Examination Improving Character towards Environment Care Through Their Creativity and Innovation at School (A Case Study at the Senior High School 3 Ternate City) *

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A R T I C L E I N F O	A B S T R A C T
	Purpose: Education is known to unravel environmental problems in various ways, including through the application of students' creativity and innovation. This study aimed to determine whether students' creativity and innovation, supported by environmental care character education in their curriculum, formed a part of their attitude and behavior. **Methodology**: In this qualitative research design, data collection was carried out by conducting in-depth interviews with informants and collecting various supporting documents during observation. The data was then analyzed descriptively using triangulation to test the data validity.

Findings: The results revealed that environmental care could involve a variety of subjects like principals, vice principals, geography teachers, and intra-school organizations to develop the character of environment care in schools. Students' creativity and innovation were also found useful in maintaining the school environment, supported by intra-curricular, co-curricular, and extracurricular activities. **Implication to Research and Practice**: This research will contribute to resolving environmental problems in schools, thereby reducing the impact of school hygiene through waste recycling into high economic value. By integrating environmental care character education in curriculum will also foster environmental care attitude and behavior among students.

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Introduction

Environmental damage has become a growing concern in recent years (Yasin, 2019) It is caused by continuous human activity adversely exploiting natural resources and the environment (Febriani, Farihah, & Nasution; Little, 1993; Tikka, Kuitunen, & Tynys, 2000) It is often a result of irresponsible human activity that is disrespectful to natural resources and climate. The change in the human behavior and attitude towards environment care should be a top priority in overcoming the environmental crisis (Burnes, 2017; Harahap, Saefuddin, & Indriyanto, 2018; Harari, Reaves, & Viswesvaran, 2016; Harich, 2010; Spaargaren & Mol, 1992) Environmental damage can only be reversed by fundamental and transformative shifts in human thought and action toward nature (Gal, 2019)(Gal, 2019; Shaw & Bonnett, 2016). One way to change behavior is through education. learning and teaching should keep pace with the times in order not to produce an obsolete generation. Three main competencies in children must be assessed and developed as a whole viz., attitudes, knowledge, and skills to grow and develop a character that cares the environment (Harahap et al., 2018; Harari et al., 2016) Education is solely responsible to develop such a positive personality and character formation in students towards environmental care(De Bruin, 2007; de Souza Fleith, 2000; Setyaningrum, 2018; Shumer, Lam, & Laabs, 2012; Uisimbaieva, 2014; Viswanathan & Linsey)

Education is a critical element in determining not only the nation's culture (Bellocchi, Quigley, & Otrel-Cass, 2016; Berlianti, Manasikana, & Hayati, 2019; Flutter, 2006; Fua, Wekke, Sabara, & Nurlila) or bringing new discoveries in science and technology (Febriani et al.)(Elias & Merriam, 1995), but it can also contribute to creating an active learning environment. With the help of moral curricula, students can develop their potential to have a religious character as well as such characteristics like self-control, intelligence, noble character, and the required skills and competencies (Boca & Saraçlı, 2019) Once such competency that scholastic education can help students to develop is developing the environmental care character and accumulate the required cognitive (knowledge), affective (attitude), and psychomotor (skills) abilities needed (Mustoip, 2018) It is important to raise the awareness about environmental care in students particularly when issues related to environmental damage are first found in schools. Students are found throwing garbage randomly even when there are garbage disposal bins in classrooms and in school areas(Rada et al., 2016) Studies have revealed that although schools follow strict hygiene discipline but still a few students lack awareness of environmental care, the use of trash can and maintain cleanliness (Harahap et al., 2018)

The character of environmental care in students is reflected through creativity and innovation (Muttaqin, Raharjo, & Masturi, 2018) Creativity is an activity or someone's ability to create ideas for new products effectively and imaginatively (Sari, Permanasari, & Supriyanti, 2017; Shaw & Bonnett, 2016; Suyidno et al., 2019).The students' creativity guides them in solving problems through classification and brainstorming. Teachers should be aware of the state of each student's creativity (Aliman, 2019; Allina, 2018; Bieraugel & Neill, 2017; Boca & Saraçlı, 2019) and try to develop it during the learning process, whether in-class or outside the class(Setyaningrum, 2018; Shumer et al., 2012;

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Steinemann, 2003) Developing creativity requires innovation which is described as a cognitive function, a new way of doing things, and which is to every individual or group of individuals (Gal, 2019; Gomez, Azadi, & Magid, 2020; Ramírez-Montoya & Hernández, 2016).Furthermore, innovation is also a research, development, and design activity that aims to develop the practical application of new values and scientific contexts, or new ways to apply existing science and technology to the production process (Hermino & Arifin, 2020; Hernández, Cooper, Tether, & Murphy, 2018; Hikmawan, Sutarni, & Hufad)

Innovation has 4 (four) characteristics namely: 1) uniqueness, reflected in distinctive characteristics such as ideas, programs, order, and systems; 2) new elements and ideas that have originality and novelty; 3) activities implemented through a planned program; and 4) having a purpose, a direction and a strategy to be achieved (Wang et al., 2017). A few studies have related innovation with scientific learning integrated with STEM subjects (Science, Technology, Engineering and Math) (Suwarno, Wahidin, & Nur, 2020; Suyidno et al., 2019) Any Science Classroom Creativity (SCC) model can depict collective creativity of science classrooms A discussion record-based prediction model can develop creativity and innovation using the clustering method (Chen & Tjosvold, 2002; Chin, Raman, Yeow, & Eze, 2012). The implementation of the outdoor learning strategy, varied with outbound activities, can also increase the creativity and innovation of elementary school students(Asrul, Ridlo, & Susilo, 2018; Awan, 2013; Mathisen & Einarsen, 2004; Mohajan, 2018; Muharlisiani et al., 2021) Online learning during COVID-19 gave a lot of opportunity to develop creativity and innovation Last, but not the least, creativity and innovation are also known to develop entrepreneurship education

In the context of the current study, both creativity and innovation can be utilized to resolve problems related to environment (Sloep et al., 2006) For example, if they are creative, they would stop littering and instead use innovation to process waste into a higher economic value or initiate such innovative activities that would trigger a clean school environment(Ayalon, Goldrath, Rosenthal, & Grossman, 2009; Paulus & Brown, 2007; Zaenuri, Sudarmin, Utomo, & Juul, 2017). Students' creative potential can also be exploited to achieve the goal of environmental care character at school(Fang, Xu, Grant, Stronge, & Ward, 2016) (Fang et al., 2016). Students' creativity has also helped in processing waste into trash fashion through project-based learning (PjBL) much useful in environment care (Suwarno et al., 2020; Suyidno et al., 2019) Environmental care character is thus seen as an attitude that constantly urges an individual to prevent damage to the surrounding natural environment and develop natural repair damage that has occurred (Baehr, 2017; Baer, 2015; Fang et al., 2016; Febriani et al.; Flutter, 2006; Fua et al.; Turkay, Hoffman, Kinzer, Chantes, & Vicari, 2014; Widowati, 2014; Yasin, 2019; Zaenuri et al., 2017)

The environmental care character must be implemented at every level of education. All school members must possess environmental care character, and exhibit it in improving the environment quality, increasing awareness about environmental care, and preventing environmental damage (Baer, 2015; Berlianti et al., 2019; Tikka et al., 2000; Widowati, 2014) Environmental care education should be taught to students from an early age, so that they can learn the importance of managing the natural resources and fostering responsibility for

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future generations While the environmental care character has grown into a strong mentality, it should become a fundamental need in everyone's life (Widowati, 2014)

The main objective of this study was to emphasize the integration of education with moral values and character building. The study reiterated how education can develop environmental care character in students by measuring students' care and sensitivity towards their environment. This is consistent with studies like (Ahmad, 2020; Arent, Sumarmİ, Utomo, & Ruja, 2020; Irawatie, Iswahyuni, & Setyawati, 2019; Kamaruddin, 2012; Keeney-Kennicutt & Gunersel, 2008; Mustoip, 2018; Muttaqin et al., 2018) which asserted that students can help in creating a healthy and comfortable learning environment through their creativity and innovation. By studying student's creativity and innovation in developing the environmental care character at school, this study aimed to find out the current state of environmental care character of high school students; 2) the role of students' creativity in developing environmental care character, and 3) the role of students' innovation in developing environmental care character.

Method

Research Design

This study examined students' creativity and innovation in developing environmental care character by using a qualitative approach (Amaratunga, Baldry, Sarshar, & Newton, 2002; Ametller & Pintó, 2002; Catalano, Haggerty, Oesterle, Fleming, & Hawkins, 2004; Chen & Tjosvold, 2002; Mustoip, 2018; Muttaqin et al., 2018; Paulus & Brown, 2007).A qualitative research provides details or collects knowledge about a phenomenon or a situation, systematically and intensively, through direct observation or content analysis, in order to obtain knowledge about the phenomenon (Mohajan, 2018) The research setting was Senior High School 3 Ternate City, located in Gambesi Village, South Ternate District, Indonesia, with an area of about 2 hectare (Figure 1).
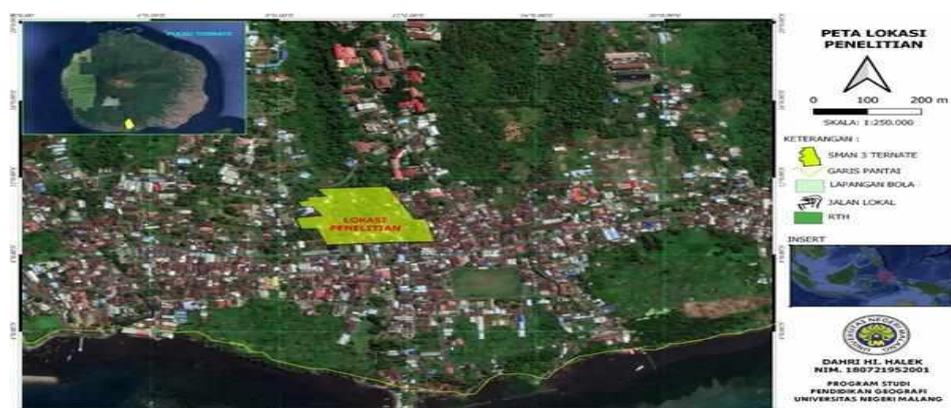

Figure 1. *Research Location Senior High School 3 Ternate City)*

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Research Sample

The research subjects were first-year students (class X) and second-year students (class XI) studying Social and Natural Sciences programs. Other informants were school principals, geography teachers, teachers as the Adiwiyata head, student council members, and janitor officers. The selection of the sample was based on the level of involvement of informants in the research setting and contributing to the experience and involvement in environment care, in general and the school environment. The list of informants in this study can be seen in Table 1.

Table 1

List of Research Informants

Name	Position	Total
Drs. Abubakar Katidja (AK)	Principal	1
Dani Umar, S.Pd (DU)	Vice Principal of Infrastructure	1
Djafran S Naya, S.Pd (DN)	Teacher of Geography	
Sumarni Syafar, S.Pd (SS)		3
Maiwati, S.Pd (MA)	(Adiwiyata Chairman)	
Suraida Naya (SU)	Janitor Officer	1
M. Reza D Nur (MR)	Head of Student Council (Student)	1
Astuty Basir (AB)	Student Council (Student)	1
Siti Nurhalisa (SN)	Student	2
Polanunu (PO)		
	Total	10

Data collection instruments and Procedure

In-depth interviews, observation of the school environment, and documentation were used as data collection instruments. Key informants were the Principal and Vice Principal who had broad information about the school environment (Suyidno et al., 2019)/ An interview guide was also developed to guide the informants about the research variables. Interviews were conducted with open-ended questions and in a comfortable atmosphere, enabling informants to answer all the questions. Table 2 presents research variables and indicators included in the interview guide.

Table 2.

Research Variables and Interview Indicators

No	Environmental Care Character	Creativity	Innovation
1	Clean the toilet	High curiosity	Valuable
2	Clean the trash	Fully confident	Valuable
3	Clean up school environment	Providing unique and creative ideas	Feasible
4	Beautify the classroom and school environment with plants	Devise new methods	Novelty
5	Take part in maintaining the garden in the schoolyard	Independent work with innovation	Valuable
6	Participate in activities	Beauty sense	Novelty
7	Keep the environment clean	Humor sense and flexible	Valuable

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Data Analysis

The research data was analyzed through qualitative techniques such as thematic content analysis. In this process, the data for each variable was first grouped, and then research themes were extracted. In the next step, data was sorted to remove the biased data and categories were decided based on specific concepts and themes. Finally, conclusions were drawn based on concepts and themes supported by documentation and field notes during observation. This procedure was carried out repeatedly to ensure the suitability of the data obtained with the study concept and theme.

Results

Environmental Care Character of High School Students

Student environmental care is carried out through intra-curricular, co-curricular, and extracurricular activities consisting of participatory-based environmental activities. It is implemented through activities, namely subject integration, local content development, classroom management, waste bank, and greenhouse. Environmental care program is one of the school's goals at Senior High School 3 Ternate City; however, the environmental care activities are one of the school's routine programs.

Figure 2: *Class Routine Picket*

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Students are given the freedom to decide for their classrooms. They feel freedom in cleaning, arranging space, and painting classroom walls to facilitate the learning process. Other activities that help develop environmental care habits, besides extracurricular activities and extracurricular activities related to the environment, included scouting with outbound activities. Scouting and outbound activities are extracurricular activities chosen by students to form environmental care character and culture to implement an environment-based curriculum(Mathisen & Einarsen, 2004; Muttaqin et al., 2018) Implementing environmental character education in schools can be done through learning, self-development through extracurricular activities, and school management (Aliman, 2019) activity was carried out once a week on Sundays, and it was hoped that students could learn from the surrounding environment to foster environmental care attitude and culture.

Students must be encouraged to behave and conduct well with the environment (Tikka et al., 2000; Torgler & Garcia-Valiñas, 2007) The environmental care aspects that need to be developed include habituation to maintain the school environment cleanliness, provide garbage dumps, separate organic and non-organic waste, provide cleaning equipment, and maintain environmental culture(Turkay et al., 2014; Viswanathan & Linsey; Widowati, 2014) The school also received help from janitor officers to ensure cleanliness every afternoon. The cleanliness of the school was everyone's responsibility, but there was a janitor officer who ensured cleanliness throughout the day. The janitor officer continuously checked the classrooms and school grounds and reported the cleanliness condition to the Adiwiyata chairman or the vice principal of school facilities and infrastructure.

One of the most creative processes of waste management in schools was the waste sorting process. Figure 3 exemplifies the students' creativity in managing waste disposal in schools.

Figure 3. *Different types of waste*

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In this process as seen in Figure 3, the waste management team at Senior High School 3 Ternate City, devised the 3R principle, viz., Reduce, Recycle, and Reuse. Students already knew how to sort the waste, based on the logos, students became familiar with organic waste, non-organic waste, dry waste, and wet waste. Environmental care character should become the attitude and behavior of students in everyday life (de Souza Fleith, 2000; Fang et al., 2016; Flutter, 2006; Fua et al.; Kim, Roh, & Cho, 2016) The development of environmental care character proves good if it is supported by an integrated system.

The organizational structure of the team in charge of environmental character education at Senior High School 3 Ternate City is seen in Figure 3.
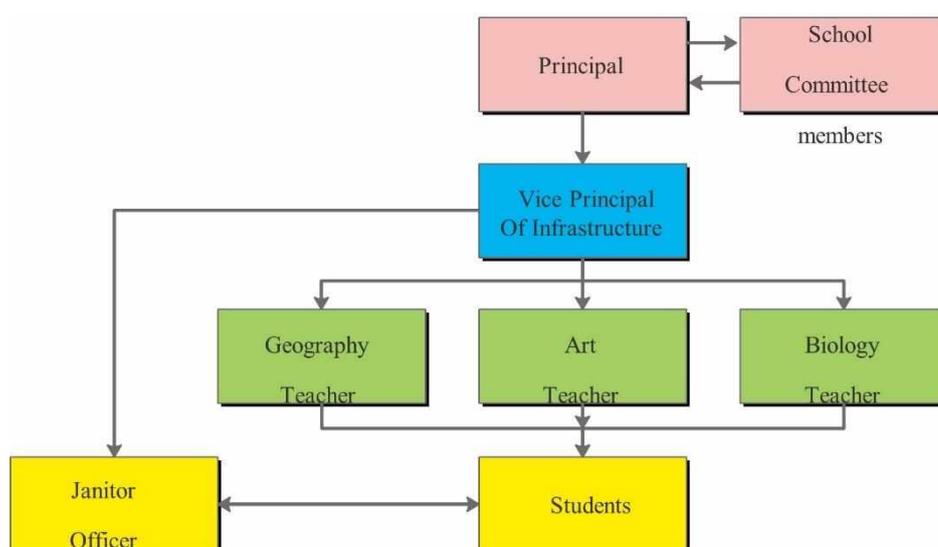

Figure 4. *The personal hierarchy of the team for character education care for the environment*

Figure 4 shows that environmental care education is the responsibility at all levels of the school hierarchy. The school leadership assigns responsibility to the vice principal of infrastructure to ensure that geography teachers, handicraft arts teachers, and biology teachers integrate the learning to develop environmental care character (Interview DU, 23 October 2020). Besides, there is a school program organized by the Environment Office of Ternate, namely the Adiwiyata school program. This program is a school activity program specifically oriented to schools' cleanliness, beauty, and greening. In the interview with the Adiwiyata program head, it was revealed that cleaning the school premises every Saturday morning was a routine activity carried out with cooperation. Students participated in this activity by planting trees, flowers, repairing dead flowers, and sorting waste. Figure 5 exemplified the planting activity.

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Figure 5. *Planting Activity*

Figure 5 is the image of a group of students planting Spinach Cabut/*amaranthus gangeticus*. It is a vegetable plant that contains a lot of nutrients that humans need. The activity is also one of the routine activities every Saturday morning. Therefore, each class has a vegetable garden, like the one seen in Figure 5. Besides planting trees, vegetables, and flowers, the cleaning activity was also carried out regularly every week on Saturday morning between 07.00 - 08.30 IET (Indonesian Eastern Time). All students and teachers participated in this activity.

Student Creativity in Implementing Environmental Care Characters

People feel that all waste must be kept away from the environment because it is trash. However, some waste can be used as raw material to make art objects. With willingness, skill, and creativity, the waste can be processed into more valuable goods having aesthetic value(Marnİ & Harsİatİ, 2019; Mathisen & Einarsen, 2004; Muttaqin et al., 2018)). If used properly, the waste can be a positive asset. Students can use the waste for making ieces of art. With the help and guidance of the art teacher, students can learn to manage the waste such as cardboard, used packaging, plastic, and used bottles as raw material for artwork. This activity taught students how to recycle the used items and create something valuable. By doing so, students are following the principle of waste management.

As said earlier, creativity and innovation must be a part of the character curriculum (Ametller & Pintó, 2002; Arent et al., 2020; Harich, 2010; Hermino & Arifin, 2020; Mathisen & Einarsen, 2004) Creativity is finding something new, and innovation is modifying the existing one (A. Lewis, 2004). In every school, the students' creativity is displayed in a large glass cabinet in the principal's room. Garbage recycling works are displayed in almost all classrooms, by making use of waste objects like cardboard, plastic, bottles, CDs, rags, ice cream sticks, and straws. Other student artworks include pictures, such as nature paintings

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and other pictures Figure 10 presents a few examples of student's waste management.

Figure 6. *Student's Artwork from dried flowers*

Students' creativity is not limited only to transforming waste into valuable objects. Students at Senior High School, 3 Ternate City, have also shown their creativity in utilizing the empty land in the school premises, as seen in the Figure 7.

Figure 7. *Water Spinach Harvesting Process*

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Figure 7 exhibits students engaged in harvesting water spinach (Ipomoea aquatic). It is one of the vegetables consumed by most people in Ternate City. Students sell the harvest in front of the school gate. This activity is an example of both students' creativity and entrepreneurship.

Innovation in Implementing Environmental Care Characters

Innovations initiated by high school students are also an example of their creativity. One of the innovations that the students were seen engaged was transforming wooden pieces into beautiful handicraft items (Figure 8).

Figure 8. *Students making wooden handicrafts*

Discussion

It is obvious from the findings that the character of environment care contributed to develop the character of students. This was made possible through the environmental care programs launched by the principal and vice-principal under the school's intracurricular, co-curricular, and extracurricular activities (Rada et al., 2016; Ramírez-Montoya & Hernández, 2016; Rokhman, Hum, & Syaifudin, 2014) This finding is in line with the importance of character education to instill what is done by teachers and parents, so that students have a good understanding of the process of maturation of thought, personal maturity, and maturity of behavior. With this understanding, it will be possible to minimize negativity and diversions from the environment care (Hermino & Arifin, 2020) Several instances were found during this research that were similar to activities like local content development, classroom management, waste banks, and greenhouses (Story, Nanney, & Schwartz, 2009)

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The school staff and the students were found involved in co-curricular activities such as orientation about school life for fresh students, field studies, social services, research classes, and school literacy programs. Some of the specialized activities that developed character care for the environment included cleaning the classroom and growing vegetable crops (Mathisen & Einarsen, 2004)). This research also proved that character formation can be done only with a holistic education, when the school administration is able to stimulate and direct students to character value indicators (Arent et al., 2020). In addition, the character development of caring for the environment can be carried out by students while at school. Learning about environment care in schools develops students' potential. The value system and norm system in school culture should be optimized to support the process of strengthening character education for students in schools and the school environment on an ongoing basis (de Souza Fleith, 2000). Both systems can work through synergistic collaboration between teachers and students in the context of strengthening environmental care character education.

One of the advantages of quality education is to produce quality human resources. The school administration and teachers should play an important role in providing learning and encouragement towards developing a caring character for the environment (Allina, 2018; Ametller & Pintó, 2002; Awan, 2013; Sumarmİ et al., 2020).Learning that involves students directly in the field can increase environmental awareness (Sumarmi et al., n.d.). additionally, the form of activities carried out by students can support the *adiwiyata* program, which is one of the long-standing programs for schools in Indonesia Many students across the nation participate in the *adiwiyata* program at district, provincial and national levels. All participating schools are assessed by a committee to grant awards and prizes. In Indonesia, the *adiwiyata* program has changed every school's condition into a comfortable, clean, and green environment, filled with trees and flower plants In addition, this program aims at teaching students to love their environment. Students who are involved in activities such as planting trees and flowers, cleaning the schoolyard, sorting organic and inorganic waste have higher knowledge, attitudes, and environmental care

The study also provided evidence of the creativity and innovation of students in implementing the character of environment care. The school authorities provided them training or teaching to make use of the old goods or recycle the waste items into more valuable ones(Yasin, 2019) It turned out that the waste was used with the will, skills, and guidance by the teacher, to create a clean and healthy school environment(Allina, 2018) The waste management and environment care became an indicator of the assessment of *Adiwiyata* schools in Indonesia. Based on this assessment, every school planned its next Adiwiyata participation and win the award. Currently, many schools are in the process of reassessment and research analysis how to improve students'

It was also found that students transformed waste into useful items within the school environment such as flowerpots, trash cans, and decorative pieces. Flowerpots were made from bamboo pieces, which was the best example of the creativity maximized. It was felt that creativity still needs to be improved through proper scheduling and planning. (MA Interview, 24 October 2020). A few students' creativity was reflected in the subject of

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cultural arts, which needs to be developed. In such a situation, teacher-oriented learning is considered ineffective as these activities require action and involvement in the environment (Allina, 2018). Therefore, new learning practices are needed to increase students' creativity. One way to increase understanding is through educational games (Torgler & Garcia-Valiñas, 2007; Turkay et al., 2014)

An increase in students' creativity should reflect the character of caring for the environment. It is necessary to study learning materials that are integrated with waste recycling activities, namely learning geography (DN Interview, October 23, 2020). The geography lessons include topics on the use of natural resources and the environment, including recycling of waste. Using used items as works of art proves students' concern for the environment Previous research also supports that learning media can increase students' creativity and care for the environment in addition, involving students in activities can increase students' participation and concern for the environment (Flutter, 2006). Recycling the used goods provides benefits for students' mental development and creativity and can increase their independence and develop the power of initiative in them (Steinemann, 2003)

Students also make use of their creativity by innovation. Innovation means creating new objects from the old ones or recognizing problems in the school environment and finding their solutions A teacher plays an important role in providing training to students and accompany them in solving problems. In this way, students gain new experiences and are able to create innovative things (Muharlisiani et al., 2021) is not only that teachers and students help to make the school environment clean, but it also requires the support of the principal and the teacher council. All of them unitedly can deliver and support the school to become a part of the *Adiwiyata* school program assessment (Widowati, 2014)

This research also suggested that students' creative and innovative abilities can enhance their entrepreneurial skills(Ametller & Pintó, 2002) Innovative abilities can also increase their environmental awareness (Spaargaren & Mol, 1992) critical thinking skills (Nelson, Wilson, & Yen) and problem solving skills Innovation in environment is the important demand for the world of education as environment always requires individuals with innovation who can adapt to environmental changes and survive in a dynamic and fierce globally competitive world(Keeney-Kennicutt & Gunersel, 2008; Kershaw et al.; Kirsh, Krupa, Cockburn, & Gewurtz, 2007) Every child has the potential for innovation. These potentials include great curiosity, asking questions, high imagination, daring to take risks, and enjoying new things (Nelson et al., 2009). In addition, parents, teachers in schools, and the environment are important factors that significantly provide opportunities for the development of innovation (Tikka et al., 2000; Torgler & Garcia-Valiñas, 2007)(One of the learning approaches that can be used to train students' innovation is to develop a caring character for the environment .

Education is an important thing in shaping nation's innovation. Building national innovation through education can be done with effective learning. Education is expected to produce fully trained and developed people to actively participate in national development Seeing the strategic importance of education, the government continues to

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make various changes and improvements to the education system through the Ministry of Education and Culture to make a smart and innovative nation. Innovation education is developed to build good innovation (Rada et al., 2016; Rokhman et al., 2014). The development of innovation can increase students' moral knowledge, moral feelings, and moral actions. The formation of moral values as the development of innovation for students includes three components: (1) moral science, (2) moral behavior, (3) moral action.

Conclusion

The study can be concluded with the affirmation that environmental care character is reflected in students' attitudes and behavior as it is supported by various elements of school education including the principal, vice principal and teachers. This attitude and behavior were seen in students' participation in school cleaning activity programs and the *Adiwiyata* program. Student creativity was seen in managing the school environment and was seen growing through various extracurricular, co-curricular and extracurricular activities. Examples of students' creativity was visible in transforming waste goods into trash cans, flower vases, and other handicrafts, as well as planting vegetables and selling them as an entrepreneurial activity. The students' innovation in managing the school environment also developed because of the teacher's consistency in integrating environmental character education into learning. One example of students' innovations was seen in changing the used wood into colored paintings or painting the classroom walls by writing motivational quotes.

The study faced a few limitations too. It was very peculiar that students' attitude and behavior were not strongly reflected in some of the activities. Secondly, the level of creativity and innovation of students was not measured quantitatively, however, the innovative products prepared by students utilized the waste items into goods of high economic value and ensured their qualitative solutions to environmental problems. Recommendation for future research include rewarding students for their creativity and innovation towards environmental care. It is also recommended to evaluate the learning effectiveness of students' creativity and innovation towards the environment. Lastly, there is a need to develop students' creativity and innovation and obtain greater commitment from all the school elements to prepare students for the 21st-century global environmental challenges.

This research has the practical implications of shaping the character of environment care and develop students' creativity and innovation through practical methods. It can also increase environmental awareness in the school atmosphere. At the community level, this study can motivate individuals and organizations to amend their behavior and learn to utilize waste or plastic waste and transform them into economic value. This would also improve the knowledge of the community about the environment.

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Authors' Contribution

It is to confirm the contribution of all co-authors in preparing this manuscript. Dahri Hi. Halek prepared its conceptual framework, methodology, data analysis; the process of reviewing and editing the manuscript and sending for publication was carried out by Dahri Hi. Halek, Sumarmi, Budijanto, and Dwi Hari Utomo. The corresponding author ensured that the manuscript is given the final shape until it is published.

Conflict of interest

The authors confirm that this manuscript has no conflict of interest with schools, groups, data, and any individual in writing of this manuscript.

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