaboration skill, there were 6 indicators which were broken down into 9 statement items. According to the results of data analysis, in general, the scoring average of collaboration skill learning in senior high schools in the Komodo District was categorized into a good category with a score of 72,5%. In detail, SMAN 1 Komodo reached score 82%, fallen into an excellent category, and SMAN 2 Nggorang obtained score 63%, fallen into the good category.

For communication skills, there were 11 statement items made based on 11 indicators. From the results of data analysis, it was found that the scoring average of communication skill learning in senior high schools in the Komodo District was categorized into a good category with a score of 64%. Specifically, SMAN 1 Komodo reached score 65%, fall into good category, and SMAN 2 Nggorang obtained score 63%, also fallen into the same category.

Meanwhile, to assess creativity skill, there were 9 indicators which were broken down into 11 statement items. According to the results of data analysis, the scoring average of creativity skill learning in senior high schools in the Komodo District was categorized into a good category with a score of 69,8%. In detail, SMAN 1 Komodo reached score 74%, classified into good category, and SMAN 2 Nggorang obtained score 65%, fall into the good category.

c. Closing Activities

The closing activities were observed through 2 indicators from which 3 statements were derived. According to the results of data analysis, it was revealed that the scoring average of 4C skill learning during the closing activities in senior high schools in the Komodo District was categorized into a good category with a score of 73%. Specifically, SMAN 1 Komodo obtained score 74%, fall into good category, and SMAN 2 Nggorang obtained score 72%, also fallen into the same category.

Based on the previously elaborated results, the results of the evaluation of 4C skill learning in Indonesian subjects taught in senior high schools around the Komodo district can be drawn. The results are summarized in Table 3.

Table 4. The Evaluation of 4C Skills

Number	Indicators	Score (%)	Ideal Score (%)
1	Lesson Plan Making	91	100
2	Learning Process		
	Opening Activities	72	100
	Core Activities	67,2	
	Closing Activities	73	100
	Total Score	303,2	300
	Score average	75,8	100

The following table presents the achievement of 4C skills implementation represented in numbers.

Table 5. The Achievement of 4C Skills Learning Implementation

Number	Aspects	Achievement Score	Discrepancy
1	Lesson Plan	91	9
	Average	*91*	*9*
2	Learning Process		
	Opening Activities	72	28

Number	Aspects	Achievement Score	Discrepancy
	Average	*72*	*28*
	Core Activities		
	Critical Thinking	62,6	37,4
	Collaboration	72,5	27,5
	Communication	64	36
	Creativity	69,8	30,2
	Average	*67,2*	*32,8*
	Closing Activities	73	27
	Average	73	27
	Average in Total	75,8	24,2

Based on Table 4, it can be concluded that the attainment of 4C skill learning in Indonesian subjects taught in senior high schools in the Komodo district is classified into an excellent category with a score of 75,8%. The category used is referring to Table 2.

3.3. Supporting and Inhibiting Factors of 4C Skills Implementation

The factors were concluded based on the results of the questionnaire filled by the students as participants of this research. The questionnaire results showed that 3 important factors supported students in joining the implementation of the 4C skills in the classroom. The three supporting factors are (1) the mutual help among students during the implementation of 4C skills, (2) the teachers' seriousness in providing equal attention and assistance to all students, and (3) the teachers' background knowledge or mastery of 4C skills concept.

Besides those 3 supporting factors, 2 other factors may hinder the implementation of 4C skills. The factors are (1) insufficient textbooks as learning sources and (2) the unconducive classroom situation.

4. Discussion

4.1. Lesson Plan

The lesson plan becomes one of the focuses to analyze in this research. Based on the results of the research, the lesson plan of the Indonesian subject which embodies the 4C skills has been following the standards issued by the government. The research results showed that the lesson plan had attained a scoring average of 91%, because of which it is considered excellent. It indicates that the steps taken by teachers in senior high schools around the Komodo district in designing the lesson plan have met the government's standards. Therefore, the existence of a lesson plan is considered meaningful in the teaching and learning process, not just for administrative completion, because it reflects the teacher's professional views, attitudes, and beliefs about what is best for the students. The 9% gap from the ideal score 100% is due to some incomplete indicators, such as the formulation of core competencies, formulation of basic competencies and indicators of achievement, formulation of teaching materials, and selection of learning source as well as learning media. Among the 5 incomplete indicators, one indicator that needs serious attention is the formulation of core competencies, because the achievement is considered poor as it received a score of 50%.

The research results elaborated previously have been in line with the finding of research conducted by Dewantara (2017) and Sumariata (2015) in which it was found out that the lesson plan of Indonesian subject had been in line with the government's standards as cited in Permendikbud Number 22 of 2016.

4.2. Learning Process

Indonesian subject is one of the compulsory subjects in senior high schools where the learning process is based on the 2013 Curriculum standard process and is the implementation of the lesson plan. As in other subjects, the focus of Indonesian subjects is also on developing 4C skills namely critical thinking, collaboration, communication, and creativity skill.

Related to the four skills mentioned above, teachers of Indonesian subjects in all senior high schools in the Komodo District had carried out the learning process employing the skills.

The results of the questionnaire given to the students showed that the learning process had run well. It is seen from the learning process attainment score (69%). The results imply that the teachers had conducted the learning process employing 4C skills following the government's standards. The success in carrying out the learning process is undeniably related to the lesson plan arranged by the teachers. It indicates that there is a tight relationship between the excellent achievement score of the lesson plan and the good achievement score of the learning process. This connection is in line with the thought (Mulyasa, 2018; Cynthia, 2015) that the optimal lesson plan will contribute to the learning process and help teachers to focus on the basic competencies which are about to achieve. Teachers and students can know exactly what goals they want to accomplish and how to achieve them. The good achievement of the implementation of the 4C skills in the learning process is also related to the three other important factors that students perceived to be helpful during classroom learning, namely peer support (mutual help), the seriousness of the teacher in providing equal attention to all students, and the ability of teachers to understand and execute the 4C skills learning. These three factors are important strengths in the 4C skills learning process found in senior high schools in Komodo District, due to their significant roles in the attainment of 4C skills implementation.

As in other subjects, the learning process of Indonesian subject that embodies 4C skills is divided into three important parts namely opening activities, core activities, and closing activities. Those three parts are elaborated as follows.

4.3. Opening Activities

In the opening activities, the students gave a positive response to the implementation of 4C skills. 72% of students stated that their Indonesian subject teachers had effectively carried out the 4C skills in opening activities. The research results elaborated previously have been in line with the finding of research conducted by Mulyaningsih (2017) in which it was found out that the opening activities of Indonesian subject had been in line with the government's standards.

Furthermore, among the four indicators of the learning process, there were three indicators considered as good. The indicators are (1) the students' ability to question the studied materials (81%), (2) the students' ability to reformulate the learned competency using their own words (64%), and (3) the students' ability to explain the relationship between the previous learning materials and the upcoming ones (62%). The attainment of those indicators is tightly related the three factors perceived to be beneficial by the students, namely peer support (mutual help) among the students, the seriousness of the teacher in providing equal attention to all students, and the ability of teachers to understand and execute the 4C skills learning. The first supporting factor is in line with the results of research conducted by Rosita & Leonard (2013) who found that mutual help among the students undeniably contributed to students' achievement. Furthermore, the second and third supporting factors are also discovered in the research conducted by Aziz, Adnan, Muis, Musawwir & Faisal (2013) who concluded that teachers' subject-knowledge mastery and teachers' capability to design classroom instructions were matters in succeeding learning process.

It can be said that those factors need to be continually performed and improved by the teachers as well as the students. On the other hand, the fourth indicator, which is the students' ability to link the studied materials with their real-life, should receive more attention and improvement by both the teachers and the students because it only scored 57%, fallen into a fair category. It can be considered as the weak point of the learning process specifically in the opening activities. This weakness can be assumed to have a relation with the inhibiting factors mentioned by the students, which are insufficient of textbooks and the unconducive classroom condition/ surroundings.

4.4. Core Activities

The time of core activities provides teachers with great opportunities to implement and teach 4C skills to the students. In this stage, the attainment score of 4C skills implementation was scored 67,2%, fallen into a good category. It implies that the teachers had attempted to

implement the 4C skills learning according to the expected criteria by optimizing the development of the students' 4C skills. The optimization of the students' 4C skills development is expected to enable students to live, work, and participate in the 21st-century community.

Furthermore, it is interesting that among the 4C skills, the students gave positive responses towards three skills where collaboration skill scored 75%, creativity skill scored 69,3%, and communication scored 64%. In other words, the implementation of those skills is perceived to be good for the students. This achievement can be separated from the three supporting factors mentioned earlier. The three factors have significantly helped the implementation of collaboration, creativity, and communication skills in the classroom. The result, especially the collaboration skill, is similar to the finding of research conducted by Hapsari & Yonata (2014). However, it is in contrast with Tindowen, Bassing & Cagurangan (2017) who found that collaboration and communication skills were low and Ling & Loh (2020) who found that the creativity skill was even lower. Meanwhile, Saputri, Sajidan & Rinanto (2018) discovered that the critical thinking skill was categorized as good.

Meanwhile, the achievement of critical thinking skills (62%) indicates that the students' ability to identify, analyze, interpret, assess, and solve problems has not been optimized during the learning process. The inhibiting factors mentioned earlier may contribute to this case. The research results elaborated previously have been in line with the finding of research conducted by Tindowen, Bassing & Cagurangan (2017), and the results of research conducted by Irwanto, Saputro, Rohaeti & Prodjosantoso (2018) yielded that the positive atmosphere significantly affected students' achievement. Therefore, the implementation of critical thinking skill should be improved by improving the learning facilities and selecting other methods or strategies which can effectively improve students' critical thinking.

4.5. Closing Activities

For the closing activities, the students' perceptions of the implementation of 4C skills scored 72% which means that 72 students assumed that their teachers had carried out the implementation of the 4C skills during the closing activities well. However, this result is in contrast with the finding of the research, done by Mulyaningsih (2015), that the closing activities were fallen into poor category.

It can be said that the good attainment score of each indicator and the three supporting factors are significantly contributing to the good achievement score. Therefore, the teacher can keep doing the same or improve the quality of closing activities to maintain the quality improvement of 4C skills implementation. The research results elaborated previously have been in line with the finding of research conducted by Kereluik, Chris & Fahnoe (2013), Naykki, Jarvela, Kirschner, Jarvenoza (2014), Sumariata (2015), Kim, Raza, & Seidman (2019), and Tican & Deniz (2019) who found that teachers' capability to teach or teachers' competencies and positive behavior of teachers significantly contributed to students' achievement.

4.6. Supporting and Inhibiting Factors of the 4C Skills Implementation

This research did not specifically research on the direct relationship between supporting and inhibiting factors of the implementation of the 4C skills. However, the students provided information related to the factors assumed to be important to elaborate more. The results of the research showed that there were three factors supporting students in joining the implementation of the 4C skills in the classroom. The factors were mutual help among the students, teachers' assistance provided for the students, and teachers' mastery of the 4C skills concept. The students perceived that those three factors significantly improved the implementation of the 4C skills in the Indonesian lesson. In contrast, the inhibiting factors revealed from this research were the lack of book sources as the main learning materials and the unconducive classroom or surroundings. For the students, the availability of textbooks is essential to support the learning process in the classroom. Therefore, lacking textbooks as learning sources will more or less inhibit the learning process. It goes the same for the classroom situation where the learning process is conducted. The unconducive classroom may disturb students' concentration while following the learning process.

5. Conclusions and Recommendations

Based on the data analysis, it can be concluded that the implementation of the 4C skills in Indonesian subject in senior high schools in Komodo District, West Manggarai Regency, including the lesson planning and its implementation in the classroom has been carried out well. In other words, the planning and implementation are classified into "good" category.

Furthermore, several points can be drawn from this research. The average achievement of lesson plan of 4C skills learning is categorized as "excellent" (91%), and its discrepancy with the ideal score is only 9 %. Furthermore, the average achievement score for the implementation of the 4C skills done within the opening activities reaches 72%, classified as "good". In the core activities, the implementation of the 4C skills scores 67.2% which means "good" as well. It implies that 67.2% of students feel that their teachers have already implemented the 4C skills well during the core activities in the classroom. In the closing activities, the achievement score of 4C skills implementation is 72%. It means that 72% of students perceive that their teachers have carried out 4C skills well during the closing activities.

Furthermore, according to the students' perception, there are several supporting and inhibiting factors on the implementation of 4C skills in Indonesian subjects. The supporting factors include the mutual help among the students, the assistance provided by the teachers, and the teachers' mastery of 4C skills learning. On the other hand, the inhibiting factors are the lack of the main sourcebooks and the unconducive classroom situation.

Based on those results, it is recommended for the schools' principals to administer training and routine discussion with their teachers to improve and mend the implementation of the 4C skills. The principals are also recommended to conduct a periodic evaluation of the learning process to discover the strength and weaknesses of the implementation of the 4C skills carried out by the teachers and to pay more attention to the learning facilities. Moreover, teachers are suggested to do self-assessment on their implementation of 4C skills since finding the weakness of their teaching on 4C skills sooner is better than having to wait for the periodic evaluation to assess it. By doing this, teachers can keep improving their implementation of the 4C skills as well as doing the assessment for learning.

References

Azis, A. A., Adnan, Muis, A., Musawwir, & Faisal. 2013. Penerapan Pembelajaran Kolaboratif untuk Meningkatkan Aktifitas Belajar Siswa Kelas XI IPA 3 Melalui Lesson Study Berbasis Sekolah di SMA Negeri 8 Makassar. *Jurnal Bionature, 14(1), 38–43*.

Anazifa, R. D. & Djukri. 2017. Project- Based Learning and Problem- Based Learning: Are They Effective to Improve Student's Thinking Skills? *Jurnal Pendidikan IPA Indonesia, JPII 6 (2) (2017) 346-355*

Alghafri ASR, Nizam H. 2014. The Effects of Integrating Creative and Critical Thinking on Schools Students Thinking. *International Journal of Science and Humanity. Vol 4 (6): 518-525*

Bahrudin, A. 2007. *Pendidikan Alternatif Qoryah Toyyibah*. Yogyakarta: LKIS

Bishop, J. 2010. *Partnership of 21 St. Century Skills*

Brown, B. 2015. Twenty First Century Skills: A Bermuda College Perspective. *Journal of Bermuda College,* vol. 1, 58-64

Chalkiadaki, A. 2018. Systematic Literature Review of 21st Century Skills and Competencies in Primary Education. *International Journal of Instruction (online), Vol.11, No.3 e-ISSN: 1308-1470. Retrieved Juni 7, 2020 from http://file.eric.ed.gov/fulltext/EJ1183407*

Dewey, J. 1909. *How we think*. New York: D.C. Helath and CO Publisher

Egan, A. Maguire, R. Christophers, L., & Rooney, B. 2017. Developing Creativity In Higher education for 21st century learners: a protocol for a scoping review. *International Journal on Education Research,* 82, 21-27

Fisher. A. 2008. *Berpikir kritis: sebuah pengantar*. Jakarta: Erlangga

Fahim, M. 2012. Manipulating Critical Thinking Skills in Test Taking. *International Journal of Education* (online), *Vol. 4, No. 1. Retrieved Juni 7, 2020 from http://dx.doi.org/10.5296/ije.v4i1.1169*

Goldberg, J., L. 2012. Teaching generation techX with the 4Cs: using technology to integrate 21St skills. *Retrieved November 30,2019 from https://cirt.gcu.edu/jir/documents/folder2/teaching-generation-techx-with-the-4-cs-jennifer-l*

Guo, Z. (November, 2016). The cultivation of 4C's in china critical thinking, communication, collaboration and creativity. *Makalah disajikan dalam International conference on education, management and applied social science, 1-4, di Beijing, China*

Häkkinen, P., Järvelä, S., Mäkitalo-Siegl, K., Ahonen, A., Näykki, P. & Valtonen, T. 2016. Preparing teacher-students for twenty-first-century learning practices (PREP 21): a framework for enhancing collaborative problem-solving and strategic learning skills. *Retrieved Juni 6, 2020, from http://dx.doi.org/10.1080/13540602.2016.1203772*

Hapsari, N. S., & Yonata, B. (2014). Keterampilan kerjasama saat diskusi kelompok siswa kelas XI IPA pada materi asam basa melalui penerapan model pembelajaran kooperatif di SMA Kemala Bhayangkari 1 Surabaya. *Unesa Journal of Chemical Education, 3(2), 181-188.*

Helmawati. 2019. *Pembelajaran Dan Penilaian Berbasis HOTS*. Bandung: PT. Remaja Rosdakarya

Irwanto, Saputro, A.D., Rohaeti, E., Prodjosantoso, A.K. 2018. Promoting Critical Thinking and Problem Solving Skills of Preservice Elementary Teachers through Process-Oriented Guided-Inquiry Learning (POGIL). *International Journal of Instruction (online), October 2018, Vol.11, No.4, 777-794. Retrieved Juni 6, 2020 from http://doi.org/10.12973/iji.2018.11449a*

Kadir, M.A. 2016. What Teacher Knowledge Matters in Effectively Developong Critical Thinkers in the 21 st Century Curriculum? *Retrieved Juni 6, 2020 from http://dx.doi.org/10.1016/j.tsc.2016.10.011*

Kivunja, C. 2014. Innovative Pedagogies in Higher Education To Become Effective Teachers Of 21st Century Skills: Unpacking The Learning And Innovations Skills Domain Of The New Learning Paradigm. *International of Higher Education*, 3(4), 37

Kim, S., Raza, M., Seidman, E. 2019. Improving 21st-Century Teaching Skills: The Key to Effective 21stcentury Learners. *Journal Sagepub* (online), 1-19. Retrieved Juni 6, 2020 from sagepub.com/journals-permissions, DOI: 10.1177/1745499919829214

Kereluik, K. Mishra, P. Fahnoe, C. & Terry, L. 2013. What Knowledge Is of Most Worth: Teacher Knowledge for 21 Century Learning. *Journal of Digital Learning in Teacher Education (online), 29(4), 127–140. Retrieved Juni 7, 2020 from https:// doi.org/ 800. 336.5191*

Karakoc, M. 2016. The significance of critical thinking ability in terms of education. *International Journal of Humanities and Social Science, 6(7), 81-84*

Kementerian Pendidikan dan Kebudayaan. 2013. *Paparan Pengembangan Kurikulum 2013.*

Kementerian Pendidikan dan Kebudayaan. 2016. *Permendikbud No 22 Tahun 2016 Tentang Standar Proses Pembelajaran*

Ling, M. K. D. & Loh, S. C. 2020. Relationship of Creativity and Critical Thinking to Pattern Recognition Among Singapore Private School Students. *The Journal of Educational Research (online), retrieved Juni 8, 2020 from https://doi.org/10.108000220671.2020.1716203*

Mulyaningsih, N. 2015. Evaluasi Pelaksanaan Pembelajaran Pendidikan Agama Islam dan Budi Pekerti Dengan Pendekatan Saintifk Pada Kurikulum 2013 Di SMA Kota Yogyakarta. *Thesis Universitas Negeri Yogyakarta, Program Pascasarjana.* Tidak dipublikasikan

Mulyasa H. E. (2018). *Implementasi Kurikulum 2013 Revisi, Dalam Era Revolusi Industri 4.0*. Jakarta: Bumi Aksara.

Mesenson, A. B., & Fox, W. S. 2011. Teaching 21st Century Process Skills to Strenghten and Enhance family and Consumer Sciences Education. *Journal of Family and Consumer Science, Vol. 103, No.1, 00. 29-50*

Mumford, M., & Mcintosh, T. 2017. Creative Thinking Processes: The Past and the Future. *The Journal of Creative Behavior, 51(4), 317–322*

National Education Association. 2012. *Preparing 21st Century Students For a Global Society: An Educator's Giude to the "Four Cs".* Author: NEA

Nawawi, H. 1984. *Administrasi Pendidikan*. Jakarta: Gunung Agung.

Nugent, P.M, *at.all.* 2008. *Fundamental Succes: A Course Review Applying Critical Thinking to Test Taking*. USA: F. A. Davis C

Naykki, P., Jarvela, S., Kirchner P.A., & Jarvenoja, H. 2014. Socio-Emotional Conflict in Collaborative Learning - A Process - Oriented case Study in a Higher Education Context. *International Journal of Educational Research, Vol. 68, 2014, 1-14*

Pemerintah Republik Indonensia. 2004. *Garis-Garis Besar Haluan Negara*

Pradipto, Y. D. 2007. *Belajar Sejati Vs Kurikulum Nasional: Konstelasi Kekuasaan Dalam Pendidikan Dasar*. Yogyakarta: Kanisius

Pemerintah Republik Indonensia. 2017. *Visi Indonesia 2045.* Jakarta: Kementerian Perencanaan Pembangunan Nasional

Pratiwi, T. R. & Muslim. 2016. Pembelajaran IPA Tipe Integrated Untuk Meningkatkan Keterampilan Berpikir Kritis Siswa Smp. *Jurnal Pendidikan Fisika Indonesia, 12 (1): 54-64*

Ritter, S. M., & Mostert, N. 2017. Enhancement of Creative Thinking Skills Using a Cognitive-Based Creativity Training. *Journal of Cognitive Enhancement, 1, 243–25*

Roekel, D.V. 2012. *Preparing 21st Century Students for A Global Society, An Educatorâl Guide To The Four Cs.* USA: National Education Association

Rose, C & Malcon. 2014. *Accelerated Learning: For the 21st Century "Cara Belajar Cepat Abad 21".* Bandung: Nuansa Cendikia

Rosita, I., & Leonard. 2013. Meningkatkan kerja sama siswa melalui pembelajaran kooperatif tipe think pair share. *Jurnal Formatif, 3(1), 1-10. doi:10.30998/formatif.v3i1.108*

Saputri, A. C., Sajidan & Rinanto, Y. 2017. Critical Thinking Skills Profile of Senior High School Students in Biology Learning. *Journal of Physics: International Conference on Science Education (ICoSEd)*, 1 (1): 1-5

Siswanto, Kaniawati & I. Suhandi. 2014. Penerapan Model Pembelajaran Pembangkit Argumen Menggunakan Metode Saintifik Untuk Meningkatkan Kemampuan Kognitif dan Keterampilan Berargumentasi Siswa. *Jurnal Pendidikan Fisika Indonesia, 10 (2): 104-116*

Scott, C. L. 2015. The Futures of Learning 2: What Kind of Learning for The 21st Century? *Education Research and Foresight Working Papers UNESCO, 1-14*

Susilo. 2015. Curriculum of EFL Teacher Education and Indonesian Qualification Framework: A Blip of The Future Direction. *Jurnal Dinamika Ilmu, 15 (1): 11-24*

Sumariata, I. K. 2015. Evaluasi Kinerja Guru SMA dan SMK Dalam Pembelajaran Bahasa Indonesia Berbasis Kurikulum 2013 di Kabupaten Karangasem. *Thesis Universitas Negeri Yogyakarta, Program Pascasarjana.* Yogyakarta: tidak dipublikasikan

Snyder, L. G., & Snyder, M. J. 2008. Teaching critical thinking and problem solving skills. *The Delta Pi Epsilon Journal, 1(2), 90-99*

Taylor, E. S., & Tyler, J. H. 2012. The Effect of Evaluation on Performance. *Journal of American Economic Review, Vol. 102, No 7, pp. 3628-3651*

Takung, K. 2018. *Dokumen program kerja pengawas*. Labuan Bajo: Sekertariat Pengawas

Treffinger, D.J., Young, G.C., Selby, E.C., & Shepardon, C. 2002. *Assessing Creativity: A Guide for Educators.* Florida: The National Research Center on the Gifted and Talented University of Connecticut

Tindowen, D. J. C., Bassing, J. M., & Cagurangan, J. 2017. Twenty-First-Century Skills of Alternative Learning System Learners. *Journals Sagepub, Juli-September 2017, 1-8*

Tican, C. & Deniz, S. 2019. Pre-service Teachers' Opinions about the Use of 21st Century Learner and 21st Century Teacher Skills. *European Journal of Educational Research, Vol. 8, Issue 1, 181-197*

Voogt, J. & Roblin, N. P. 2012. a Comparative Analysis of International Frameworks For 21st Century Competences: Implications For National Curriculum Policies. *Journal Curriculum Studies, 2012, Vol. 44, No.3, 299-321.* Retrieved Juni 6, 2020 from http://dx.doi.org/10.1080/00220272.2012.668938

Visi Kabupaten Manggarai Barat, retrieved from https://manggaraibaratkab.go.id/visi%ef%bb%bf-misi/

Wartono, W., Diantoro, M. & Batlolona, J. R. (2018). Influence of Problem Based Learning Model on Student Creative Thinking on Elasticity Topics A Material. *Jurnal Pendidikan Fisika Indonesia, 14(1), 32-39.*

Weaver, M. G., Samoshin, A. V., Lewis, R. B., & Gainer, M. J. 2015. Developing Students' Critical Thinking, Problem Solving, and Analysis Skills in an Inquiry-Based Synthetic Organic Laboratory Course. *Journal of Chemical Education, XXXX, A – E. Retrieved Juni 6, 2020 from DOI:10.1021/acs.jchemed.5b00678*

Yuliati, Y. 2017. Literasi Sains Dalam Pembelajaran IPA. *Jurnal Cakrawala Pendas, 3 (2): 21-28*

Yariv, E. 2011. Deterioratian in Teacher's Performance: Causes and Some Remidies. *World Journal of Education, Vol. 1, No. 1, pp. 81-91*

Zubaidah, S. 2017. Keterampilan Abad Ke-21: Keterampilan Yang Diajarkan Melalui Pembelajaran. *Journal Universitas Negeri Malang*, 1 (1): 1-17