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Implementation of Waste-Management-Based Contextual Learning through Teacher-Working Group (KKG) at Elementary Schools in DIY Province

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Abstract

This study explores the implementation of waste-management-based contextual learning strategies through Teacher-Working Groups (KKG) in Yogyakarta. The purpose of this study was to examine how contextual strategies with waste management materials are implemented at schools. Using a qualitative approach with a case study design, this study investigated the planning, media, challenges, and implementation of waste management materials in five elementary schools in Sleman. The data collection process included in-depth interviews with teachers and members of KKG MI Sleman, observation during learning activities, and documentation. The findings indicate that waste-management-based contextual learning strategies have been successfully integrated into KKG MI Sleman agenda, with five schools already implementing waste management materials across various subjects such as Science, Civics, Fine Arts, and Environmental Science. Teachers have introduced the 3R concept (reuse, reduce, recycle), which was tailored to the needs and learning outcomes listed in the learning modules for children. Despite challenges related to infrastructure, consistency of teacher activities, and strategy implementation; teacher awareness of waste management, and teacher coordination within the KKG significantly improved.

Keywords: *: Elementary School, Learning Contextual, Management Waste, Teacher Working Group.*

INTRODUCTION

Yogyakarta Special Region (DIY) faces ongoing controversy regarding waste management policies. A notable example is the city's paid waste disposal policy, criticized for burdening the public without addressing core waste management issues (Ruswendi et al., 2024). Decentralization efforts by the DIY Regional Government to create a more independent waste system encounter substantial challenges, especially

with limited infrastructure and city-level human resources (Mulasari et al., 2014). The closure of the Final Disposal Site (TPA) escalated the crisis, leading to visible piles of waste at multiple points and unauthorized dumping along roadsides, tarnishing the city's tourism image and provoking public protests (Yusari & Purwohandoyo, 2024).

Waste is defined by Law No. 18 of 2008 as solid or semi-solid material originating from human or natural activity that may be biodegradable or not, and is no longer useful, thus disposed of in the environment (Nurikah et al., 2022). Despite this, Yogyakarta's waste transport policy is controversial, as community members feel burdened with inadequate guidance and facilities for managing waste (Ambina, 2019). In 2024, the City of Yogyakarta faced daily waste volumes reaching 200 tons, with management facilities handling only 170 tons per day, leaving 30 tons unprocessed. Closing the Piyungan landfill in March 2024 further aggravated waste accumulation across the city. Although mitigation efforts using vehicles were made, waste management remains a pressing and unresolved issue (Firdausi, 2024).

This condition shows that waste management in the city of Yogyakarta requires a more comprehensive and participatory approach to raise awareness of waste management. (Sunandar et al., 2020). Implementation of education in society, towards waste management, and one way, periodically, involving habits from schools and teaching from teachers to students. Strengthening knowledge about waste management can start from elementary school to facilitate communication between the community and the central government in order to create effective solutions. (Sudiman, 2023). Research focused on the environment and education will raise awareness on the importance of environmental protection by using education as a basis for thinking (Widiawati et al., 2022). This research began with pre-research with observations, a review of studies on waste education in Yogyakarta, and interviews with teacher-working groups.

Teachers play an important role in building students' character and environmental awareness from an early age. The method teaches students about waste management using the 3R method, which is a practical and easy-to-understand approach to reducing the negative impact of waste in the environment (Zuhriyah, 2025). Teachers can help students understand the importance of choosing more environmentally friendly items and reducing the use of disposable items by teaching the concept of Reduce. Students are encouraged to adopt a minimalist lifestyle, such as bringing their own drinking bottles or using reusable ones. Bagcloth, in a way, can

directly reduce the volume of waste in school and home (Al Farabi et al., 2025). Providing contextual examples from students' daily lives will facilitate the implementation of waste education in the environment. This research targets 5th and 6th-grade students, who are the agents of change and environmental maintenance around the school.

Contextual learning strategies based on waste management teach students to utilize return items that can still be used, such as used paper for crafts or plastic bottles for plant pots. Meanwhile, the Recycle concept teaches students to recycle waste into something useful. The 3R method not only teaches students to maintain a clean environment but also provides teachers with an understanding of the values of sustainability and responsibility towards the Earth (Lukhi Mulia Shitophyta & Jamilatun, 2021). This learning is an important step in developing a young generation that cares to the environment and has positive habits which also can be applied at school.

Implementing contextual strategies and practicing the 3R stages, namely reusing, reducing, and recycling, is one effective approach to be contextualized in community life, especially in the school environment for managing and handling various types of waste (Putri, 2025). By applying the 3R principle, we can significantly reduce the negative impact of plastic waste, both safe and toxic. (Hartawaty et al., 2025). Reduce is a way to manage waste by reusing unused items. We can reduce the amount of waste produced by reusing those items. Getting used to not throwing away plastic bags and looking for ways to reuse them is an example (Fauziah et al., 2025). Reducing means trying as much as possible to reduce the number of items or materials used. To avoid massive waste production, this method involves reducing the use of items that can produce waste, such as disposable items. For example, bringing your own shopping bag when shopping can minimize the use of plastic bags. Recycle is an effort to reduce the amount of waste produced through recycling process. In this case, it is important to distinguish inorganic waste from organic waste. In the recycling process, inorganic waste such as used plastic bottles, magazines, used paper can be collected and reused. Recycling reduces the amount of waste produced and utilizes materials that are still useful (Sudiman, 2023).

The planned contextual learning strategy is given to the MI KKG as teamwork at schools. These strategies help students connect what they know with daily actions (Hamruni, 2015). The more students use what they learn in real life, the more useful it becomes (Aura Yolanda et al., 2024). The main aim is to help the MI KKG find lessons

that students can practice at school and their daily life. Studying and understanding each learning step with related experiences can be combined with Islamic studies in elementary madrasas (Jumadil Hamid et al., 2024).

So far, classes have remained teacher-centered as the primary source of knowledge, with lectures being the most popular learning method. To achieve different goals, contextual strategies are needed, introduced to the MI Teachers-Working Group (KKG) and subsequently implemented by elementary school students (Fauziah et al., 2025). This strategy does not require students to memorize information and materials but encourages them to collaborate with teacher work groups in each school. Based on observations, teachers at KKG MI who focus on contextual learning experiences, produce active, innovative, and creative students.

When students are confronted with environmental problems and interact with them, they will remember and apply the contextual learning they have learned at school (Iduard et al., 2025). To date, there has been no research specifically integrating contextual learning strategies based on the 3Rs (Reduce, Reuse, Recycle) through the Elementary School Teacher Working Group (KKG MI) as implementation partner in waste management at schools. Activities involving KKG MI in designing and implementing environmental-based learning strategies at the school level are still minimal. Furthermore, there has been no structured intervention that connects teachers and students in environmental learning that involves a contextual approach. Most existing research focuses more on aspects of environmental education at schools without directly involving collaboration between teachers and students in waste management practices. This indicates a gap in mapping the relationship between KKG MI, students, and effective contextual strategies, which needs to be filled to create a more integrative and applicable learning model in addressing waste problems in the school environment.

Previous research discussing waste management strategies in Sleman Regency explained that there was training to improve human resources, the condition of facilities and infrastructure in a well-maintained condition, the existence of a budget planning team, which would result in SWOT and good coordination. (Kusuma et al., 2024). Another discussion in the study of 3R Education in Waste Management was done at Adiwiyata Schools, provided supporting waste management infrastructure, such as separate trash bins for organic and inorganic waste, with this activity students could sort and dispose of waste according to its type, teaching students to improve

environmental cleanliness. The impact is decreasing garbage scattered in the environment school because there is already trash bins with type waste (Kusuma et al., 2024). Relevance other research on organic and non-organic waste also could be viewed in YPAI MI Al Mashriyyah. There, students learned the organic and non- organic waste management. For example, students chose products and packaging that could be recycled so that reduce pollution. (Samudra et al., 2024). The difference between this research conducted and the current research is regarding different objects as a step in introducing contextual learning strategies involving KKG MI Sleman and students to learn waste management in the school environment.

The Elementary Madrasah Teacher Working Group (KKG) acts as a mentor within the school environment to strengthen students' understanding of waste management. The research, which involved the KKG MI, allows for flexibility and innovation that teachers can adapt to the school's circumstances. The Sleman MI Teacher-Working Group comprises several schools in the Sleman-Yogyakarta area, and only five schools were sampled for contextual strategy learning. In this study, working group teacher has been grouped effectively, through online material development, and has established cooperation with universities to build collaboration between teachers and students in formulating learning strategies at schools.

Process is carried out through the stages of planned waste management strategy that will be introduced to the teacher-working group. This aims to development professional teachers as well as to create sustainability strategies between teachers and students in the school environment. This study focuses on two subjects: teachers who are members of the Sleman MI KKG (Residential Teachers Working Group) and students who will be the final subjects in waste management with 3R. Teachers who are educated about waste issues can better understand the impact of waste in the environment and teach it to their students (Setiawan et al., 2024) . Teachers have a strategic role as agents of change who can instill environmental values, such as sorting organic and inorganic waste, recycling, and reducing the use of single-use plastics. By providing real-world examples and practical knowledge, students will not only have ecological awareness but also be able to apply it in their daily lives (Mubarokah et al., 2025). Therefore, this study will focuse on the 3R activities in the school environment, waste education for teachers and students in the contextual based management waste through KKG MI agenda.

This study aims to map the relationship between the Elementary School Teacher Working Group (KKG MI), students, and the implementation of contextual

learning strategies based on waste management in Yogyakarta. Despite efforts to teach waste management at schools, the role of KKG MI, student engagement, and the effectiveness of contextual learning strategies in waste management have not been clearly mapped, this study will identify how KKG MI designs and implements learning strategies that integrate the 3R concept (Reduce, Reuse, Recycle) at schools, and analyze student participation in understanding and implementing the 3R principles

METHODS

This research used a qualitative approach with a case study design to explore in-depth the implementation of waste-management-based contextual learning strategies through the Teacher Working Groups (KKG) and students as learning objects in implementing the 3R method (Reduce, Reuse, Recycle) in Sleman City. Research method focused on gaining in-depth understanding of phenomena through interviews, observations, and document analysis, emphasizing meaning and context (Kusmarni, n.d.). Case study is a research design that deeply analyzes phenomena in specific contexts, collecting relevant data to understand particular events or issues.(Achjar et al., 2023)

The qualitative approach was chosen because it provides a deeper understanding of the phenomena occurring, while the case study design allows this research to investigate contextual learning practices in a specific context, namely the schools participating in the KKG MI Sleman. This design provides a more detailed picture of the implementation of waste management-based learning strategies in school environments with varied characteristics.

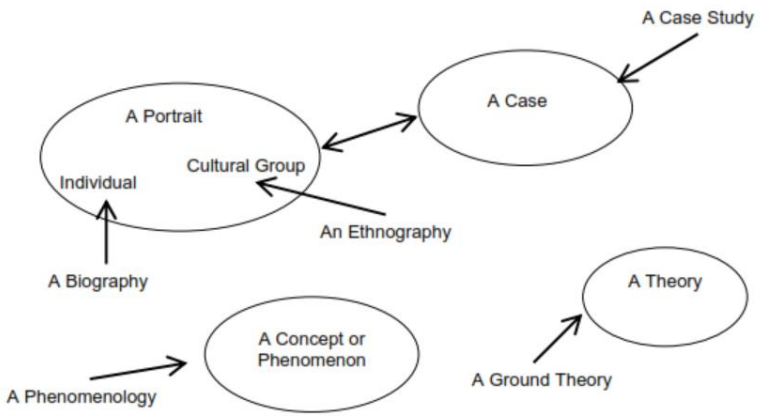

Figure 1. Concept of Studies by Creswell (Creswell & Creswell, 2017)

Creswell argued some characteristics of case study, are: (1) identifying "cases" for something study; (2) The case is a “system bound” by time and place; (3) Case studies use various sources of information in collecting the data for giving a detailed and in-depth description of the response of an event and (4) Using a case studies approach, the researcher will “spend” time in describing context or settings for something case (Faridl Widhagdha & Ediyono, 2022). , case study material management waste and form activities carried out at school (Creswell, J. W., & Creswell, J. D. (2017)., n.d.)

The research was conducted at five schools that are part of KKG MI Sleman: MI MBG, MIS DRS, MIN 1 SL, MIN 2 SL, and MI Al KR in Yogyakarta. These locations were selected based on the schools' involvement in the KKG MI Sleman and their implementation of waste management programs. The research subjects consisted of teachers who are members of the Sleman MI Teachers-Working Group (KKG), who play a role in designing and implementing contextual learning strategies based on waste management. The research objectives included the implementation of the 3R method in the school environment, including the learning materials presented to students and also the activities carried out at schools to manage waste using the 3R principles.

The data collection process for this study consisted of three stages: pre-research, research, and post-research. In the pre-research stage, observations were conducted to determine appropriate case studies and to collect initial data on waste management conditions in the selected schools. In the research stage, data were collected through in-depth interviews with teachers who are members of the Sleman MI Teachers-Working Group (KKG), who provided their perspectives on the implementation of contextual learning strategies and the challenges faced in instilling the 3R concept to students. Furthermore, documentation related to learning activities and waste management at school also served as data sources. The post-research stage included analysis of collected data and identification of obstacles faced by the Sleman MI Teachers-Working Group (KKG) in implementing this strategy to their schools.

Data analysis was conducted inductively to find relevant patterns in student learning materials that were contextually applied at schools. Thematic analysis techniques were used to identify key themes emerging from interview and observation data, which were then categorized to understand the application of the 3R method in the context of waste management. Data validity was obtained through two main techniques: source validation and member checking. Source validation was conducted to ensure the consistency of information obtained from various data sources, while member checking

was used to verify the accuracy of the collected data by requesting clarification from informants involved in this study. Thus, this study aims to provide a clearer and more in-depth understanding of the implementation of waste management based contextual learning strategies at schools through KKG agenda

RESULTS AND DISCUSSION

The research results showed that the waste management based contextual learning strategy in Sleman Islamic Elementary School (MI) and Yogyakarta students' KKG (Islamic Elementary School (MI) faces several challenges, including the material and implementation strategies. However, there are several positive results indicating that three schools have successfully implemented waste management practices. Research indicates that MI MBG has integrated the Adiwiyata program into environmental-based learning at school. Environmental materials are integrated into several subjects, including Science, Civics, and Arts and Culture. Teacher involvement at those three schools is evidenced by participatory teacher mentoring and counseling for students.

The results of this research are strengthened by the observations result and also interviews. One of the interview results with a homeroom teacher of grade 5 at MIS DRS said *"Waste management outreach has been incorporated into school activity plans, with a focus on integrating it into learning and encouraging independent waste management within the school environment. Observations showed that students in grades 1 to 6 routinely throw the rubbish by classifying the type."*

Implementation of Waste-Management-Based Contextual Learning Strategies on School Subjects

Teachers at Sleman Islamic Elementary School (MI) Yogyakarta Teachers Group (KKG) have successfully integrated waste management concepts into their subjects, particularly in science, citizenship, and arts and culture. The methods used vary, with some teachers employing real-life examples and practical activities to make learning more relevant and contextual to students' lives.

Based on interviews with five teachers, the members of the Sleman MI KKG (National Teachers-Working Group), waste-management-based learning materials received primary attention align with the city of Yogyakarta provided instructions for independent waste management. One teacher explained, *" To facilitate children in*

understanding contextual material, practices must be carried out and synchronized with everyday life." The results of observations showed that some subjects are already synchronized with waste-management-based contextual learning materials, for example: MI MBG on the subject of Science, Citizenship, Arts and Culture; MIS DRS on the subject of Science, Citizenship, Arts and Culture; MIN 1 SL on the subject of Science, Citizenship, Arts and Culture, Entrepreneurship; MIN 2 SL on the subject of Environment, Natural Sciences; and MI Al KR on the subject of Environment, Natural Sciences, Arts and Culture.

During the learning process, course is given in a real and contextual manner starting from the fourth grade. Meanwhile, at grades 1 to 3, only persuasive instructions are applied in subject that has an integration of environmental knowledge. Grades 4-5 becomes the focus of waste management-based learning. In the interviews section, the science subject teacher at MIN 1 SL explained that, the upper class is a key focus for contextual waste management lessons, involving activities like using organic waste as fertilizer and composting for ecosystem and plant-related subjects. The strategy includes experiments and trials on managing sorted organic waste at home.

Education in waste management is used as a discussion material at Sleman MI KKG meeting to see how the schools are able to become the pioneers in implementing learning integrated with the environment.The secretary of Sleman MI KKG initiated that environmental conditions and curriculum are often discussed in small groups of teachers, to align perceptions of learning outcomes at school. The results of the learning strategy are designed to be disseminated to the Sleman MI KKG including mature stages and mentoring strategies to several teachers. In the planning stage, teachers will be assisted in identifying materials through teaching modules that can be contextualized with waste-management-based material. Teachers only need to select one subject contextualized with waste management matters. Researchers provide input to the schools MI MBG, MIS DRS, MIN 1 SL to carry out a harvest project at the end of the semester by involving practical waste management results. Modifications to the teaching module are also carried out for the practical learning process or activities that go through the 3R stages in waste management.

The teaching module at 5 schools have implemented 3R activities in the contextual subjects of science and the environment. Meanwhile, for the arts and culture subjects, teachers have been applied the contextual learning practices of waste management include sorting inorganic materials that are safe and easy to be created by

students, such as cardboard, plastic bottles, scraps of cloth, bottle caps, used food plastic, and straws. The types of inorganic waste obtained through the application of 3R are used in educational activities to create two- and three-dimensional works of art, and the final results can be used or displayed in school activities. The sorting of inorganic and organic waste not only functions as a creative medium, but also as an educational tool regarding the concept of recycling and reusing used goods by students.

Based on the results of interviews with teachers at MIN 1 SL and MI AL KR, 3R activities have been implemented at schools with the aim of instilling an independent attitude of students in managing classes at school environment. Inorganic waste that has been collected is formed into some learning media. Especially in arts and culture subjects, this strategy is evidence that the waste-management-based learning makes students more creative. Documentation also showed that at MIN 1SL grade 4, sorted plastic waste is used to make creative shapes in Art Subject.

Figure 2. Forms of waste utilization in art subjects.

Interviews with teachers of the Sleman MI KKG revealed that waste management assistance using the 3R method is implemented with an emphasis on safety and comfort, while also adapting to students' learning needs. Teachers acted as facilitators, overseeing planned waste management activities to support classroom learning. Contextual waste management strategies are deemed appropriate for reducing waste volume and enhancing student awareness of waste disposal. Learning about waste management can enhance student creativity and collaboration. For example, through project activities like making compost from organic waste, plastic waste to create crafts, students are encouraged to think innovatively while working together in teams. This not only enhances their environmental knowledge but also helps develop

soft skills such as leadership, responsibility, and collaboration. By instilling a culture of good waste management at schools, teachers not only help create a clean and healthy environment but also shape a younger generation to be more concerned about environmental sustainability (Kabugo, 2020).

The Process Of Implementing Waste-Management-Based Contextual Learning Strategies at School Through MI KKG While the Teachers Act as Initiators

The process of implementing waste-management-based contextual learning strategy using the 3R stages has been introduced through a habituation program in the school environment. Based on observations at five schools, members of the Sleman MI KKG, the process is done in some stages. The process starts with an introduction by providing examples to the children, through independent observation. During the introductory stage, the teacher will encourage the students to recognize the characteristics of waste that will be treated, including its shape, color, type, and texture, thereby stimulate their initiative in sorting waste. Then, students are given responsibility and trust through the obligation to dispose waste according to its type. The following is one of the facilities available in the school environment.

Figure 3. Observations Result of 3R process at MIN 2 SL school

Students' freedom to treat waste is facilitated by providing adequate facilities in the school environment. Teachers occasionally invite students directly to sort waste during learning activities and provide opportunities to explore inorganic waste as a means of expressing creativity by arranging, combining, cutting, and sticking plastic and

paper waste according to their imagination. From the observation, the students look very enthusiastic and are able to sort the types of waste into interesting works such as sticking and decorating food plastic with picture of a bird. The results of documentation and interviews with teachers at MIS DRS proved it by saying *"the activity was carried out after the mid-semester activities, where there was a class meeting, it will be used for the process of sorting waste and making crafts as an effort to reduce plastic waste into materials of artistic value".*

During waste sorting, assistance is concerned to provide direction on hazardous waste including glass, iron and other sharp objects. From the results of documentation and observations, related to 3R implementation, children have not been able yet to manage the reuse stage, the activity of reusing items or waste that are still suitable to use for the same function. For reduce activities, students already bring their own drink bottles to minimize the use of plastic waste around the school. Meanwhile, for the recycle stage, students are able to optimize organic and inorganic waste into more useful and artistic materials, for example, fertilizer for flower plants at school and wall and window decorations in the classroom. The interviews with four schools revealed that plastic and paper waste are the most commonly collected. Further interviews with MIN 2 SL and MI Al KR showed that each school produces around 40 kg of plastic waste and 25 kg of paper waste. This data provides an overview of the amount and types of waste generated in the school environment, which is relevant to this research objective. By knowing the amount of waste produced, more effective waste management and strategies can be planned, such as waste segregation programs or reducing plastic use, to support the success of environmental education programs in these schools.

The strategy for implementing contextual learning integrated with waste management issue can be developed by teachers, encompassing several activities. These activities are tailored to the teaching modules, objectives, and learning outcomes of each subject that involves waste management issue. The following is a summary of activities that can be synchronized with waste management strategies.

Table 1. Strategy for waste management activities at schools

Contextual Strategy Stage	Waste Management Activities at Schools	Relation to Teaching Modules / Learning Outcomes on subjects,
Constructivism	The teacher explores students' prior knowledge: what is waste, where does it come from, what are the consequences, what are the	Connecting students' real experiences at home and at school.

	3Rs	
Finding (Inquiry)	Students make observations in the school environment, what type of waste is most abundant, and how it is managed.	Develop observation and critical thinking skills.
Asking (Questioning)	Students are encouraged to create reflective questions, such as, "Why is plastic waste difficult to decompose?" "How can we recycle waste?" or "How can we make compost or crafts from waste?"	Encourage curiosity and scientific exploration.
Learning Community	Students work in groups to create *mini trash banks or eco-brick* projects.	Cultivate collaboration and social responsibility.
Modeling	The teacher shows how to sort and recycle waste through 3R.	Provide concrete examples according to the principles of project-based learning.
Reflection	Students write, or discuss the experience: what was learned, challenges, what was achieved and the benefits, the teacher documents it.	Strengthening environmental awareness and metacognitive abilities.
Authentic Assessment	Assessment is based on *project products* at exhibition activities, class meetings, (examples: compost, posters, crafts, activity reports) and environmental care activities.	Measuring CP achievement holistically and contextually,

The table outlines a contextual strategy for waste management activities at schools, linked to teaching modules and learning outcomes. In the Constructivism stage, students explore prior knowledge about waste and the 3Rs, connecting experiences at home and school. In the Finding (Inquiry) stage, students observe types of waste at school and its management, enhancing critical thinking skills. In the Asking (Questioning) stage, students create reflective questions to foster curiosity. The Learning Community stage encourages collaboration in projects like waste banks and Eco-bricks. In Modeling, the teacher demonstrates waste sorting and recycling, providing concrete examples. In the Reflection stage, students reflect on their learning and challenges, strengthening environmental awareness. Authentic Assessment evaluates students' project products during exhibitions or reports, measuring learning achievements holistically and contextually. All activities mentioned support students' environmental awareness.

Contextual Activities at Schools are Expected to be a Habit in The Community, as evidenced by teachers who encourage students to manage waste every month. The results of data provided by five schools related to contextual learning which is

synchronized with waste management issue show a high level of independence in selecting waste, responsibility, and environmental maintenance. From the results of observations conducted, the diversity of waste, color, and texture can trigger students' curiosity about waste management. In addition, the 3R activity in waste management strategies has encouraged children's physical and mental development by increasing students' awareness, accuracy, and focus in waste processing. So overall, this activity makes a positive contribution to handling waste cases in Sleman Yogyakarta environment.

Constraints of Waste-Management-Based Contextual Learning Strategies

The challenges faced include a lack of consistent infrastructure and supporting facilities for waste management, such as separate bins and recycling areas. Some teachers express limited knowledge about waste management in depth, which impacts the effectiveness of learning strategies. This study also confirms findings from international research on the importance of contextual- based learning in overcome problem environment (Muhaimin et al., 2020). Contextual learning has been proven effective in making materials more relevant to students and encouraging teachers to be more active to participate and collaborate in addressing environmental issues such as waste. This is in line with the principle of providing a safe, healthy, and clean learning environment as stipulated in Permendikbud No. 137 of 2014. Sorting materials not only serves as technical preparation, but also as an educational process at schools that introduces the value of environmental awareness and the concept of 3R (reduce, reuse, recycle) to students. (Bukhori et al., 2025). Through activities outside the classroom, there is a difference in the level of independence of children who have been involved in waste sorting activities for a long time and those who have just joined. Children who are more frequently involved appear to be more skilled in selecting waste, proves that repeated experiences in the process of learning waste management can be practiced at home.

This illustrates the principle of Piaget's constructivism (1970), which emphasizes the importance of direct experience and exploration in building children's knowledge and creativity (Chen, 2024). Waste management at school is one important aspect which Teachers must teach good habits to students from an early age. Through education about waste management, students can understand the importance of maintaining environmental cleanliness and the impact of waste on health, the environment, and life. (Fathuri & Muttaqin, 2024).

Assistance with waste management activities can be carried out throughout the academic year, with a special focus on key periods such as the beginning of the school year, Environmental Life Day, subject implementation, and the annual school activity program. These activities can be held in various locations, including schools and communities, in collaboration with relevant stakeholders. The objectives of this mentoring should be tailored to the needs of the school, including: 1) Providing training and information to teachers on effective waste management methods, including 3R techniques (sorting, recycling, and waste reduction); 2) Supporting teachers in implementing waste management practices in daily school activities, including creating programs that involve students; 3) Building partnerships between students, teachers, and community stakeholders to develop sustainable waste management programs; 4) Organizing seminars, workshops, or campaigns in schools to raise awareness among students and teachers about the importance of waste management.

This study shows that the implementation of waste-management-based contextual learning strategies through Teacher Working Groups (KKG) plays a significant role in improving teachers' knowledge and skills related to contextual waste management. This study aims to provide training to KKG MI which involving students as collaborators in contextual learning, encourage the implementation of waste management methods at schools by utilizing collaborative partners from various parties to create a cleaner and more sustainable environment, provide an overview of environmental education opportunities by understanding the 3R method in the school environment as well as the ability to contribute to teacher professional development, which ultimately can have a positive impact on the educational environment

CONCLUSION

The implementation of a contextual learning strategy focused on waste management through the Teacher Working Group agenda in Yogyakarta has yielded positive outcomes in raising environmental awareness among both teachers and students. Despite challenges such as limited infrastructure and gaps in teacher knowledge, the strategy has proven effective in linking theoretical concepts to real-world applications. The subjects integrated with waste management strategy include Environmental Life, Science, Arts and Culture, Entrepreneurship, and Citizenship. This contextual approach has successfully motivated students to alter their behavior toward waste management, providing them with hands-on experience in applying the 3R (Reduce, Reuse, Recycle) method.

The findings highlight the tangible impact of the strategy in fostering environmental consciousness and encouraging sustainable practices among students. However, further improvements are needed, particularly in enhancing the supporting facilities and providing continuous professional development for teachers. Such efforts will ensure a more effective and contextually relevant implementation of the curriculum. This research contributes to the ongoing development of environmentally responsible education by recommending the strengthening of collaboration between schools, communities, and local governments. By working together, these stakeholders can create a supportive environment for students to engage in sustainable waste management practices. Future research can focus on expanding the scope of this strategy to other regions, assessing its long-term effectiveness, and refining the approaches used to integrate waste management into the broader curriculum. This will ultimately lead to a more sustainable and environmentally conscious generation

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