



Innovation of Project Module Based on *Ajak Temani Mandiri* Learning Model Integrated with Local Wisdom to Improve Creative Dimension of Elementary School Students

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Abstract: Creativity is one of the key dimensions in the independent curriculum. It is also a crucial skill to possess in the 21st century. This study aims to innovate a project module based on the *Ajak Temani Mandiri* learning model, integrated with local wisdom, to improve the creative dimension of elementary school students in a feasible and effective way. The study used Research and Development (R&D) with the Borg and Gall model, consisting of ten stages: (1) research and information collection, (2) planning, (3) developing a preliminary form of the product, (4) preliminary field testing, (5) product revision, (6) main field testing, (7) operational product revision, (8) operational field testing, (9) final product revision, and (10) dissemination and implementation. Data collection was done through interviews, observations, questionnaires, and documentation. Data analysis employed qualitative and quantitative descriptive techniques with inferential statistics. The subjects were 76 grade IV elementary school students. Results of the study showed: (1) a project module was developed, with characteristics in line with the ATM learning model. The module was integrated with local wisdom and incorporated Project-Based Learning (PBL), (2) the module was deemed “very feasible” for use based on product feasibility assessments. Validation scores from experts were as follows: material experts scored 97.00, elementary school learning resource experts scored 88.25, and practitioners scored 92.36, (3) the effectiveness test revealed that the developed module was effective in increasing students’ creative dimensions. The pretest score was 35.03, categorized as “developing,” and after using the module, the post-test score increased to 87.76, categorized as “already developing.” This resulted in an N-Gain score of 0.81, indicating high effectiveness. In addition to enhancing creativity, the module also positively affected students’ product scores. The pretest product score was 75.49, while the post-test score increased to 89.05. In conclusion, the project module based on the *Ajak Temani Mandiri* Learning Model, integrated with local wisdom, successfully improved the creative dimensions of elementary school students.

Keywords: project module, *Ajak Temani Mandiri* learning model, local wisdom, creative dimension, elementary school students

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Introduction

Creativity is one of dimensions and main goal in independent curriculum. Creativity is also one of skills that must be possessed in the 21st century. Creativity is also used as the key to success in competing in the era of science and technology (Hastomo, 2024; Subanji et al., 2023). Creative attitude is characterized by a person's ability to create new ideas or things, as well as being skilled at solving problems. This skill is included in the high-level thinking category which is required to be continuously honed in the learning process so that students become accustomed to solving problems in everyday life (Nugraheni et al., 2021; Wulandari et al., 2021; Harokah et al., 2024).

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However, the results of observation that have been conducted on 76 students of grade IV of elementary school show that the students' creative dimensions are still low. This is evidenced by the low ability to produce original work, the low ability to produce original ideas, and the low ability to find alternative solutions to problems. The results of observation also show that learning resources owned by students are still very limited and have not integrated a variety of learning models (Toding & Wibowo, 2024; Awaliyah et al., 2024). Learning has also not been integrated into everyday life including local wisdom which is the superior potential of the region.

The alternative solution carried out in this study is to innovate a project module based on *Ajak Temani Mandiri* learning model integrated with local wisdom to improve creative dimension of elementary school students. The module is a systematic teaching material that can be used for conventional and independent learning with minimal guidance or without teacher guidance (Kosasih, 2020; Kustadi & Darmawan, 2020; Halimah & Wibowo, 2024). By using this module, students are expected to be able to carry out a fun learning process so that independent and fun learning is created. The module can also be used as a source of independent learning for students because it is equipped with clear instructions in the learning process, which can affect student creativity (Dewi & Lestari, 2020; Nisa et al., 2020; Supriyoko et al., 2022); .

Ajak Temani Mandiri (ATM) Learning Model was developed based on the integrated Tamansiswa teachings, namely leadership trilogy, *Tri N*, and *Tri Nga*. Ki Hajar Dewantara's leadership trilogy consists of three teachings, namely: 1) *ing ngarsa sung tuladha*, 2) *ing madya mangun karsa*, and 3) *tut wuri handayani*. *Tri N* is a Tamansiswa teaching consisting of *niteni*, *niroake*, and *nambahake* which can improve student creativity because students are given freedom to add something or new work to solve a problem or create innovations (Nisa et al., 2023; Yuniharto & Nisa, 2022). Meanwhile, *Tri Nga* is a teaching that is used to adjust students' knowledge with the character that is applied in everyday life which is carried out in the stages of *ngerti* (understanding), *ngrasa* (feeling), and *nglakoni* (acting) as a person's stages in acting: it must be adjusted and in harmony with the knowledge that is possessed (Nurmawati et al., 2022; Siregar et al., 2022; Wibowo, 2020).

The developed module consists of projects that can develop the creative dimension of students through the introduction of local wisdom to the activity of producing one type of batik. Batik is one of the cultural heritages known as local wisdom. Local wisdom-based learning is one of the learning that has a close relationship with the development of life skills by developing and preserving local potential in each region. With project-based learning, students can carry out the learning process contextually and can accustom children to being able to solve problems in their daily lives (Handayani et al., 2023; Rahmawati & Wulan, 2022; Syamsi et al., 2024).

By developing this module that integrated by *Ajak Temani Mandiri* learning model, local wisdom-based learning model and project based learning, we can contribute to implementing quality learning by providing appropriate and effective learning resources (Desyandri et al., 2024). This research also participates in supporting the implementation of the independent curriculum, especially in increasing the creative dimension of students.

Methods

The type of research used in this study is Research and Development (R&D). This research was conducted by referring to the R&D research steps of Borg & Gall (1983). There are 10 steps taken in research in the field of education. The research consists of: (1) research and information collecting (2) planning, (3) developed preliminary form of product, (4) preliminary field testing, (5) main product revision, (6) main field testing, (7) operational product revision, (8) operational field testing, (9) final product revision, and (10) dissemination and implementation.

The product effectiveness trial was conducted twice, namely main field testing and operational field testing. The subjects of main field testing were 27 students consisting of 9 students of Kiyaran 2 Elementary School and 18 students of Al Qodir Islamic Elementary School in 2024/2025 academic year. While the subjects of operational field testing were 49 students consisting of 26 students of grade IV of Pusalang Elementary School and 23 students of grade IV of Glagaharjo Elementary School in 2024/2025 academic year.

Data collection techniques were carried out using interview techniques to strengthen the data of needs analysis and student responses to the product. Observation techniques were also used to measure the effectiveness test data through observations of increasing creative dimensions. Questionnaire techniques were also used in this study using 5 types, namely: (1) needs analysis questionnaire, (2) product validation questionnaire by material experts, (3) product validation questionnaire by elementary school learning resource experts, (4) teacher response questionnaire to the product, and (5) student response questionnaire to the product. The data analysis technique in this study used qualitative descriptive data analysis to describe the interview results, while inferential statistical analysis techniques were used to analyse creativity observation data using creative dimension criteria guidelines and to calculate the N-Gain score.

Results and Discussion

Results

This study produces a module with characteristics based on *Ajak Temani Mandiri* learning model. *Ajak* phase in the learning module contains a description of the learning material. The material on each topic is integrated with local wisdom related to batik and traditional markets. The description of the material is also equipped with images that support and clarify the material. Activities in *Ajak* phase begin with the role of teacher as a good role model and provide knowledge or material contained in the module to students. Teacher delivers the material with various learning strategies. Learning in *Ajak* phase also provides a separate role for students. The material delivered by the teacher is then understood by students by using all five senses to recognize, mark, pay attention, compare or observe the objects being studied. Figure 1 shows the role of teacher in learning in *Ajak* phase.



Figure 1. Teachers Act as Good Role Model and Deliver Material to Students

Temani phase in learning module contains student activity sheets to improve understanding of the material that has been studied in *Ajak* phase. Activities in this phase are packaged with observations, interviews, and questions that must be worked on by students. These activities are carried out by students with guidance from the teacher. Learning activities in *Temani* phase are shown by the teacher's activities as a facilitator who accompanies students during learning. Activities are packaged by the teacher to foster the enthusiasm of students to be more proactive, creative, and cooperative so that they have an impact on improving their understanding. Students can imitate various things that have been seen, heard, observed, or felt.

Mandiri phase in learning module contains guidelines for student to carry out the project. The guidelines contain an introduction to project activities, tools, materials, project implementation instructions, and an introduction or demonstration of project. The project implementation guidelines on the second topic, namely about making abstract batik, are also equipped with a video of steps for making batik in the form of a barcode. Project activities are designed to produce a product at the end of activity.

Activities in *Mandiri* phase are shown by the development of student creativity through activities to complete, perfect, improve, add, or innovate objects that have been studied in *Ajak* and *Temani* phases. The role of teacher in *Mandiri* phase is to follow students from behind, guide, provide encouragement and positive influence on students according to their characteristics. The products produced by students at the end of the first topic can be mind-maps, concept maps, story pictures, poems,

song compositions, posters or other works that suit the interests or learning styles of students. The product produced at the end of the second topic is abstract batik and the product produced at the end of the third topic is a market day in the school environment. Learning activities in *Mandiri* phase are shown in the following Figure 2.



Figure 2. Activities in *Mandiri* Phase

The second characteristic in the developed module is integration of local wisdom into learning materials. The integrated local wisdom is batik from Daerah Istimewa Yogyakarta (DIY) and traditional markets in DIY. The first topic in module contains material about batik as a cultural heritage recognized by United Nations Educational, Scientific and Cultural Organization (UNESCO) and an introduction to types of batik from five districts in DIY. The five motifs consist of: (1) *kembang kates* motif from Bantul, (2) *geblek renteng* motif from Kulon Progo, (3) *segoro amarto* motif from Koya Yogyakarta, (4) *parijoto* motif from Sleman, and (5) *walang* motif from Gunung Kidul. In addition to getting to know various batik motifs from 5 districts in DIY, the second topic presents material about the introduction of modern or contemporary batik and how to make it.

Modern or contemporary batik making can be done by modifying traditional patterns or creating abstract patterns. The second type of local wisdom integrated with learning materials is the introduction of several traditional markets in DIY region, one of which is Beringharjo Market. Students do not only understand the material about human needs integrated with local wisdom through explanations from teachers, discussions, and working on questions, but students also practice making abstract batik directly in the school environment. In addition to making abstract batik, students also practice 'market day' in the school environment. This makes students have a meaningful and memorable learning experience, so that it affects the increase in understanding and creativity of students.

The third characteristic contained in the module is Project Based Learning (PBL). PBL is included in the third phase in each material topic, namely *Mandiri* phase. The application of PBL provides independence for students to carry out simple projects and produce products collaboratively. These activities make students collect as much knowledge as possible to carry out projects with maximum results. The syntax of PBL are: (1) determining basic questions, (2) designing project planning, (3) compiling a project schedule, (4) implementing and monitoring the project, (5) testing results, and (6) evaluating and reflecting.

The first syntax in PBL is to determine basic questions. The activity begins with basic questions asked by teacher related to the material that has been studied and connecting it to project that will be carried out by students. These questions are used as a trigger to bring up students' creative ideas or concepts that can later be developed in project planning and implementation. The second syntax is to design project planning. This stage provides an opportunity for students to determine the product according to the learning material and prepare the tools and materials used in completing the project. Teacher acts as a facilitator who provides direction when students encounter difficulties or problems that cannot be resolved. The third syntax is to compile a project schedule carried out by students. The schedule contains the stages of project implementation by considering steps and methods of project completion determined by teacher. The fourth syntax is implementation of the project carried out by students. The teacher acts as a mentor for student activities in completing their projects. The fifth syntax in PBL is to test the results. Activities in this syntax are carried out by presenting products produced by students. Presentations are carried out by students to introduce products in front of friends and teachers. In addition, other forms of activities are promotions carried out by students for their merchandise during

market day activities. The last syntax in PBL is evaluation and reflection on activities and results or products of project that have been implemented by students. Evaluation and reflection are carried out individually or in groups. Reflection activities are carried out by students by filling out reflection sheet in the module, then teacher invites students to convey the results of the reflection in a classical manner. Teacher provides responses and suggestions on the results of student reflection. The responses and suggestions given by teacher are constructive and provide motivation to students.

The products produced by students are then tested for feasibility by material experts and learning resource experts. The validation results from material experts can be seen in the following table.

Table 1. Product Validation Results from Material Experts

No.	Aspect	Average score
1.	Self-instruction	4.75
2.	Self-contained	5
3.	Stand alone	5
4.	Adaptive	5
5.	User friendly	5
Average score		4.85
Score		97
Criteria		Very Feasible

The developed product was also validated by elementary school learning resource experts. The data obtained from validation of elementary school learning resource experts were in the form of assessment scores for project module based on ATM learning model integrated with local wisdom through a questionnaire sheet. Elementary school learning resource experts assessed the module according to the module criteria consisting of 4 aspects, namely format and font, attractiveness, empty space, and consistency.

Table 2. Product Validation Results from Learning Resource Experts

No.	Aspect	Average score
1.	Format and font	4.4
2.	Attractiveness	4.75
3.	Empty space	4.25
4.	Consistency	4.25
Average score		4.41
Score		88.25
Criteria		Very Feasible

Main field testing was conducted after researcher revised the product and it was declared valid for use by the expert. The researcher conducted main field testing on 27 students consisting of 9 students from Kiyaran 2 Elementary School and 18 students from Al Qodir Islamic Elementary School. The Main field testing was conducted on August 5-16, 2024. Selection of the two schools was based on the results of needs analysis in the early stages of the research, that is the school that needed a Natural and Social Sciences project module to improve the creative dimension of students. The results of the main field testing provide observation data on the creative dimension of students, teacher responses, and student responses to the products developed. The results of creative dimension observations in the main field testing can be seen in the following table.

Table 3. Results of Observations of Creative Dimensions in Main Field Testing

No.	Indicator	Pre-test	Post-test	N-Gain Score and Criteria
1.	Generate original ideas	1.56	3.31	0.72 (High)
2.	Produce original works and actions	1.37	2.93	0.59 (Medium)
3.	Have flexibility of thinking in finding alternative solutions to problems	1.0	2.48	0.49 (Medium)
Average score		1.31	2.94	
Criteria		Medium		

Table 3 above shows that there is an increase in creative dimension ability of students at the main field-testing stage. This increase can be seen from N-Gain of each creative dimension element. The element of Generate original ideas gets an N-Gain score of 0.72 with high criteria. The element of Produce original work and actions gets an N-Gain score of 0.59 with medium criteria. The element of Have flexibility in finding alternative solutions to problems gets an N-Gain score of 0.49 with medium criteria. The increase in creative dimension of students can also be seen from pretest and post-test scores of students. The pretest score is 32.72 with the criteria of “moderately developing” then increases in the post test score to 73.46 with the criteria of “developing as expected”. It gets an N-Gain score of 0.59 with medium criteria.

Operational field testing was carried out after researcher revised product based on the results of main field testing. The researcher conducted a field implementation test on 49 students consisting of 26 students of grade IV of Pusmalang Elementary School and 23 students of grade IV of Glagaharjo Elementary School. Operational field testing was carried out on August 19-30, 2024. The selection of two schools was based on the results of needs analysis in early stages of the research, that is the school that needed a Natural and Social Sciences project module to improve the creative dimension of students. The results of operational field testing were obtained from observation data on the dimensions of student creativity, teacher responses, and student responses to the products developed. Data from observations of creative dimensions in operational field testing can be seen in the following table.

Table 4. Results of observations of creative dimensions in operational field testing

No.	Indicator	Pre-test	Post-test	N-Gain Score and Criteria
1.	Generate original ideas	1.57	3.65	0.86 (High)
2.	Produce original works and actions	1.45	3.55	0.82 (High)
3.	Have flexibility of thinking in finding alternative solutions to problems	1.18	3.33	0.76 (High)
Average score		1.40	3.51	
Criteria		High		

Table 4 above shows the observation results at the operational field-testing stage. The increase can be seen from the N-Gain of each element of the creative dimension. The element of generate original ideas gets an N-Gain score of 0.86 with high criteria. The element of Produce original work and actions gets an N-Gain score of 0.82 with high criteria. The element of have flexibility in finding alternative solutions to problems gets an N-Gain score of 0.76 with high criteria. The increase in creative dimension of students can also be seen from the pretest and post-test scores of students. The pretest score was 35.03 with the criteria of “moderately developing” and increased in the post-test results with a score of 87.76 which is included in the criteria of “already developing”. It gets an N-Gain score of 0.81 with high criteria. However, it can be concluded that the developed module is effective in increasing the creative dimension of elementary school students.

Discussion

Based on the explanation above, it can be concluded that module based on *Ajak Temani Mandiri*, integrated with local wisdom that was developed, has proven to be effective in increasing creative dimension of elementary school students. This is because the module developed is adjusted to product differentiation by implementing the leadership trilogy, so that teachers must have pedagogical skills in providing treatment to students. Students who have low abilities and willingness, then increase *ing ngarsa sung tuladha*. Students who have one aspect of ability or willingness are low, then increase *ing madya mangun karsa*, while students who have high abilities and willingness, then increase *tut wuri handayani* (Nisa et al., 2022; Sugiyanto et al., 2023; Santoso et al., 2024).

The developed module also provides guidance to be creative with self-contained and stand-alone characteristics so that it does not require other learning resources because it has been completely designed. This is also in line with the theory of good module criteria, including meeting the criteria of self-instructional, self-contained, stand-alone, adaptive, and user friendly (Kustadi & Darmawan, 2020; Yuniarto et al., 2024).

In addition to modules, project integration in learning is also one of the impacts of increasing student creativity. This is in line with research conducted by Pangestu et al. (2024), Rahmawati et al (2022) and Pratiwi et al. (2021) which states that project-based learning can increase creativity, especially when applied to Natural Science learning in elementary schools. Which directly this research also supports the achievement of the objectives of learning natural and social sciences in the independent curriculum.

The success of this study is also influenced by integration of local wisdom which is also used as a medium for introducing culture to students. The integration of local wisdom can also make learning meaningful because it directly integrates subject of learning with students' daily lives (Alexon et al., 2024; Anggito & Sartono, 2022; Murti, 2023; Syamsi et al., 2024). Local wisdom values integrated into learning materials can enrich students' learning resources. In addition, a sense of love for culture and local wisdom products can be instilled in students. This is in accordance with the opinion of Sihrawati, et al. (2023) and Aji & Pujiastuti (2022) who stated that instilling value of love for local wisdom and regional culture can be done through education in schools. Local wisdom-based learning can also play a role in instilling positive character and provisions to face problems related to local wisdom around the student's residence can be obtained through learning that is integrated with local wisdom. This is consistent with the opinion of Shufa (2018) & Zain et al (2024) who stated that local wisdom learning is very important to implement because it can increase students' knowledge and understanding of local wisdom. Students can also begin to instill a sense of love for local wisdom starting from the surrounding environment. This research also supports research conducted by Irvan & Mustadi (2021) which states that the integration of local wisdom in the learning process not only improves patriotic character, but can also improve the creative dimension.

The effectiveness of using the developed project module is one form of successful use of the module in learning. This is in accordance with the opinion of Hapsari, et al. (2016) which states that the project module can increase student creativity, student enthusiasm for learning, and help create a conducive learning atmosphere. Increasing the creative dimension of students through the use of project modules is continuous with research conducted by Amri & Widiyono (2023), Mustadi et al (2024), Krisnajati et al. (2024) and Zamsiswaya et al. (2024) which shows the effectiveness of the project module in increasing student creativity. This can be seen from the results of the pretest and posttest which show an increase in students' creative dimension skills.

Conclusion

Based on the explanation above, it can be concluded that a module with three characteristics is produced, namely *Ajak Temani Mandiri* (ATM) Learning Model, integrated with local wisdom, and contains project-based learning on each topic of material. The three characteristics contained in the module are developed continuously by paying attention to characteristics of a good module, namely self-instructional, self-contained, stand-alone, adaptive, and user friendly. The results of feasibility test indicate that the developed product meets criteria of "very feasible" to use. The results of effectiveness test of the developed product have an impact on increasing the creative dimension of grade IV elementary school students. This increase was shown in the main field-testing stage with a pretest score of 3.72 in the "moderately developing" criteria and increased in the post-test with a score of 73.46 in the "developing as expected" criteria. This gets an N-Gain score of 0.59 with medium criteria. The creative dimension of students at the operational field-testing stage also increased as indicated by a pretest score of 35.03 in "moderately developing" criteria, increasing to a post-test score of 87.76 in "already developing" criteria. This score obtained an N-Gain score of 0.81 with a "high" criterion. In addition to having an impact on student creativity, the use of modules also has an impact on increasing the average score of student products. This is indicated by the average product score at the main field-testing stage. The pretest showed a score of 73.96 then increased during the post-test to 84.61. The increase in the average product score also occurred at the operational field-testing stage with a pretest score of 75.49 then increased in the post-test to 89.05. Suggestions for further research are to be able to develop a module that is able to improve five dimensions of Pancasila Student Profile with differentiation of process, product and content.

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