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SCIENCE TEACHERS ABILITIES IN INTEGRATING POPULATION AND ENVIRONMENTAL EDUCATION WITH SCIENCE SUBJECTS OF JUNIOR HIGH SCHOOL IN MAMASA REGENCY, INDONESIA

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ABSTRACT

This study aims to find the ability of science teachers in integrating Population and Environmental Education (Pendidikan Kependudukan dan Lingkungan Hidup/PKLH) with science subjects based on the 2013 Revised Curriculum (K13 Revision) in State Junior High Schools in Mamasa Regency. The study population was 106 junior high schools in Mamasa district with an average of one science teacher per school. Sampling was done randomly, 20% of the population (21 teachers). This study used a single variable, namely the ability of science teachers to integrate PKLH material with science learning in junior high schools. Furthermore, it is translated into five sub-variables, including 1) readiness for teaching, 2) knowledge of K13 Revision, 3) ability to identify PKLH material in junior high school science subjects based on K13 Revision, 4) knowledge of PKLH material, and 5) ability to plan, carry out, and evaluate PKLH learning integrated with junior high school science subjects. The research data results from structured interviews with respondents, and the data analysis technique was carried out in a descriptive qualitative way. The results showed that junior high school science teachers in Mamasa Regency in terms of readiness for teaching, understanding of the K13 Revision, and knowledge of PKLH materials were good. However, the ability to integrate PKLH with science subjects was not good or weak in terms of 1) the ability to identify PKLH material in junior high school science subjects based on K13 Revision, and 2) the ability to plan, carry out, and evaluate PKLH learning integrated with science subjects of Junior High School.

Keywords: ability; teacher; teaching; integrated; PKLH and science materials

INTRODUCTION

The researcher carried out the preliminary study in 2017 at SMP Negeri 1 Balla. It was aimed to see the three psychological aspects or domains related to learning outcomes of integrated PKLH learning: (1) Domain thinking process (cognitive domain); (2) domain of value or attitude (affective domain); and (3) domain of skills (psychomotor domain) (Anderson & Sosniak, 1994). This study showed that in the integrated PKLH learning outcomes, the cognitive domain is low, and the affective and psychomotor domains are medium (Darmadi, 2018; Nadiroh et al, 2019). It encouraged the researcher to carry out further and broader research, covering the entire Mamasa District, which consists of 106 junior high schools. It focuses on science courses based on the K13 Revision.

The relationship between science subjects with PKLH is very close. It can be seen from the same lesson materials, such as biotic and abiotic environments and other materials related to humans and the universe. Also, researchers think that humans are the actors who decide whether nature becomes damaged or sustained due to their behavior in managing nature and the environment. Therefore, education has a role in giving an understanding to humans of the importance of keeping the environment as a habitat for every living

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thing. It is hoped that Science and PKLH lessons can provide that understanding, and the Indonesian Government makes a policy to teach these two fields in an integrated way.

The question is, is integrated learning effective? Many researchers consider that integrated learning is less effective. Therefore, the researcher wants to see where it is ineffective by examining the ability of teachers to carry out integrated learning, and the results of this study will explain the weaknesses of teachers in science and PKLH learning in an integrated way, and at the same time, a novelty in this study, because previous researchers who examined this matter do not exist, especially in integrated science and PKLH learning. The important thing that will be discussed in this research is how the ability of junior high school science teachers in the Mamasa Regency in integrating PKLH learning with science material based on the Revised K13?

To support the researcher's argument above, Rezkita and Wardani (2018) stated environmental care could be formed through character strengthening that involves education trip centers in habituation, namely class-based, school-based, and community-based. This opinion sees that education plays an essential role in shaping the character of society to care for the environment. Also, Jufri et al. (2019) said, human awareness and concern for the environment cannot just grow naturally but must be strived for continuous formation from an early age through real daily activities. The most strategic step to instill awareness and concern for the environment is educating about the importance of caring for the environment. To do educational goals, including shaping students' character to care for the environment, the role of teachers is crucial. As stated by Putri and Imaniyati (2017), that achieving good quality education is strongly influenced by the performance of teachers in carrying out their duties, so that teacher performance is an essential need for achieving educational success.

Both domestic and foreign researchers support this research. Putri and Imaniyati (2017) said that children were aware of the need to protect the environment and some environmental issues within their local context. Children could share their opinions with adults about the importance of protecting the environment in different ways. Children's reasons for preserving the environment are moral reasons, the effects on human life and endangered species, support for living, and aesthetics.

Sustainable environmental education is not a problem in Indonesia but also in other countries. Malaysia, for example, has implemented a program called Sustainable School Environment Award (SLAAS) since 2005, especially in elementary schools. It aims to create a school environment that helps with the preservation of the environment in aspects of management, curriculum, co-curriculum, and sustainable green activities to build life practices under the concept of sustainable development (Mahat et al., 2016).

Environmental education is essential for sustainable living to be implemented in society from an early age. Every school must invite, introduce, and understand the current natural conditions and problems. The goal is to increase students' awareness of being more sensitive to natural conditions.

Today the world is facing severe environmental problems. There are nine major environmental problems: global climate change, waste management, scarcity of clean water, population explosion, depletion of natural resources, extinction of plants and animals, destruction of natural habitats, increased pollution, and poverty. Environmental preservation activities can be carried out through environmental education. Knowledge of the condition of Indonesia's natural environment needs to be known by all Indonesian people, especially students in the school environment. (Herdiansyah et al., 2016; Kamil et al, 2020). Environmental education aims to make students participate in protecting the environment and make the environment not only something to be exploited but as an asset that must be preserved and protected. (Ramadhan et al., 2019).

Current environmental conditions are horrible because of constant environmental damage. It is caused by humans who have no reason to keep the environment and the increasing population growth that requires natural resources for their survival. From this problem, it is hoped that Population and Environmental Education (PKLH) can be a solution to increase public awareness to protect the environment. However, the implementation of PKLH learning in formal schools is now considered ineffective, so it is necessary to find the cause. One of the efforts to do this is through research.

The implementation of the PKLH program in educational units, starting from elementary school, junior high school, and senior high school, was implicitly introduced through the 1984 curriculum. After about 28 years, the results have not been encouraging. Almost all education unit graduates have not shown an "environmentally friendly" behavior (Kadir, 2013). The implementation of PKLH in Indonesia has been officially implemented at all educational levels since 1976 and is taught in an integrated way in almost all subjects, especially at the junior high school level. However, based on experts' research data, it turns out that it has not been effective. It supports the results of this research.

The world's attention to the environment was initiated at the United Nations Conference on the Environment in Stockholm, Sweden, in June 1972. This conference declared an Environmentally Sustainable Development by deciding to carry out economic and developmental activities and guarantee that the environment and natural resources remain sustainable and worthy of being passed on to future generations. The concept of environmental and population education also emerged from this conference. Furthermore, UN agencies organized formal and mass environmental education programs globally. International efforts to preserve the environment, primarily through education, were subsequently initiated by UNESCO to formulate joint steps to overcome population and environmental problems.

The effort to preserve the environment is seen in Indonesia through the Population and Environmental Education Program (PKLH), which has been initiated since 1975 based on the Minister of Education and Culture Decree No. 068/U/1974. Furthermore, it was centrally implemented by the PKLH project of the Directorate General of Primary and Secondary Education in 1976, which was called the "National Population Program Project" in collaboration with the BKKBN. The Population Education and Training Program was being implemented in schools in 1978 (Surbakti, 2015).

Integrated learning is an approach based on the idea that a subject can be integrated into other appropriate subjects and can be pursued by 1) building units or series of lesson materials prepared to be integrated with particular subjects, 2) with core programming, starting from a core program in a specific subject (Surbakti, 2015). The advantage of this system is that there is no need to add more teachers because most of them are already involved. However, it is also inseparable from weaknesses, such as the need for teachers to be prepared in advance, change the syllabus and learning hours allocation, the possibility of immersion of material integrated with the main subject, and during the assessment, two objectives must be achieved in one learning program. Other difficulties may arise, such as technical educational difficulties in integrating PKLH materials into other subjects. The learning material consists of Physics and Biology, mixed in an integrated science model and taught by competent science teachers.

Since the implementation of 2013 (K13) and K13 revised curriculum, the basic competencies that must be achieved in learning science includes: (1) Living with a positive, honest and open attitude with critical, creative, and innovative thinking, collaboration, based on the essence of natural science; (2) Understanding the natural phenomena based on the results of learning science in an integrated manner through specific fields, including Physics, Chemistry and Biology; (3) Evaluating the products of thought in a society that is based on the principles of natural science and ethics; (4) Solving problems and making decisions in life based on scientific and ethical principles; (5) Recognizing and playing a role in solving human problems, such as food unavailability, health, energy crises and the environment; and (6) Understanding the impact of natural science development in an integrated manner on the improvement of technology and human life in the past, present and potential future impacts on the environment (Kuncara, 2016).

The time allocation for seventh grade is 5 hours/week with seven subjects and 52 subsubjects, and 33 of them are PKLH sub-subjects or 63.5% of all science subjects in seventh grade. It means explicitly that PKLH learning materials for science subjects in seventh grade are more than others. For eighth grade, there are 57 sub-subjects allocated 5 hours/week, but none of them were PKLH materials, although there was a connection. Furthermore, for ninth grade, there were 50 PKLH sub-subjects and materials, with the same time allocation of 5 hours/week. Therefore, based on the time allocation of the curriculum (revised K13) and the number of subsubjects for science lessons in junior high schools, the total number of science materials for seventh, eighth, and ninth grades was 159 sub-subjects. Besides, PKLH materials equal 26% of the total number of science sub-subjects in junior high schools (Kuncara, 2016).

The theory of ability that is defended in the historical and contemporary literature is called a hypothetical theory. This view argues that someone who has the ability means that person will act in a certain way if he has an absolute will (Nodelman et al., 1995). The big dictionary of Indonesian explained that "*mampu* (able)" can be interpreted as power (able, capable) to do something.

Furthermore, when its prefix "*ke*" and the suffix "*an*" are joined together, it becomes "*kemampuan* (ability)," which means having the ability to do something (Alwi, 2007). The equivalent of the word *kemampuan* in English is an ability, which means the quality, physical, mental, or legal power to do, or it can also mean competence in doing something (Rush, 1998). Integrated comes from the basic word integration, which means assimilation, coalescing, or joining to become one unified whole. Furthermore, it has a meaning in the verb class and can be expressed as an action, existence, experience, or other dynamic meaning (Alwi, 2007).

Based on the definition above, the ability to integrate means to mix or combine something into one functional unit. If this context is related to the teacher's task in teaching, it can be interpreted that the teacher has the ability to integrate or combine something into one unified whole. Furthermore, if it is connected with science learning and PKLH materials, it means that the teacher has the ability or skill to combine both science and PKLH materials in learning processes carried out at school.

Ability is a general skill possessed by an individual (Surya et al., 2014). The ability, capacity, or proficiency of teachers, with educational terms, is known as competence. Etymologically, it comes from the basic word compete, which means competing or competition, and the noun competence, which means ability, proficiency, or authority, can be made from it. Competence can also be interpreted as knowledge, skills, and abilities that can be mastered to possess cognitive, affective, and psychomotor behaviors (McAshan, 1979). Various groups assess the competence of teachers as a picture of whether or not educators are professional (Struyven & De Meyst, 2010).

The teacher's ability here is expected to change students' behavior to behave as expected in the learning objectives. Owen et al. (2012) states in Behaviorism theory that student learning and behavior would increase in response to positive reinforcement such as rewards, praise, and bonuses. Furthermore, Sundel and Sundel 2017 argues that repeated reinforcement techniques can shape behavior and improve learning outcomes. Therefore, this Behaviorism Theory is very suitable to be applied in PKLH learning, which of course can also be referred to as integrated learning with science subjects.

Details of several aspects of the competence in PKLH learning concept and theory include: (1) knowledge as awareness in the cognitive field; (2) understanding: the depth of cognitive and affective behavior possessed by people; (3) ability or the skill to carry out a task or job; (4) value: a standard of behavior that has been psychologically integrated within a person; (5) attitudes, feelings, or reactions to stimuli that come from outside; (6) interest: a tendency to do something. (Gordon, 1990).

METHODS

This study aims to find the science teachers' ability to integrate Population and Environmental Education (PKLH) with science subjects based on the 2013 Revised Curriculum (K13 Revision) in State Junior High Schools in Mamasa Regency. The study population was 106 junior high schools in Mamasa district with an average of one science teacher per school. Sampling was done randomly, 20% of the population (21 teachers). This study used a single variable that is the science teachers' ability to integrate PKLH material with science learning in junior high schools. Furthermore, it is translated into five sub-variables, including: (1) readiness for teaching; (2) knowledge of K13 Revision; (3) ability to find PKLH material in junior high school science subjects based on K13 Revision; (4) knowledge of PKLH material; and (5) ability to plan, carry out, and evaluate PKLH learning in an integrated way with junior high school science subjects.

A population is a group of people, animals, plants, or objects with specific characteristics to be studied. It will be the area for generalizing the conclusions of the research results (Mulyatiningsih & Nuryanto, 2014). It is a collection of subjects, variables, concepts, or phenomena. We can examine each member of the population to determine the population's nature (Morrisan, 2012). The population of this study was all 106 junior high schools in Mamasa Regency, with an average of one science teacher for each school. Some schools have more than one science teacher, and some do not have a science teacher.

A sample is a group of members who are part of the population to have the same characteristics. To determine the sample size, according to Arikunto (1992), if the subject is less than 100, it is better to take all of them until the research becomes a type of population study. Because the number of state junior high schools is more than 100, the random sampling is set at 20% of the population (21 teachers) (Gay, 1992).

The research instrument used in this research is a list of questions used in structured interviews, which begins by asking about preparation, knowledge of the revised K13 curriculum, material and teacher knowledge of PKLH materials, the ability to plan integrated learning, management of the teaching and learning process, management class, use of media, learning evaluation abilities, and learning completeness. The entire list of questions is given a column to give weight according to the respondent's ability to answer.

The data in this study were obtained in the field by conducting in-depth structured interviews with all teachers who taught science subjects in an integrated manner with PKLH material as the respondents. There were 21 teachers as the sample.

Data analysis techniques are used to analyze data tailored to the problematic form and type of data (Arikunto, 1992). The data will be analyzed in a descriptive-qualitative manner to select the tendency of each respondent's answer, to be grouped, reduced, presented, analyzed, then concluded.

The data analysis steps are as follows: (1) The data from the interview are in the form of qualitative data. It must be converted into quantitative data to be analyzed (Arikunto, 1992). Quantify the answers to the questions by giving the score levels for each answer as follows: (a) 4 for very good choice; (b) 3 for good choice; (c) 2 for less good choice; and (d) 1 for bad choice. (2) Calculating the frequency for each answer category in each variable or sub variable; (3) From the formula calculation, a number will be generated in the form of a percentage. The formula used for descriptive percentage analysis (DP);

$$DP = \frac{\text{Real score x 100}}{\text{Ideal Score}}$$

Next, (4) Analysis of research data is adjusted to the research objectives, so that percentage analysis is used. The results are presented in qualitative sentences. The calculation steps are as follows:

First, set the highest percentage;

Formula: $\frac{\sum \text{item x} \sum \text{respondent x highest score value x 100\%}}{\sum \text{item x} \sum \text{respondent x highest score value}}$

Second, set the lowest percentage;

Formula: $\frac{\sum \text{item x} \sum \text{respondent x lowest score value x 100\%}}{\sum \text{item x} \sum \text{respondent x highest score value}}$

Third, set class Interval;

Formula: $\frac{\text{highest\% - lowest\%}}{\text{the desired class}}$

Fourt, determining the level of criteria.

In this study, the level of criteria to assess the results was determined: the value of 81.26 - 100 is Very good, the value of 62.51 - 81.25 is good, the value of 43.76 - 62.50 is less good, and the value of 25 - 43.75 is bad.

Based on the criteria above, then a descriptive table of percentages is made as follows:

Table 1. Descriptive Percentage

INTERVAL %	DESCRIPTION
81.26 - 100	Very good
62.51 - 81.25	Good
43,76 - 62,50	Less Good
25 - 43.75	Bad

Source: (Arikunto, 1992)

RESULTS AND DISCUSSION

This creation of learning tools is following the K13 Revision. Therefore, teachers should make a Lesson Plan before implementing learning activities. Regarding this issue, the results can be described in Table 2.

Table 2. Teacher Preparation for Carrying out the Learning Process

No.	Interval	Criteria	Frequency	%
1	81,26 – 100	Very good	5	24
2	62,51 – 81,25	Good	11	52,5
3	43,76 – 62,50	Less Good	3	14
4	25 – 43,75	Bad	2	9,5
	Total		21	100

Source: Processed Research Data

Before learning was carried out, 24% of respondents made learning tools very well. Furthermore, 52.5% of respondents were in good criteria for compiling lesson plans, preparing learning media, and others as implied in the implementation of the K13 Revision. However, there were still 14% categorized as less good and 9.5% bad in carrying out learning without preparation. It can be concluded that the preparation of science teachers at the research location before carrying out the learning process was categorized as good.

Understanding the revised K13 is the respondents' method in implementing K13 in learning processes at school. Several question items were asked, such as the number of subjects and sub-subjects for each grade level and the competency standards related to basic competencies and others in the field of study. The results on understanding the Revised K13 curriculum are presented in Table 3.

Table 3. Respondents Understanding of the Revised K13

No.	Interval	Criteria	Frequency	%
1	81,26 - 100	Very good	13	62
2	62,51 – 81,25	Good	5	24
3	43,76 – 62,50	Less Good	3	14
4	25 – 43,75	Bad	0	0
		Total	21	100

Source: Processed Research Data

The respondents' understanding of the Revised K13 consisted of 62%, 24%, and 14% and were categorized as very good, good, and less good, respectively. It means that the understanding of science teachers in Mamasa Regency of the Revised K13 can be categorized as very good.

It relates to the teacher's ability to identify or recognize PKLH material in the Revised K13 curriculum, starting from seventh to ninth grade. The results regarding this indicator can be seen in Table 4.

Table 4. The ability of Respondents to Identify PKLH Material in the Revised K13 for Junior High School level in Mamasa Regency

No.	Interval	Criteria	Frequency	%
1	81,26 - 100	Very good	3	14
2	62,51 – 81,25	Good	5	24
3	43,76 – 62,50	Less Good	13	62
4	25 – 43,75	Bad	0	0
		Total	21	100

Source: Processed Research Data

The ability of respondents to identify PKLH material in science subjects consisted of 62%, 24%, and 14% and were categorized as less good, good, and very good, respectively. The results indicate that the ability of respondents to identify PKLH material in the K13 Revision of science subjects in junior high school can be categorized as less good. It means that science teachers in the research location cannot distinguish which natural science and PKLH materials were substituted and taught in an integrated manner.

Knowledge of PKLH material is grouped into three. First, knowledge of environment. The results on respondents' knowledge of environment can be seen in Table 5.

Table 5. Respondents' Environmental Knowledge

No.	Interval	Criteria	Frequency	%
1	81,26 - 100	Very good	0	0
2	62,51 – 81,25	Good	11	52
3	43,76 – 62,50	Less Good	10	48
4	25 – 43,75	Bad	0	0
		Total	21	100

Source: Processed Research Data

The respondents' knowledge of environment consisted of 52% and 48% and were categorized as good and less good, respectively. Furthermore, the results indicate that 52% of science teachers in the Mamasa Regency have good environmental knowledge, and 48% have less good knowledge. Second, population knowledge. The research results on respondents' knowledge of population can be seen in Table 6.

Table 6. Respondents' Knowledge of Population

No.	Interval	Criteria	Frequency	%
1	81,26 - 100	Very good	0	0
2	62,51 – 81,25	Good	13	62
3	43,76 – 62,50	Less Good	8	38
4	25 – 43,75	Bad	0	0
	Total		21	100

Source: Processed Research Data

The respondents' knowledge of the population consisted of 62% and 38% and were categorized as good and less good. The results indicate that 62% of science teachers in the Mamasa Regency have good knowledge of the population, and 38% have less good knowledge.

Third, knowledge of population and environmental management. The respondents' knowledge of the population and environmental management can be seen in Table 7.

Table 7. Respondents' knowledge of the population and environmental management

No.	Interval	Criteria	Frequency	%
1	81,26 - 100	Very good	2	10
2	62,51 – 81,25	Good	11	52
3	43,76 – 62,50	Less Good	8	38
4	25 – 43,75	Bad	0	0
	Total		21	100

Source: Processed Research Data

The respondent's knowledge of the population and environmental management consisted of 10%, 52%, and 38%, and were categorized as very good, good, and less good, respectively. The results indicate that science teachers in Mamasa regency have good knowledge of the population and environmental management.

The ability to plan integrated learning is divided into three groups. First, planning integrated learning. The research results on the ability to plan integrated learning can be seen in Table 8 below.

Table 8. Respondents' Ability to Plan Integrated Learning

No.	Interval	Criteria	Frequency	%
1	81,26 - 100	Very good	2	10
2	62,51 – 81,25	Good	8	38
3	43,76 – 62,50	Less Good	11	52
4	25 – 43,75	Bad	0	0
	Total		21	100

Source: Processed Research Data

The respondents' ability to plan integrated learning consisted of 10%, 38%, and 52%, and were categorized as very good, good, and less good, respectively. According to the results, the ability of science teachers in the Mamasa Regency to plan PKLH lessons integrated with science subjects can be categorized as less good because their ability to identify PKLH materials with science materials is not efficient.

Second, the ability to carry out integrated learning. The results on the ability to carry out integrated learning can be seen in Table 9.

Table 9. Respondents' Ability to Carry Out Integrated Learning

No.	Interval	Criteria	Frequency	%
1	81,26 - 100	Very good	0	0
2	62,51 – 81,25	Good	15	71

3	43,76 – 62,50	Less Good	6	29
4	25 – 43,75	Bad	0	0
	Total		21	100

Source: Processed Research Data

The respondents' ability to carry out integrated learning consists of 71% and 29% categorized as good and less good, respectively. According to the results, the ability of science teachers in the Mamasa Regency to carry out integrated PKLH learning with science subjects can be categorized as good. It is influenced by their ability to carry out learning in general. Furthermore, in the K13 Revision, PKLH materials were integrated with science and were widely taught by the teachers.

Third, the ability to evaluate integrated learning. The results on the ability to evaluate integrated learning can be seen in Table 10.

Table 10. Respondents' Ability to Evaluate Integrated Learning

No.	Interval	Criteria	Frequency	%
1	81,26 - 100	Very good	2	10
2	62,51 – 81,25	Good	8	38
3	43,76 – 62,50	Less Good	13	62
4	25 – 43,75	Bad	0	0
	Total		21	100

Source: Processed Research Data

The respondent's ability to evaluate integrated learning consists of 62%, 38%, and 10%, and were categorized as less good, good, and very good, respectively. According to the results, the ability of science teachers in the Mamasa Regency to carry out an integrated evaluation of PKLH learning with science subjects was categorized as less good. This is due to their inadequate ability to identify PKLH and science materials. Furthermore, it was also revealed that some teachers knew about this but did not have enough time and opportunity to identify it. Therefore, the learning evaluation was carried out without any separation of material.

Based on the results, it was revealed that the single variable discussed in this study was the ability of junior high school science teachers in the Mamasa Regency to integrate Population and Environmental Education (PKLH) with science subjects. Furthermore, it was developed into five sub-variables and was supported by 21 indicators (research instruments). From the data analysis results, three sub-variables show prominent weakness: 1) The ability of respondents to identify PKLH material in K13 Revision of Junior High School Science subjects; 2) The ability to plan PKLH integrated learning with science subjects; 3) The ability to evaluate PKLH integrated learning with science subjects.

The results are confirmed by Bloom's Taxonomy Theory which states that learning success, especially PKLH, must be measured from three domains: cognitive, affective, and psychomotor (Anderson & Sosniak, 1994) and Behaviorism theory (Skinner, 2013) that the role of teachers is enormous to change student behavior as planned in the learning objectives. To fulfill the psychomotor aspects of students in PKLH, good learning planning, implementation, and evaluation of PKLH integrated learning is needed with junior high school science subjects according to the Revised K13. Therefore, the weaknesses of junior high school science teachers found in this study need to be improved.

Therefore, when planning, for example, making learning tools, lesson plans, and others according to the demands of the K 13 Revision, it should be noted that PKLH teaching materials are not explicitly planned but remain integrated with science materials. Subsequently, when teachers face questions about the identification of PKLH learning through this research instrument and are not ready, the results obtained would be categorized as less good. When faced with questions related to the integrated PKLH learning evaluation, respondents generally answered that there was no separation in the learning evaluation. Therefore, the specific evaluation for PKLH materials was also invisible. From interviews with respondents, it was revealed that the evaluated things were the cognitive and affective domains, while few were related to the students' psychomotor domains. PKLH evaluation is also described in the PKLH teaching handbook compiled by the Ministry of Education and Culture, and it was stated that the psychomotor domain concerning motor skills was fundamental regarding perception, readiness to do something (setting), mechanism, guided response, proficiency (complex overt response), adaptation and creation (Kastama, 1988; Spiteri, 2021). Points that support psychomotor are expected to be created when the cognitive and affective aspects are good. However, they need to be well planned for the results to appear when evaluating learning.

The failure of PKLH learning integrated with other subjects is because teachers could not emphasize PKLH materials, including its evaluation, when planning integrated PKLH learning. Therefore, students' PKLH materials are only good at the cognitive and affective domain but failed in the psychomotor domain. Though in Indonesia, PKLH has been taught since 1976 at all education levels in an integrated manner for 44 years, and the community behavior that reflects an environmentally conscious society is still far from expectations (Lullulangi, 2018).

The same research was also carried out by Kelani (2015), entitled the integration of environmental education in the science curriculum in secondary schools in Benin, West Africa. This research shows that all teachers support the importance of Environmental Education for students, then teachers creatively using various strategies in learning. Although statistically, teachers' ability on average is still low, teachers are empowered to improve professionalism to teach Environmental Education. The results are in line with this research to measure the ability of teachers to integrate science learning with PKLH, bearing in mind that one of the indicators of learning success is mostly determined by the teachers' ability. Therefore, what is the lack of teachers in this study should be improved through special coachings, such as increasing the teachers' ability to plan PKLH and science learning in an integrated way, carry out, and evaluate in West Africa. Learning outcomes are not only cognitive aspects and increased affective, but also psychomotor aspects so that PKLH abilities appear in the form of student behavior.

This research implies that the government is expected to reevaluate the PKLH learning model integrated with other subjects, such as religion, social science, and other subjects (Kuncara, 2016). However, the reality in their everyday life shows that the psychomotor domain of students in PKLH is invisible. Subsequently, this is similar to the behavior of the general public, who are also alumni of the school and have studied PKLH in an integrated manner, but their environmental cleanliness awareness is not visible. It means that integrated PKLH learning in Indonesia was unsuccessful.

The largest producer of plastic waste in the world is China, with 8.8 million tons annually. Indonesia ranks second, contributing 3.8 million tons annually, and 87% of 3, 8 million tones floating in the sea. Furthermore, this means every resident of Indonesia's coast is responsible for 17.2 kilograms of plastic waste floating around and poisoning marine animals Putri (2019) and llyasa (2020). Another evidence of the failure of PKLH learning in Indonesia is the results obtained by the Ministry of Health, which shows that only 20% of the total Indonesian citizens care about hygiene and health. It means that out of the 262 million population in Indonesia, only around 52 million care about the cleanliness of the environment (Indonesia, 2018). Based on these facts, it is time for the Government of Indonesia to review the integrated PKLH learning method because it has not produced significant results after 44 years of its implementation.

The contribution of these results is to evaluate integrated PKLH learning in Mamasa, which can also be carried out in several areas as a comparison to measure the success of its learning in each region. Therefore, its success in Indonesia can increase, and there can also be a comparison of PKLH learning in several countries.

The novelty of this research is an evaluation of PKLH learning integrated with other subjects, especially natural science taught in junior high schools, and provides an overview of the weaknesses experienced by teachers who teach these subjects. This study's results are hoped to be used as an evaluation material to determine policies, especially in basic education, so that integrated PKLH learning in the future will be better.

CONCLUSION

Based on the results and discussion above, it can be concluded that the ability of science teachers to integrate Population and Environmental Education (PKLH) with science subjects based on the 2013 Revised Curriculum at Public Junior High Schools in Mamasa Regency, which is separated into five sub-variables: 1) readiness for teaching, 2) knowledge of K13 Revision, 3) and knowledge of PKLH material is good, but the ability to integrate PKLH with science subjects was not good or weak in terms of 1) the ability to identify PKLH material in junior high school science subjects based on K13 Revision, and 2) the ability to plan, carry out, and evaluate PKLH learning integrated with science subjects of Junior High School.

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