THE KNOWLEDGE OF SMP SCIENCE TEACHERS ABOUT THE SUSTAINABLE DEVELOPMENT GOALS (SDGS) IN SUPPORTING EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) IN SCIENCE LEARNING

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Abstract

Partial science teacher big own sufficient understanding Good about Sustainable Development Goals (SDGs). However, only part small respondents who have deep understanding about Sustainable Development Goals (SDGs). Therefore that, human need increase caring to environment Because condition environment moment This become a attention main, then with the presence of ESD inside education For give awareness and understanding to environment For sustainability. Study This aim For know Science teachers' knowledge of Sustainable Development Goals (SDGs). science learning at school Intermediate First. Type study This use method qualitative, with give question interview to respondents. Sample in research This is a number of Science teacher participant as respondents in junior high schools in the district Wanasari, Regency Brebes. Data is collected with do interview in a way direct. Data analysis was carried out For understand results transcript interview, then describe situation and explain in a way descriptive, for get relevant information with objective research, then results the data made material For look for the right answer in accordance with objective study. Researcher conclude from results interviews obtained from the answers of the respondents were that the majority of junior high school science teachers have understanding regarding the SDGs. However, some really small understand the SDGs thoroughly deep. Respondent own understanding deep into the conditions environment moment this, incl problem relevant environment with the SDGs. The application of ESD has potential big For support SDGs and improve awareness individual to issues sustainability For more environment Good.

Keywords: sustainable development goals, education for sustainable development, science, environment

1   INTRODUCTION

Environment moment This own many problem like change climate, pollution air, water pollution, deforestation, waste plastic, loss diversity biology, and processing waste that is not Good pollute environment around. [1] Problem global warming, scarcity energy and crisis source food under circumstances environment Now become attention world's main. Man take profit full from nature, often use no way well, all for profit simply, no Once consider consequence potential to environment or its impact on the future [2]. Condition the can threaten balance ecosystem and health creature alive, therefore That need action For guard sustainability earth This for the future generation furthermore.

Overcome problem environment moment this, that is with there are SDGs which are objective development sustainable. Strategy development with global development targets up to 2030 which has been agreed by all countries to increase welfare humans and preserving sustainability earth [3] . One of key main in develop and improve quality source Power man is through education [4] . Therefore that , with the existence of this program expected can increase standard education in Indonesia [5] . SDGs can achieved through education and one possible strategy used is with *Education for Sustainable Development* (ESD) [6] .

All something that exists on earth This own impact to environment, for ensure that environment always awake with Good use sustainable, human must look after it. Through education, development sustainable can implemented. Sustainable development environment is one component as key For reach sustainable, so matter This become the more important For understood through education [7] . ESD equip participant educate with knowledge, skills and attitudes required For face and overcome challenge moment this, then from That with through ESD science learning can implemented Because science learning has enough learning wide about environment, diversity biology, ecosystems and so on.

This is also appropriate with opinion, one objective learn science learning is For get understanding about environment and sources Power necessary nature protected and preserved [6] .

The teacher is someone who gives knowledge to participant educate [8] . ESD in science learning can implemented by effective teachers For communicate education For development sustainable. Science learning provides implementation values action and responsibility answer social to participants educate as well as prepare For become participant students who play a role active in realizing a sustainable future.

Based on from background behind and there problems that exist in the environment moment This as well as For can understand and support the presence of ESD inside science learning then need exists knowledge regarding the SDGs, then study This will review question namely "How Junior high school science teachers' knowledge of Sustainable *Development Goals* in support *Education for Sustainable Development* (ESD) in science learning?."

Based on question that, then with did it study This aim For know Junior high school science teachers' knowledge of *Sustainable* Development *Goals* (SDGs) in support *Education for Sustainable Development* (ESD) in science learning. Result of study This expected can give outlook about the role of science teachers in supports SDGs and ESD and more effective for teachers to implement ESD.

2   METHODOLOGY

Study This is with use approach qualitative [9] . Study This use primary data source results interview. Retrieval sample with purposive sampling technique is determination sample set with consideration or objective certain [10] . Purposive sampling technique for determination amount subject study usually restricted, for example in study studies case the subject restricted and researchers use amount subject his research two nor One subject or with every group determined 2 subjects as focus study [11]. Study This done on several School Intermediate The first is in the District Wanasari, Regency Brebes, representative as many as 3 schools. Study This done with a number of a specific sample of science teachers as many as 6 respondents.

Study This use An interview containing 10 questions was designed For know SDGs knowledge. Instrument This use guidelines interview already developed [3] . Result of interview that, then done transcript interview and collect data for get results findings from results research conducted on respondents, next done data analysis for generate data from interview. Part from stage data analysis viz data collection, data reduction, data presentation and withdrawal conclusion. Presentation results analysis on research This use results analysis interview, so with use method the information about knowledge of the SDGs for science teachers can delivered with Good.

3   RESULTS

Based on from results interview about from objective study This namely in the description answer respondents involved as source acquisition of data and information in study This. Based on research obtained research on science teachers as many as 6 respondents in several junior high schools in the Wanasari Region, Regency Brebes. Got it respondent first and second from public schools, respondents third until six from school private. Produce interview and questionnaire data given at the time research, can seen in table 1.

Table 1. List of Research Respondents

Resp	Length of Teaching	School Status
Resp-1	14 years	School First (State)
Resp-2	24 years old	School First (State)
Resp-3	2 years	School Second (Private)
Resp-4	1 year	School Second (Private)
Resp-5	16 years	School Third (Private)
Resp-6	20 years	School Third (Private)

3.1 Middle School Science Teachers' Knowledge of *Sustainable Development Goals* (SDGs)

Based on research obtained researchers on science teachers as many as 6 respondents in some School Intermediate First (SMP) District Wanasari Regency Brebes, produce results findings from interviews that have been done at the time study.

Understanding SDGs, as stated by some teachers, explained to every respondents with different ways. A number of respondents explain that they know, while others don't. Respondent sixth No can explain the SDGs because his knowledge was minimal, however respondents other can give various answers. According to respondents first, "Relevant with quality education" SDGs put priority high on necessity education quality tall as means For support development sustainable. This matter in accordance with idea that education can help reach development sustainable [12] .

The goal has been set For increase quality life sustainability was also explained by respondents both said that, "A series goals set by the UN for reach more life good and sustainable humans living on earth." Explained the same goes for respondents third and fourth that very program Good For sustainability and development sustainable with objective prosperous a society that is a process of purpose its sustainable program. [3] State that the SDGs are plan specified development as objective global development to 2030 agreed by countries around the world to increase welfare human and caring sustainability of planet earth. SDGs are long from *Sustainable Development Goals*. That matter expressed by respondents fifth that, "The SDGs is *Sustainable Development Goals* or objective development sustainable." In accordance with *sustainable development* is translation from English which means development sustainable [13] .

Amount Sustainable Development Goals, goals development sustainable has 17 goals. Each respondents has give the right answer, would be but there is one respondents not enough appropriate in mention amount such as, "For problem cleanliness, then economy for example work, then For welfare." Mention amount the correct number by the respondent fourth that, "My one know there are 17." Mention amount the The same with those who have said by respondents first, second, fifth and sixth. In accordance with exists mention number The SDGs include 17 goals [3] .

Source Information about SDGs, respondents give explanation that they obtain information or knowledge about the SDGs via the Internet, as has been said by respondents fifth that, "From what I know from the SDGs Mother can the information from the internet." Explanation The same followed by the respondent first, second, third, fourth, fifth and sixth. However respondents second add the explanation that with You can also do it via MGMP obtained information in the term No only focus to the SDGs but explained more broad in essence Still related with the SDGs. Also added by respondents fourth that through journals and papers can obtain information the.

Experience follow Socialization or SDGs Seminar, mostly from the average respondent has not follow socialization or seminars on SDGs, as stated by respondents First that, "Not yet The same very." This matter said the same with respondents second, third, fourth, fifth and sixth A little different term with said, " No."

Respondent second add the explanation that is for example in MGMP take one theme related material with SDGs, p This also expressed by respondents fourth with add his opinion "If For socialization I Not yet Once only I can SDGs information from experience I following MGMP like that."

Contents of SDGs Goals, Several respondents say with appropriate explanation at the time done interview. Respondent fourth disclose that, "My one know There is poverty yes there poverty, continues change climate, and clean water sanitation there yes Keep going There is continued gender equality Possible That yeah." Respondent first, second, third, fifth and sixth obtained similar the mention. On respondents First mention like prevent poverty, hunger and sanitation. Respondent second like health, gender differences, reduce level poverty, hunger and counseling about health. Respondent third like cleanliness, economy, welfare, education and health. Respondent fifth like without poverty, without hunger, life healthy and prosperous. Respondent sixth like without poverty, without hunger, education quality and gender equality.

Response Environment moment this, respondent First opinion that the SDGs are relevant with objective education and respondents second opinion that change pattern think community at events for example consequence throw away rubbish haphazard that is flood, pollute environment, waste the term not enough. Respondent third opinion that, "If according to I'm in the neighborhood especially at school Still Lots level his consciousness still minimal student nor father teacher because Still Lots frequent students

throw away rubbish haphazard Still left inside class or maybe Already throw it away somewhere rubbish But Still scattered the term caring cleanliness from student That not enough although from father teacher already give directions order For throw away trash in place Still not enough." Respondent the fourth also delivers similar opinion that environment moment This Already broken and necessary exists socialization from government Because poor society responsible answer and not yet aware will impact from the actions he did. Respondent fifth, give his opinion like environment children like For study outside example for example in materials ecosystem. Respondent sixth only give A exists socialization.

3 Pillars (Social, Environmental and Economic), Third pillar of the SDGs, namely pillar social, environmental and economic each other related. Each respondents only a number of just the right one when asked at the time done interview. Respondent First only say that according to him social Possible Can change method think students, meanwhile respondents second, "Third pillar That means if connected with development sustainable right the term each other relate yes One with others social, economic and environmental yeah." Respondent third only disclose very good, meanwhile respondents fourth explain A little about explanation third pillar that, according to him that social in society village Lots experience poverty or class intermediate to bottom, environment Now the more day the more damaged Because not enough awareness society, and economy maybe in the village most class intermediate to lower. Respondent fifth give answer yes and according to him that each have character separately, then respondents sixth only give repetition of the word from question that is pillar social, pillar development economy and pillars environment.

Objective Sixth (Clean Water and Sanitation Eligible): Pollution Waste and Water, Access on clean water and sanitation worthy is one important needs For health and well-being man. Respondent First opinion that according to him in education there is possible *problem* solving given to student For can overcome problem environment and necessary actions done, meanwhile respondents second give his opinion Where public should get good information For guard cleanliness environment especially sanitation, a healthy society also begins from positive habits, respectively at least a house there are toilets and waste results industry before thrown away should processed or filtered so No endanger organisms that exist in the environment river.

Opinion from respondents third, according to him sanitation Still less and in the area near with factory possibility start polluted For consumed, meanwhile respondents fourth need exists socialization Because according to him in his area there is a septic tank close by with water channels as a result of the water polluted. Respondent fifth and sixth You're welcome opinion that with exists water treatment or more water filtration and sanitation Good.

Objective Seventh (Energy Clean and Affordable): Usage Energy, Energy clean and affordable is key For reach development sustainable and overcoming the challenge, then from That need exists savings energy For give sustainability in the future. Respondent first also said his opinion The same that with method save energy and should socialized, meanwhile respondents second with use conversion energy can reduce impact change climate, vehicle motorized moment This use energy electricity so that reduce pollution air and is one positive breakthrough from government For reduce level pollution.

Respondent third, reveal that, "If the more Lots vehicle is also a term need there's a lot of energy too But from facet environment Still not enough care with That yes Because children are also the term Already often use motorbike needs petrol is also increasing Lots." Respondent fourth with give socialization or appeal or necessary knowledge delivered to society so they can save energy. On respondents fifth and sixth only give his opinion with hook it up to learning about objective the with ways For reduce exists energy consumption.

Objective Third twelve (Handling Change Climate): Change Weather Impact on Agriculture, Handling change climate is one challenge biggest problem faced moment this, because That need exists prevention For minimize from impact the. Respondent First opinion that according to him with do prevention so that minimizer happen global warming and not use excessive ingredients, whereas respondents second disclose that, "Change climate That the factor wide So affected by global warming and so on, for anticipate it at least from party government especially agriculture convey information especially to farmers For Can anticipate changes climate." second respondents the You're welcome explain about global warming.

Respondent third, from facet his opinion that on the environment Wanasari Lots agriculture which in some month final Now the climate No uncertain, meanwhile respondents fourth, according to him weather moment neither does this uncertain, factor Now Lots company or factory pollute air, layers the ozone thinning and lowering quality. Respondent fifth, with his opinion that in essence the ups and downs rainy and hot usually exists change climate and provide appeal with adaptation exists change

climate as well as preservation diversity life, meanwhile respondents sixth, according to him with give socialization about change climate so can know method deal with it.

3.2 Findings

Based on research obtained respondents, produce results findings from interviews that have been done at the time study. A number of indicators used question interview namely the first knowledge about SDGs with results findings there is understanding SDGs and numbers objective development sustainable, second source knowledge main related to SDGs with results findings there is source information about SDGs and experiences follow socialization or SDGs seminar, third knowledge each SDGs goals with results findings there is fill SDGs goals and responses environment moment this, fourth knowledge three SDGs pillars with results findings There are 3 pillars (social, environmental and economic), and the fifth SDGs goals with results findings there is objective sixth (clean water and sanitation worthy) pollution waste and water; objective seventh (energy clean and affordable) use energy and purpose third twelve (handling change climate) change weather impact on agriculture.

Study This find that on knowledge about the SDGs obtained results findings like understanding SDGs and numbers objective that part big respondents own understanding base about the SDGs, though only few really master it. There is exists the respondent who provided his opinion is appropriate with definition of SDGs according to [3] that the SDGs viz design goals set by the UN for reach more life good and sustainable. SDGs are also relevant with education, opinion from respondents the next one is also appropriate with opinion that through education can obtain involvement in development sustainable that has must For responsible answer realize sustainable [14] . There are respondents the sixth did not explain whatever Because only little is known.

Majority respondents can mention there are 17 SDGs goals, however only some can detail goals the. Each respondents has give the right answer at the time done interview, will but there is one respondents not enough appropriate in mention amount, where respondents the precisely mention the content, no mention the amount. Mention exact number of SDGs by respondents fourth that is known There is 17. Disclosure the followed with right by other respondents. Specifically amount the The same with what was stated that the SDGs include 17 goals [3] . Next, on to the explanation fill SDGs goals, respondents can disclose the explanation with right, will but part big respondents No mention from goal 1 to objective 17th.

Source main information about SDGs for respondents is the internet or google, though there are those who also get it information through educational forums such as MGMP compliance with what was expressed by the respondents second to gain SDGs information through MGMP with its explanation more wide but Still related with the SDGs. Additions by respondents furthermore that is respondents fourth that obtain information the through journals and papers. Majority respondents Not yet Once follow socialization or seminars on SDGs. However, respondents second add the explanation that the MGMP discussed one related material with SDGs, which was also followed by additions explanation by the respondent fourth that Once get SDGs information from experience follow MGMP.

Knowledge about three SDGs pillars (social culture, environment and economy) still limited among respondents, though only a number of from they someone admits it relatedness between third pillar that, here the impact caused Because lack they in expand source information regarding the SDGs. According to expression from respondents second that third pillar if connected with development sustainable each other relate One with others social, economic and environmental. Opinion the Then followed with the same expression by respondents fifth, p This in accordance with what was stated that third pillar the each other related One each other who has interests and balance between one pillar with other pillars [15] .

A number of response from the respondents about condition environment moment This that is respondents second opinion that consequence throw away rubbish haphazard will result flood, pollute environment, lack of in processing results waste. Respondent third opinion that, still lack awareness and concern student to environment around. Respondent the fourth also delivers similar opinion that environment moment This Already broken and necessary exists socialization from government Because poor society responsible answer and not yet aware will impact from the actions he did. Less opinion appropriate expressed by respondents first, fifth and sixth only give A exists socialization. So from that, Based on results response about environment moment this, still many people are lacking conscious and responsible answer to the environment. For example, let trash that isn't processed outside will pollute environment and still lack awareness and concern For guard cleanliness environment school. Therefore that's the government need do socialization to public.

Problem environment that has been explained by some respondents in line with opinion about pollution environment found in the Citarum River, because increasing waste industry and home ladder cause accumulation waste that impacts the river result flood [16] . Processing there is also rubbish the most important thing For noticed [17] . Understanding to participant education must also be done implemented about environment with implementation to in science learning for increase literacy science [18] . Assisted by learning media it can be interesting too related applications with environment [19] . Learning about caring to rubbish through *Field trips* show that can increase caring participant educate towards environment and results Study [20] .

A number of SDGs goals identified by respondents including objective sixth clean water and sanitation, energy clean and affordable, as well handling change climate. Objective sixth (clean water and sanitation worth) highlighting problem pollution waste and water. Society needs it start with habit positive like own facility sanitation (MCK) at home each. Moment this, still there is lack in adequate sanitation, including adequate septic tanks near with waterways, which causes water pollution. Waste industry must processed moreover formerly before thrown away to river For prevent pollution environment. Surrounding area factory risky tall to pollution, so water treatment or filtration very important For get clean water. Need There is socialization to public as well as introduction method solution problem in learning For help participant educate overcome problem environment. Objective seventh (energy clean and affordable) underlines low caring environment related use energy. Required outreach and appeal For save energy Because increasing amount vehicle increase need energy. You have to study too covers ways For reduce use energy. Objective third twelve (handling change climate) discusses impact change the weather is not uncertain in agriculture. Change climate due to the large number polluting companies air, thinning layer ozone, and global warming. Government need give information and counseling For anticipate change climate, do prevention, and reduction use damaging materials environment. This matter in line with circumstances change climate moment this is his opinion that change climate become important thing pay attention, because Indonesia has riches abundant nature, climate tropical and vast oceans that result level high vulnerability to impact global warming and change climate [21] .

By general, obtained part big junior high school science teachers' knowledge of the SDGs, though There is various type depth understanding they. They also show sufficient awareness to condition environment moment this is relevant with objective development sustainable. Although part big knowing, but Still exists part small who has understanding deep and still lack source information about the SDGs, so teachers need explore more wide regarding SDGs and what should be done government recommended For increase socialization of SDGs in education related environment For increase understanding and awareness individual in reach objective development sustainable.

4   CONCLUSIONS

Based on from interview data that has been conducted explained previously known that some junior high school science teachers big own sufficient understanding Good about SDGs, proven with results the answer has been explained previously. However, only part small respondents who have deep understanding about SDGs. Besides that, respondent own understanding deep into the conditions environment moment this, incl problem relevant environment with the SDGs. Observing from results interviews that have been found that with via internal ESD science learning then can creation SDGs support and can increase awareness as well as caring individual to environment. Therefore that is, concern and awareness is important thing in activity protect and preserve ecosystem and nature.

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