P-ISSN: 2580-5525 | E-ISSN: 2580-5533
https://journal.uny.ac.id/index.php/jk/

Developing a thematic integrative instructional kit based on the environment

Tiok Wijanarko dan Sujarwo
Universitas Negeri Yogyakarta, Indonesia
Email: tiokwijanarko@gmail.com

Abstract: Environmental awareness and learning independence are essential traits that remain underdeveloped in many elementary school students. Addressing these issues, this study aimed to (1) develop a thematic integrative instructional kit based on the surrounding environment that is suitable for improving environmental care attitudes and learning autonomy among fourth-grade students, and (2) test its effectiveness. The research utilized the Borg and Gall R&D model, involving interviews, observations, and questionnaires for data collection. The study was conducted at Margoyasan Elementary School with field testing involving 24 students. The instructional kit includes a syllabus, lesson plans (RPP), teaching materials, student worksheets (LKS), and assessment instruments, all designed to integrate the local environment into learning activities. The results indicate that the instructional kit is highly feasible and effective. Feedback from curriculum and subject matter experts categorized the materials as "very good," with significant improvements observed in posttest scores. Students' environmental care attitudes increased by 11.59 points on average (from 40.62 to 52.21), while learning independence improved by 9.63 points (from 57.25 to 66.88). The paired sample t-test yielded a significance value of 0.000, confirming the effectiveness of the instructional kit. These findings highlight the importance of integrating local environmental contexts into instructional design, enabling students to engage in meaningful, hands-on learning while fostering holistic development in environmental awareness and autonomy.

Keywords: *thematic integrative instructional kit, surrounding environment, environmental care, learning autonomy*

How to cite (APA 7th Style): Wijanarko, T., & Sujarwo. (2024). Developing a thematic integrative instructional kit based on the environment. *Jurnal Kependidikan*, *8*(2), 233-243. http://dx.doi.org/10.21831/jk.v8i2.45269.

INTRODUCTION

Education in today's advanced era undoubtedly serves objectives distinct from those of the past. The purpose of educational practices is no longer limited to cognitive aspects; affective dimensions and skills have become equally significant in modern educational contexts. Consequently, educators must monitor their students' development comprehensively, including their knowledge, skills, and attitudes, throughout the learning process.

Developing positive attitudes among students is essential. Students with positive attitudes tend to exhibit pleasant personalities, which align with the objectives of education. One attitude that has gained increasing attention is environmental awareness. Holm (2012) defines environmental awareness as actions taken by individuals to actively protect and improve the environment.

Students who exhibit environmental awareness are likely to maintain their surroundings, whether natural or built environments, such as school facilities. They will also take measures to prevent environmental damage and use their environment wisely. However, the reality in schools indicates that environmental awareness remains an area requiring attention. For instance, students often exhibit behaviors such as littering in classrooms and vandalizing school facilities like desks and chairs (Tivani & Paidi, 2016).

This issue is also evident at Margoyasan Elementary School, where students display insufficient environmental care. Examples include neglecting the school garden, leaving trash such as torn paper scraps in their desk drawers, and failing to demonstrate responsible environmental behavior. Therefore, teachers play a critical role in fostering students' environmental awareness through effective learning practices.

Another essential trait for students to develop is learning independence. Benson (2011) describes learning independence as the ability of students to regulate their own learning activities. Independent learners manage their study processes to achieve learning goals, even without direct supervision from teachers. Mukminan, Nursa'ban, and Suparmini (2013) further emphasize that independent learners are capable of completing tasks without excessive reliance on others. Thus, this study examines students' learning independence in terms of their ability to plan activities, implement strategies, stay motivated, solve problems, control their learning, and evaluate their progress independently.

Field observations indicate that students' learning independence has not developed optimally. Many students remain dependent on others, struggle to complete tasks effectively, and frequently express dissatisfaction with their work (Azka & Santoso, 2015). Similar challenges are observed at Margoyasan Elementary School, where students often appear unprepared for lessons, show minimal engagement during discussions or question-and-answer sessions, and lack active participation. These findings underscore the need for teachers to prioritize fostering learning independence among their students.

These issues necessitate thoughtful attention from educators. Teachers must design and plan lessons strategically to address these challenges through well-structured instructional practices. This planning is typically documented in a teacher's instructional tools. When developing such tools, teachers must consider their students' developmental stages and conditions. Primary school students, for instance, operate at the concrete operational stage, relying on logical thinking grounded in tangible, concrete objects. Therefore, teachers should craft contextual instructional tools to ensure that lessons proceed as planned and achieve their intended objectives.

However, evidence suggests that teachers face challenges in designing, planning, and integrating thematic learning with the local environment. Many rely solely on government-provided teacher and student textbooks when planning and implementing thematic integrative learning (Rasidi & Setiawati, 2015; Erviana, 2016).

Similar challenges are observed at Margoyasan Elementary School, where teachers struggle to develop instructional tools and remain heavily dependent on government-provided resources. They also report difficulties in integrating the surrounding environment as a source, medium, and venue for learning. To address these challenges, teachers require instructional tools that integrate the surrounding environment, enabling them to implement thematic integrative learning in a meaningful and engaging manner. Such an approach allows students to interact directly with real-world issues in their environment.

The term "environment" refers to the surroundings and conditions in which individuals live and carry out activities (Warger, 2009). Learning that integrates the environment utilizes real conditions within students' local context. This includes interactions with social, cultural, and natural environments. Siswoyo et al. (2008) explain that the environment in education encompasses physical (e.g., climate, nature), cultural, and social aspects.

Environment-based learning provides significant benefits for students. Cooper (2012) highlights that learning in the local environment immerses students in real-world situations, fostering responsibility and reflection on their actions. Ernst and Tornabene (2012) add that, from a cognitive perspective, outdoor learning enhances imagination, creativity, and critical thinking. Based on this analysis, there is a need to develop thematic integrative instructional tools based on the surrounding environment to enhance students' environmental awareness and learning independence.

METHOD

This study employed the Borg and Gall development model to develop thematic integrative instructional tools based on the local environment. The model consists of 10 steps: research and information collecting, planning, developing the preliminary form of the product, preliminary field testing, revising the main product, main field testing, operational product testing, operational field testing, final product revision, and dissemination and implementation.

The research was conducted at SDN Surokarsan 2 and SDN Margoyasan. The preliminary testing involved six students and one fourth-grade teacher at SDN Surokarsan 2. The main field testing included 12 students and one fourth-grade teacher (class IV B) at SDN Margoyasan, while the operational field testing involved 24 fourth-grade students (class IV A) at SDN Margoyasan.

Data were collected through interviews, observations, and questionnaires. Interviews and observations were conducted as part of the preliminary study to understand the school environment, teachers, students, and the learning process. Questionnaires were used to evaluate the feasibility of the syllabus, lesson plans, materials, worksheets, and assessment instruments, based on feedback from curriculum and subject matter experts. Additionally, questionnaires were distributed to gather responses from teachers and students regarding the developed instructional tools. The questionnaires also assessed improvements in students' environmental awareness and learning independence.

The qualitative data, consisting of feedback and suggestions from curriculum and subject matter experts, were analyzed to inform product revisions. Quantitative data, including the feasibility evaluation of the product and responses from teachers and students, were analyzed by calculating mean scores and determining assessment criteria based on a five-point scale: very good (5), good (4), fairly good (3), poor (2), and very poor (1). The instructional tools were considered feasible if they achieved a minimum score in the "Good" category.

The questionnaire results on environmental awareness and learning independence were analyzed using a paired-sample t-test, comparing pretest and posttest scores to measure improvements.

FINDINGS AND DISCUSSION

Environmental awareness remains a critical attitude that requires attention. Various environmental issues caused by irresponsible human activities, such as landslides, forest fires,

and floods, need to be addressed early on. Several studies reveal that students' environmental awareness is still relatively low. Students often neglect classroom cleanliness, with some engaging in vandalism by scribbling on desks and chairs.

Another area requiring attention is learning independence. Research findings indicate that students' learning independence is also low. This is evidenced by issues such as procrastination and the inability to complete tasks effectively. Furthermore, students often rely excessively on others for assistance in completing assignments, which reflects a lack of self-directed learning.

These issues are further supported by data from teacher interviews. Interviews with fourth-grade teachers reveal that students exhibit low environmental awareness, such as littering and damaging plants. Learning independence is also low, as students are not yet fully aware of their academic responsibilities.

Observational data reinforce these findings, showing that students frequently litter and fail to maintain classroom cleanliness. Students also demonstrate low learning independence, as evidenced by inadequate preparation at the start of lessons. Some students appear disengaged, focusing on themselves rather than participating in class discussions or paying attention to their peers and teachers.

These problems have not been effectively addressed, partly due to the lack of comprehensive instructional tools that integrate the local environment. As a result, students have limited interaction with their surroundings and are not accustomed to addressing real-world issues in their environment. Research also highlights that teachers face challenges in designing and linking learning activities to the local environment, relying heavily on government-provided teacher and student textbooks.

Based on these issues, teachers require instructional tools designed to enhance students' environmental awareness and learning independence. A literature review provided the foundation for developing thematic integrative instructional tools based on the local environment.

The development process began by selecting the subtheme "The Uniqueness of My Region." The subsequent steps involved weekly and daily competency mapping (KD). After clear competency mapping, the draft syllabus, lesson plans (RPP), teaching materials, student worksheets (LKS), and assessment instruments were developed. Once the drafts were completed, they were validated by subject matter and curriculum experts.

The developed instructional tools were validated by curriculum and subject matter experts. The validation results are as follows: The syllabus received an average score of 48; the lesson plans (RPP) received an average score of 67.5; the teaching materials received an average score of 54; the student worksheets (LKS) received an average score of 30; the assessment instruments received an average score of 22.5. When categorized into five levels, the evaluations for all five components were classified as "Very Good," indicating that the product is feasible for use.

Limited testing was conducted to evaluate teachers' and students' responses to the readability of the thematic integrative instructional tools based on the local environment. The results of teacher responses are presented in Table 1.

Based on Table 1, the instructional tools fall into the "Very Good" category, except for the assessment instruments, which are categorized as "Good." Meanwhile, students' responses to the tools were rated in the lowest category, "Good," indicating that the tools are suitable for use.

Table 1
Teachers' responses toward the readability of the thematic integrative instructional tools based on the local environment

No	Aspect	Score	Category
1	Syllabus	11	Very Good
2	Lesson Plan	12	Very Good
3	Learning Material	24	Very Good
4	Working Sheet	12	Very Good
5	Assessment Instrument	10	Good

Field testing was conducted after revising the instructional tools based on feedback from teachers and students during limited testing. The purpose of the field testing was to further evaluate the readability and effectiveness of the developed thematic integrative instructional tools. Teacher responses to the instructional tools during the field testing phase are presented in the Table 2.

Table 2
Teachers' responses toward all component in field testing

No	Aspect	Score	Category
1	Syllabus	13	Very Good
2	Lesson Plan	14	Very Good
3	Learning Material	26	Very Good
4	Working Sheet	13	Very Good
5	Assessment Instrument	12	Very Good

Based on the teachers' feedback, the readability of all components of the developed instructional materials falls into the "very good" category. Similarly, students' responses also place the instructional materials in the "very good" category, with only three responses categorized as "good." Therefore, the instructional materials are clear, easy to understand, and suitable for use.

The operational test in this study was conducted to evaluate the effectiveness of the developed instructional materials. During the operational test, the learning process was carried out using the developed instructional materials. However, prior to the learning process, students were given questionnaires on environmental care attitudes and learning independence to assess their initial condition. After the learning process using the developed instructional materials, the students completed the same questionnaires to measure their environmental care attitudes and learning independence post-intervention. Based on the results of the operational test, students' environmental care attitudes are illustrated in Figure 1.

Based on Figure 1, it can be observed that there was an increase in the average score of environmental care attitudes from 40.62 to 52.21, representing an improvement of 11.59 points. The increase in environmental care attitudes for each indicator is detailed in Figure 2.

Figure 1. Diagram of the average scores for environmental care attitudes

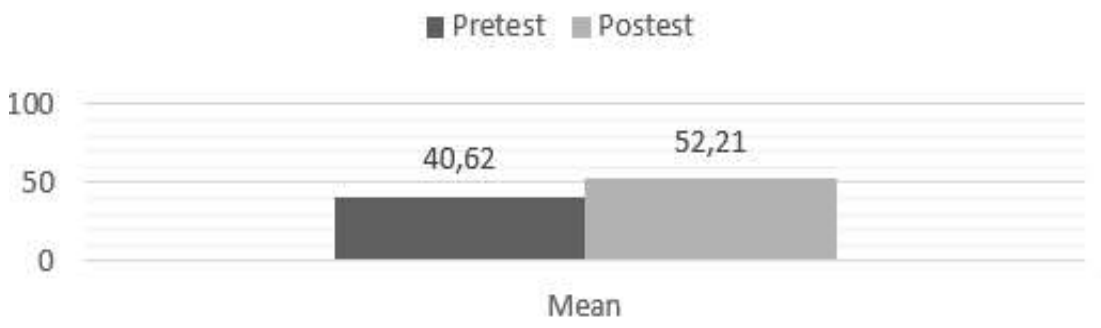
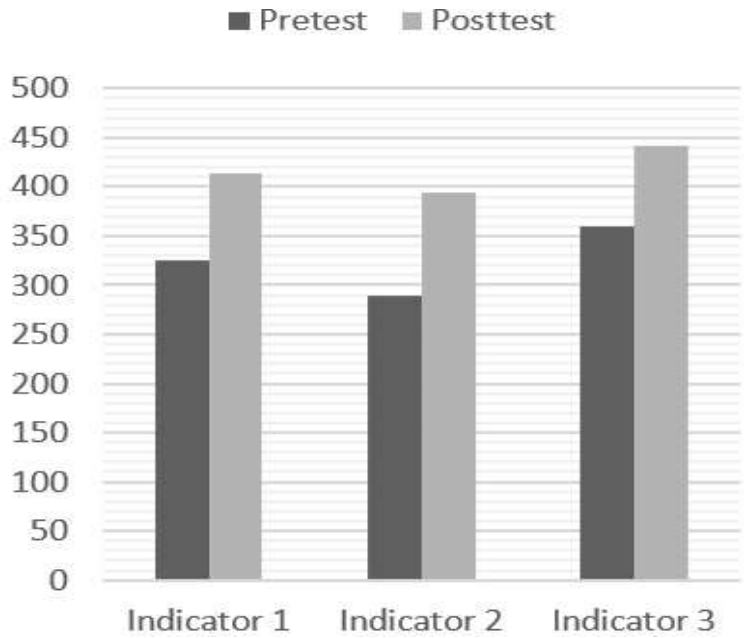


Figure 2. Diagram of environmental care attitude indicators



Based on the Figure 2 , it can be seen that the values for all indicators in the posttest are higher than those in the pretest. The first indicator in the posttest received a total score of 414, while in the pretest, it received a total score of 325. The second indicator in the posttest received a total score of 394, compared to 289 in the pretest. The third indicator in the posttest received a total score of 441, while in the pretest, it received a total score of 359.

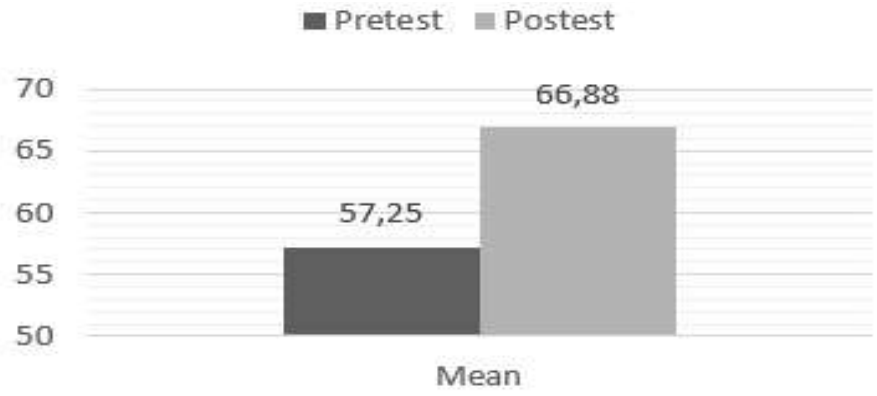
The indicator with the lowest score was preventing damage. This was due to students not fully engaging in preventing damage, such as not adequately reprimanding peers who were vandalizing desks and chairs or preventing classmates from wasting water.

The pretest and posttest data on environmental care attitudes were analyzed using a paired sample t-test. Prior to the analysis, prerequisite tests, namely the normality test and

homogeneity test, were conducted. The results of these tests indicated that the environmental care attitude data were normally distributed and exhibited homogeneous variance.

After confirming that the data were normal and homogeneous, a paired sample t-test was conducted. The paired sample t-test results show a significance value (Sig) of 0.000 for the pretest and posttest comparison. This indicates that the null hypothesis (Ho) is rejected. The results of the paired sample t-test indicate that there is a significant difference in environmental care attitudes before and after using the integrative thematic instructional materials based on the surrounding environment. Based on the pretest and posttest conducted during the operational test, the data were collected and are presented in Figure 3.

Figure 3. Average scores of learning independence



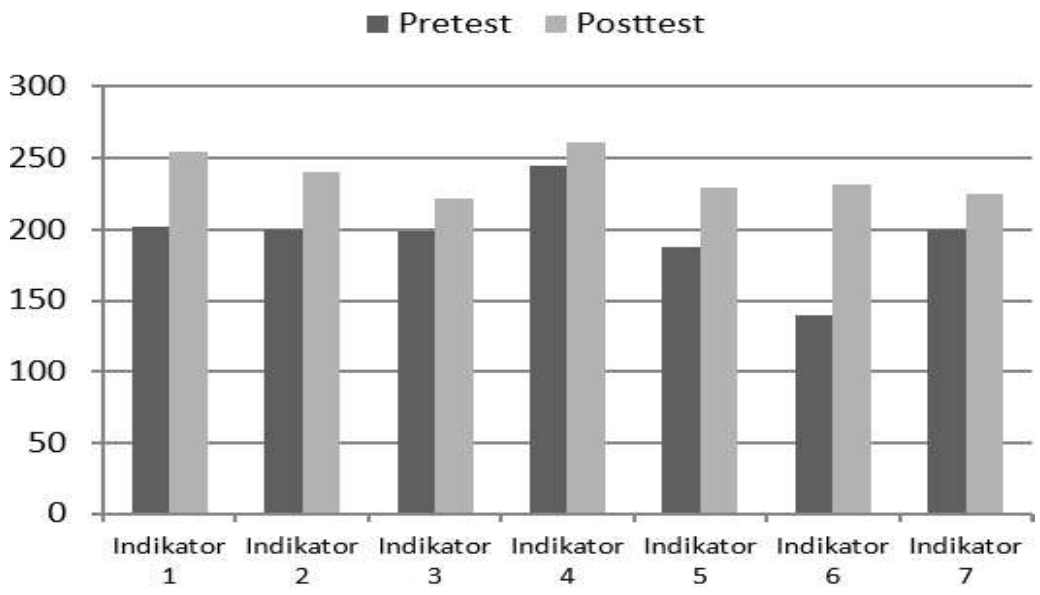
The average score for learning independence showed a significant increase of 9.63 points, rising from 57.25 in the pretest to 66.88 in the posttest. This improvement indicates that the developed instructional materials positively influenced students' learning independence. A closer examination of the scores for each indicator reveals detailed insights into the specific areas of improvement.

Figure 4 indicates that all indicators in the posttest scored higher than in the pretest, reflecting an overall improvement in learning independence. Specifically, the first indicator increased from 202 in the pretest to 255 in the posttest, while the second indicator rose from 200 to 240. Similarly, the third indicator improved from 199 to 222, and the fourth indicator showed a smaller yet notable increase from 245 to 261. The fifth indicator experienced significant growth, rising from 188 to 229, and the sixth indicator demonstrated the most substantial improvement, increasing from 140 to 232. Lastly, the seventh indicator rose from 200 to 225.

Despite the overall positive trend, the third indicator, Active Participation in Learning Activities, scored the lowest among the indicators. This was primarily due to students not fully utilizing learning resources, some not actively participating in all learning activities, and others being less inclined to express their opinions. These findings highlight areas that need further attention to enhance students' active involvement in the learning process.

The final product of this research is integrative thematic instructional materials based on the surrounding environment. These materials consist of a syllabus, lesson plans (RPP),

Figure 4. Diagram of learning independence indicators



teaching materials, student worksheets (LKS), and assessment instruments, all contextualized to the students' local environment. The materials were developed under the subtheme "The Uniqueness of My Local Region" and include six instructional sessions.

The syllabus aligns with curriculum standards and incorporates principles of syllabus development. Local environmental aspects are integrated into sources, media, and learning activities. The lesson plans follow standard components, including school identity, theme/subtheme, grade/semester, learning objectives, basic competencies, indicators, teaching methods, learning materials, media, sources, instructional steps, and assessments. Each activity incorporates the surrounding environment, serving as a guide for teachers to conduct context-based learning.

The teaching materials emphasize contextualization, embedding topics relevant to students' lives, such as the effects of force on motion, local cultural diversity, and regional dances from Yogyakarta. The student worksheets utilize the surrounding environment in learning activities as sources, media, and settings. For instance, students explored the effects of force on objects around them or identified cultural diversity within their school.

The assessment instruments are designed for authentic evaluation, assessing students' ability to utilize environmental resources responsibly. Greater application of the environment resulted in higher assessment scores. The evaluation by curriculum and content experts categorized the instructional materials as "very good," allowing the materials to progress to limited and field trials.

The operational tests revealed a significant improvement in both environmental care attitudes and learning independence among students. Pretest and posttest data, analyzed using paired sample t-tests, showed a notable increase in the average environmental care score by 11.59 points (from 40.62 to 52.21). Similarly, the average score for learning independence improved by 9.63 points (from 57.25 to 66.88). These results reflect the

materials' effectiveness in fostering both attitudinal and behavioral growth among students.

The materials significantly impacted students' environmental care attitudes. Among the three measured indicators—maintaining the environment, preventing damage, and utilizing resources responsibly—preventing damage scored the lowest. Students demonstrated challenges in addressing peers' destructive behaviors, such as vandalism or excessive water usage. However, the highest scores were observed in responsible utilization, highlighting students' increased awareness and actions in making use of resources effectively. These findings are consistent with Yocco, Bruskotter, Wilson, and Heimlich (2015) argument that lessons integrated with environmental contexts motivate students to take greater responsibility for their surroundings.

Contextual activities reinforced this awareness. For example, students engaged in hands-on learning, such as protecting plants during physical activities or identifying the effects of force while maintaining school facilities. This aligns with Held's (2006) perspective that meaningful environmental experiences strengthen care-driven behaviors.

Learning independence showed marked improvement across all indicators, particularly in self-monitoring and problem-solving skills. Before the intervention, students often delayed tasks and exhibited inconsistent effort. The materials prompted them to engage actively in collaborative planning, execution, and reflection. Reinders and Balcikanli (2011) emphasize the importance of equipping students with the skills to plan their own learning, which was achieved by allowing groups to design and execute activities within the given framework.

Students also developed autonomy by solving real-world problems. For instance, they independently explored regional folktales in libraries and presented their findings. This process fostered critical thinking and accountability, as highlighted by Mudjiman (2007), who connects problem-solving with self-directed learning.

Group work dynamics further supported independence, with students taking ownership of their roles and responsibilities. Discussions within and across groups enhanced active participation and collaboration, aligning with Douglass and Morris's (2014) model of independent learners who actively seek and share knowledge.

The integrative thematic materials promote contextual and active learning. By combining various subjects under a unified theme, these materials offer flexibility, emphasize student-centered learning, and incorporate the principle of learning through play. Majid and Rochman (2014) highlight these attributes as essential to thematic learning. Furthermore, the integration of local contexts—such as exploring Yogyakarta's environment—enabled students to engage with authentic, meaningful learning experiences (Amri, 2015).

This contextual learning approach provided students with opportunities to interact directly with their surroundings. For example, students observed economic activities near their school or explored the effects of force using familiar objects. These experiences are consistent with Swarat's (2008) findings, which emphasize the importance of connecting learning to students' physical and social environments to enhance relevance and engagement.

.

CONCLUSION

The integrative thematic instructional materials based on the surrounding environment are both feasible and effective for enhancing environmental care attitudes and learning independence among fourth-grade elementary school students. Their feasibility lies in their integration of the local environment as a learning resource, which encourages students to

engage directly with real-world issues while fostering a sense of responsibility toward their surroundings. The materials also promote independent learning by enabling students to plan activities, solve problems, and regulate their learning collaboratively.

The effectiveness of these materials is evident in the significant improvements in posttest scores. Students demonstrated progress in maintaining the environment, preventing damage, and utilizing resources responsibly, with notable advancements in self-monitoring, problem-solving, and group collaboration. Although preventing damage scored slightly lower, students showed increased awareness and actions in addressing environmental concerns.

By connecting learning to students' surroundings, these materials foster meaningful and engaging experiences that align with thematic learning principles. They not only enhance academic and attitudinal skills but also contribute to holistic development, making them a valuable tool for improving educational outcomes.

REFERENCES

Amri, S. (2015). *Implementasi pembelajaran aktif dalam kurikulum 2013*. Prestasi Pustakarya.

Azka, R., & Santoso, R. (2015). Pengembangan perangkat pembelajaran kalkulus untuk mencapai ketuntasan dan kemandirian belajar siswa. *Jurnal Riset Pendidikan Matematika, 2*(1), 78-91.

Benson, P. (2011). *Teaching and researching autonomy.* Routledge.

Bilton, H. (2010). *Outdoor learning in the early years: Management and innovation.* Routledge.

Cooper, G. (2012). Outdoor learning, environment and sustainability. *Environmental Education*, *28*, 31.

Douglass, C., & Morris, S, R. (2014). Student perspectives on self-directed learning. *Journal of the Scholarship of Teaching and Learning*, *14*(1), 13-25. https://doi.org/10.14434/josotl.v14i1.3202.

Ernst, J., & Tornabene, L. (2012). Preservice early childhood educators' perceptions of outdoor settings as learning environments. *Environmental Education Research*, *18*(5), 643-664.

Erviana, V. (2016). Pengembangan perangkat pembelajaran berbasis sosiokultural bagi siswa sekolah dasar. *Jurnal Prima Edukasia, 4*(2), 222-232.

Held, V. (2006). *The ethics of care: personal, polotical, and global.* Oxford University Press.

Holm, D. (2012). Exploring environmental empathy in action with children's books. *Reading Improvement*, 49(4), 134-139.

Johnson. E. B (2014). *CTL: Contextual teaching & learning menjadikan kegiatan belajar mengajar mengasyikkan dan bermakna*. (Terj: Ibnu Setiawan). Corwin Press.

Majid, A. & Rochman, C. (2014). *Pendekatan ilmiah dalam implementasi kurikulum 2013*. Remaja Rosdakarya.

Mukminan, Nursa'ban, M., & Suparmini. (2013). Assessing students' learning autonomy according to seven jumps technique in higher education. *American Journal of Educational Research*, *1*(7), 263-266. https://doi.org/10.12691/education-1-7-8.

Purwandari, S., & Suardiman, S. (2013). Pengaruh penerapan students team achievement divisions untuk mengembangkan sikap ramah lingkungan di SD Sendangadi 1. *Jurnal Prima Edukasia, 1*(1), 103-112. doi:http://dx.doi.org/10.21831/jpe.v1i1.2332.

Reinders, H., & Balcikanli, C. (2011). Learning to foster autonomy: The role of teacher education materials. *Studies in Self-Access Learning Journal*, *2*(1), 15-25.

Siswoyo, D., Sulistyono, T., & Dardiri, A. (2007). *Ilmu pendidikan*. UNY Press.

Swarat, S. (2008). What makes a topic interesting? A conceptual and methodological exploration of the underlying dimensions of topic interest. *Electronic Journal of Science Education*, *12*(2).

Tivani, I., & Paidi, P. (2016). Pengembangan LKS biologi berbasis masalah untuk meningkatkan kemampuan pemecahan masalah dan karakter peduli lingkungan. *Jurnal Inovasi Pendidikan IPA, 2*(1), 35-45. http://dx.doi.org/10.21831/jipi.v2i1.8804

Warger, T., & Dobbin, G. (2009). Learning environments. *Where space, technology, and culture converge. Educause Learning Initiative Paper*, *1*. Educause Learning Initiative Papers and Report.

Waridah, W., & Aman, A. (2015). Pengembangan perangkat pembelajaran tematik-integratif tema menghargai jasa pahlawan berbasis sosiokultural di sekolah dasar. *Jurnal Prima Edukasia, 3*(2), 213-226.

Wirth, S., & Rosenow, N. (2012). Supporting whole-child learning in nature-filled outdoor classrooms. *YC: Young Children*, 67(1), 42-48

Yocco, V. S., Bruskotter, J., Wilson, R., & Heimlich, J. E. (2015). Why should I care? Exploring the use of environmental concern as a frame of communication in zoos. *The Journal of environmental education*, *46*(1), 56-71.