

Analysis of the Effect of Project-Based Deep Learning on Diversity in Instilling Creative and Disciplined Character

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Abstract

Background – Developing creative and disciplined character is an essential aspect of 21st-century education. Elementary students require learning approaches that foster critical thinking, creativity, and self-discipline to prepare them for future academic and social challenges. Integrating deep learning with Project-Based Learning (PBL) provides a practical strategy to cultivate these character traits through meaningful, student-centered activities.

Purpose – This study aims to describe the implementation of deep learning integrated with Project-Based Learning through a diversity clipping project in fostering creative and disciplined character among third-grade students of SD Muhammadiyah 16 Karangasem.

Method/Approach – This qualitative research employed a phenomenological design. Data were collected through interviews with teachers and students, classroom observations during the project, and documentation of students' work. The study focused on understanding how the learning process influenced students' creative and disciplined behaviors.

Findings – The findings indicate that deep learning through a clipping-based project contributes to the development of students' creative character, reflected in active participation in group discussions, the ability to generate diverse ideas, flexible thinking, and careful task completion. Students' disciplinary character is enhanced through adherence to learning rules, time management, and responsibility in completing group tasks. Despite challenges such as limited time for lesson planning and character assessment, the project demonstrates positive potential in supporting character development. Teachers addressed these constraints by collaborating through the KKG forum to improve lesson plans and integrate appropriate character values.

Conclusions – The study provides evidence that deep learning integrated with a diversity clipping project can effectively foster both creative and disciplined character in elementary school students. Teacher collaboration and thoughtful lesson planning are key to maximizing the benefits of this learning approach.

Novelty/Originality/Value – This research offers valuable insights into combining deep learning and Project-Based Learning to develop students' character. It serves as a reference for future studies exploring innovative strategies to cultivate creativity and discipline in primary education.

Keywords: Deep Learning, Project-Based Learning, Student Character.

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INTRODUCTION

Basic education is the main foundation in shaping students' personalities and characters. At the elementary school level, education does not only focus on cognitive development, but also emphasizes character building, which is an important provision for students in facing the challenges of life in the future. With the world changing rapidly, students need to be equipped with skills that not only cover academic aspects, but also practical aspects that are relevant to the needs of the times (Wijayanti & Hartini, 2025). In addition, character education is an integral part of the learning process because it plays a role in shaping the attitudes, values, and behavior of students. Amidst the demands of the 21st century, there are two main characters that are very relevant to being developed from an early age, namely creative character and disciplined character. These two characters play an important role in shaping individuals who are able to think innovatively, be responsible, and adapt to rapid changes.

Creative character is a person's ability to think originally, imaginatively, and find new solutions to various problems encountered. Creative thinking is a person's ability to generate new, unique, and innovative ideas that can be used to solve problems and create something. (Nafisah, Sunarto, & Mazlan, 2025). Creative character can be reflected through students' courage in exploring ideas, their ability to produce unique work, and their persistence in creating something through independent thinking processes. (Hasniati, Rafiqah, & Angriani, 2022). Creative character in elementary school students is very important because at this age children are in the golden age of cognitive and affective development. At this stage, students have strong imaginations, high curiosity, and a desire to experiment with various forms of expression (Saputra, Wulandari, & Darsinah, 2024).

The issue of low creativity levels among students has also been the subject of various studies. Several studies show that only about 10.6% of students fall into the highly creative category. Although other studies show a higher percentage, with about 30.2% of students falling into the creative category, the data still indicates that most students have not reached their optimal level of creativity (Zuhriyah et al., 2022). These findings indicate problems in developing students' creative potential, which may be caused by various factors, such as unsupportive learning approaches, limited learning environments, and a lack of stimulation in the educational process. Therefore, teachers are required to design learning activities that can facilitate the development of students' creative potential through appropriate and meaningful approaches.

In addition to creativity, discipline is also an important trait that needs to be instilled from an early age. Discipline is defined as an individual's ability to manage themselves, obey rules, and complete tasks with responsibility and consistency (Dole, 2021). Discipline is reflected in arriving on time, completing tasks on deadline, obeying classroom rules, and showing commitment to learning activities. Student discipline issues are also the focus of various educational studies. Data shows variations in student discipline levels, with approximately 13% of students classified as having low discipline, 19% as having moderate discipline, and 68% as having high discipline (Wulandari, Nursalim, & Muhimmah, 2024). These findings indicate that there are still disparities in the implementation and achievement of discipline among students, thus requiring greater attention in establishing a consistent culture of discipline in the educational environment.

Students who are accustomed to being disciplined from an early age tend to grow into individuals who are able to manage their time well, have a strong work ethic, and appreciate the process of achieving goals. Therefore, learning designed by teachers is not only oriented towards achieving final results but also emphasizes a learning process that can foster values of discipline in a sustainable manner.

Along with the shift in the educational paradigm from teacher-centered to student-centered, various innovative learning approaches have begun to be developed and implemented in

elementary schools. One relevant approach is project-based learning (PjBL) (Ayu, Ekasriadi, & Gunartha, 2025). This learning model places on students as active subjects in the learning process by giving them real tasks that must be completed independently or in groups within a certain period of time. The main focus of this approach is to create meaningful and integrative learning (Adnyana, 2024).

Project-based learning allows students to integrate various important skills, such as information literacy, communication, collaboration, and creative problem-solving skills (Nurmidi, Pohuwato, Islam, Ibtidaiyah, & Interaktif, 2024). On the other hand, this approach also trains students to be disciplined because they are required to design, organize, and complete projects within a specified time frame and take responsibility for their work processes and results. One form of project-based learning that is relevant to elementary school is the biodiversity clipping project. This project involves collecting, compiling, and presenting information from various sources about biological, cultural, or environmental diversity in the form of clippings. Through this activity, students not only learn academic content, but also develop critical and creative thinking skills, as well as cultivate discipline and responsibility towards the tasks assigned to them.

In recent years, the concept of deep learning in the context of education has gained considerable attention. The implementation of deep learning in diversity clipping projects encourages students to not only collect information mechanically, but also to understand the context of the diversity being studied, relate it to the surrounding environmental conditions, and build awareness of the importance of conservation. This approach strengthens creative character through critical and original thinking processes, as well as strengthening disciplined character through perseverance and consistency in completing learning projects. The choice of the deep learning approach is closely related to the application of Project-Based Learning, particularly in clipping project activities.

SD Muhammadiyah 16 Karangasem is one of the elementary schools that focuses on developing students' creativity and discipline. This school integrates the deep learning approach into its diversity clipping project as one of its learning strategies. However, there are also a number of obstacles, such as differences in character among students that affect their understanding of the material and a lack of discipline among students during the learning process. This condition has an impact on the development of students' creative and disciplined characters, so it needs to be studied further. With this background, project-based deep learning on diversity clippings at SD Muhammadiyah 16 Karangasem is very appropriate to be applied to improve students' characters, especially their creative and disciplined characters.

METHODS

This study uses a qualitative approach with the aim of gaining an in-depth understanding of the learning process of project-based deep learning on diversity in instilling creative and disciplined character in elementary school students. A qualitative approach was chosen because this study focuses on revealing phenomena holistically in a natural context, with the researcher as the key instrument directly involved in the process of data collection, analysis, and interpretation. The research design used is phenomenological, which is to explore and understand the meaning of the subject's experience of the learning phenomenon experienced directly. This research was conducted for one month in November 2025 at SD Muhammadiyah 16 Karangasem, located at Jl. Srikaya No. 5, Karangasem, Laweyan District, Surakarta City, Central Java Province, with a research focus on third-grade students. The research subjects included 21 third-grade students, consisting of 10 male students and 11 female students, as

well as the third-grade homeroom teacher, who also served as the civics teacher. The research object was project-based deep learning using diversity clippings in relation to instill creativity and discipline in students.

The data collected is qualitative data in the form of words, narratives, and visual documentation obtained through observation, interviews, and documentation as commonly used in qualitative research. In this study, the data collected is data on students' creative character, students' disciplinary character, and also project-based deep learning (Project-Based Learning). The data sources consist of primary data obtained directly from teachers and students, as well as secondary data sourced from school documents, lesson plans, and teaching modules. The validity of the data was tested using source triangulation and technique triangulation to ensure the credibility of the research data. In this study, source triangulation was carried out by comparing sources from interviews, observations, and documentation. Meanwhile, the techniques used in technique triangulation in this study were interviews, observations, and documentation. Data analysis was conducted using an interactive analysis model that included data reduction, data presentation, and continuous conclusion drawing and verification from before the field research until the research was completed.

RESULTS AND DISCUSSION

The research results were obtained through interviews, observations, and documentation during the implementation of Civic Education learning in grade III of SD Muhammadiyah 16 Karangasem. Learning was carried out by applying a deep learning approach integrated with the Project-Based Learning model through a diversity clipping project. The learning process referred to the Project-Based Learning syntax, which included determining fundamental questions, preparing project plans, setting schedules, monitoring project progress, assessing results, and evaluating learning experiences (Ikhsanudin, 2014).

Research findings indicate that the application of deep learning based on diversity clipping projects contributes to the development of students' creative character. Creative thinking skills are also a new way of seeing and doing things that encompasses four aspects, namely fluency, flexibility, originality, and elaboration (Magdalena, Saridevita, Novyanti, & Destiyantari, 2021). Creative character can be seen from students' ability to generate diverse ideas, express opinions during discussions, and seek various sources of information in completing projects. Active and collaborative learning processes will encourage students to think critically, creatively, and engage meaningfully in learning activities. In addition, students show an active, enthusiastic, and meticulous attitude in compiling and refining their clippings.

Creative character was also evident when students engaged in question-and-answer sessions with teachers during lessons, group discussions, and discussions of the results of discussions. Through group discussions, students were able to see problems from different perspectives and develop ideas in greater depth. During the study, students demonstrated flexibility in completing group assignments, the ability to express new ideas that were not commonly expressed by other students, and perseverance in developing and reviewing the results of group work.

In addition to creative character, the results of the study also show the formation of students' disciplinary character through project-based deep learning on diversity. Discipline can be seen from the following indicators of discipline: (1) Time Discipline, which includes being punctual in learning, completing tasks on time, and not leaving the house while studying, (2) Behavioral Discipline, which includes always obeying the rules, not being lazy in learning, not asking others to do one's tasks, and always being honest and not lying (Nuraini & Ernawati, 2011). Discipline is also evident in students' ability to manage their time, follow learning rules,

and take responsibility for assigned tasks. Students work on projects according to the agreed schedule and perform their respective roles in the group quite well.

Discipline is an important foundation in shaping a positive learning culture, both at school and in everyday life (Ramadhani, Poerwanti, & Sularmi, 2022). Children who are accustomed to discipline from an early age will grow up to be individuals who are able to manage their time well, have a strong work ethic, and appreciate the process. However, the downside is that if discipline is enforced rigidly and authoritatively without an understanding of the values behind it, students may feel pressured, afraid of making mistakes, and lose their intrinsic motivation. Therefore, it is important for teachers and schools to instil discipline based on awareness, not just coercion (Okyanida & Bhakti, 2024).

In addition, teachers must also be able to understand and implement the principles of quality learning by designing learning that is fun, challenging, interactive, inspiring, and able to motivate students to participate actively, as well as creating learning that enables students to gain direct experience so that they can more easily accept, retain, and apply the concepts they have learned in their daily lives (Kurniawati, Sutisnawati, & Hamdani Maula, 2024).

Based on the interview results, teachers play an important role as key supporters in instilling creativity and discipline in students. Teachers strive to integrate character values into every learning activity and provide consistent examples, guidance, and reinforcement. This is in line with the opinion that (Wibowo, 2012) which states that teachers are the main actors who determine the success of the character learning process. In addition, teachers' commitment to implementing character education is also a major supporting factor in learning (Hidayatullah & Rohmadi, 2010).

However, this study also found obstacles in the implementation of diversity-based clipping project deep learning, namely time constraints in developing teaching modules, which made it difficult for teachers to optimally incorporate character values. As a result, student character assessment cannot always be conducted on the same day as the learning activity. This constraint has prompted teachers to modify their lesson plans so that character values can still be integrated, as stated by (Gunawan, 2022) that character development in learning requires adjustments to activities, indicators, and assessment techniques.

Based on these findings, the results of the study show that the application of deep learning based on diversity clipping projects can foster creativity and discipline in third-grade students at Muhammadiyah 16 Karangasem Elementary School, although there are still technical obstacles that need to be overcome in lesson planning. This success was achieved because the deep learning approach encouraged students to understand meaning, analyze critical information, and think originally, which was integrated through Project-Based Learning that required students to produce interesting and unique clippings. This success is also supported by the integration of deep learning with Project-Based Learning, where project models inherently train students to manage themselves, obey rules, and complete diversity clipping projects within a specified time frame with full responsibility and consistency.

The Effect of Applying Deep Learning in Clipping Project-Based Learning on the Development of Creative Character in Students

The discussion of the research results shows that the application of deep learning based on diversity clipping projects plays an important role in instilling creative character in third-grade students at Muhammadiyah 16 Karangasem Elementary School. The integration of the deep learning approach with the Project-Based Learning model provides a meaningful, contextual learning experience that is oriented towards active student involvement in the learning process. In addition, using one of the components of deep learning, namely joyful learning, will help students learn easily because joyful learning involves active student

participation, emphasizes a positive, fun, and interesting learning atmosphere, and increases students' interest, enthusiasm, and motivation in learning. Fun and engaging learning is certainly very popular among students, therefore, teachers must be able to design learning processes that involve them in activities inside and outside the classroom to strengthen their motivation to learn (Prawisudawati & Mona, 2022).

Joyful learning can be seen in one aspect of creative character, namely originality. This is because the second syntax of project-based learning involves planning a project, which includes group discussions. This method involves the active participation of students, emphasizes a positive, enjoyable, and interesting learning atmosphere, and increases students' interest, enthusiasm, and motivation in learning. In addition, conceptual studies on the integration of meaningful learning, mindful learning, and joyful learning in deep learning show that approaches that emphasize meaningful and enjoyable learning experiences can strengthen students' emotional and cognitive engagement, contributing to increased creativity and commitment to learning tasks (Experiences, 2025). Thus, these findings support the notion that project-based learning combined with the principles of deep learning and joyful learning can create a holistic, motivating learning environment that strengthens students' creativity and discipline in elementary school.

The effect of project-based deep learning on diversity in instilling creative character in the learning process can be seen from the learning activities carried out by teachers during the learning process. These learning activities include introductory activities, core activities, and closing activities. In the core activities carried out by teachers during Civic Education lessons, teachers use project-based learning. The Project-Based Learning process implemented in learning refers to the syntax or steps of the Project-Based Learning model, namely 1) Determining fundamental questions, 2) Developing project plans, 3) Developing schedules, 4) Monitoring students and project progress, 5) Assessing results, 6) Evaluating experiences (Ikhsanudin, 2014).

Students' creative character develops through learning activities that require them to explore information, express ideas, and compile clippings independently and collaboratively. These findings are in line with research (Twiningasih, 2023) which shows that the use of Project-Based Learning-based clipping media can improve students' creative thinking skills, particularly in terms of fluency, flexibility, originality, and elaboration. In this study, students' creative character was evident through their flexible thinking skills, the emergence of new ideas, and their persistence in developing clipping project results.

The deep learning approach in project-based learning encourages students to not only memorize material, but also understand context, analyze information, and relate it to their surrounding environment. This is in line with the opinion that (Royani, Ahda, Silalahi, Manajamen, & Bangsa, 2024) which states that deep learning emphasizes deep conceptual understanding, active engagement, and reflective and contextual learning. Through the diversity clipping project, students learn to organize information critically and creatively, allowing their creative character to develop naturally in the learning process.

The Effect of Applying Deep Learning in Clipping-Based Project Learning on the Development of Student Discipline

In addition to creative character, project-based deep learning on diversity also contributes to the formation of students' disciplinary character. Disciplinary character is evident in students' ability to manage time, obey learning rules, and take responsibility for assigned tasks. The project-based learning process inherently requires students to follow the stages of activities, complete tasks according to schedule, and work together in groups. These findings support the opinion that (Ikhsanudin, 2014) which states that Project-Based Learning

trains students to be responsible, consistent, and disciplined in completing learning projects. In the deep learning and project-based learning approaches, discipline is crucial for students to be able to design work schedules, develop collaboration strategies, monitor progress, and reflect on their learning in a gradual and responsible manner (Ayu et al., 2025).

Another way to improve discipline in learning is for teachers to develop positive habits such as creating learning contracts, assigning individual and group responsibilities, and setting realistic and structured task schedules (Afdani et al., 2024). In addition, teachers must also be able to understand and implement the principles of quality learning by designing learning that is enjoyable, challenging, interactive, inspiring, and able to motivate students to participate actively, as well as creating learning that enables students to gain direct experience so that they can more easily accept, retain, and apply the concepts they have learned in their daily lives (Kurniawati et al., 2024).

In line with that, studies (Zhao & Watterston, 2021) reveal that student-centered learning with a pleasant and meaningful atmosphere can increase emotional engagement and learning responsibility, which has a direct implication on the formation of a disciplined character. Thus, the application of project-based deep learning on diversity not only strengthens students' cognitive aspects but also plays a strategic role in developing a disciplined character in a sustainable manner. Moreover, this approach encourages students to collaborate effectively, fostering social skills that are essential in both academic and real-world contexts. Additionally, it promotes reflective thinking, allowing learners to assess their own progress and internalize the values of self-discipline and accountability.

Discipline is an important foundation in shaping a positive learning culture, both at school and in everyday life (Ramadhani et al., 2022; Sagala & Daulay, 2025). Children who are accustomed to discipline from an early age will grow up to be individuals who are able to manage their time well, have a strong work ethic, and appreciate the process. Therefore, learning should be designed to emphasize not only results, but also the learning process that fosters values of discipline.

The role of teachers is a major supporting factor in the successful cultivation of creativity and discipline in students. Teachers act as facilitators and role models in integrating character values into every learning activity. This is in line with the opinion that (Wibowo, 2012) which emphasizes that teachers are the main actors who determine the success of character education in schools. In addition, teachers' commitment to implementing character education is also an important factor, as stated by (Hidayatullah & Rohmadi, 2010) that commitment is a key characteristic that educators must possess in carrying out their duties and responsibilities.

Challenges encountered in applying deep learning in diversity clipping project-based learning to students' creative character

Although project-based deep learning on diversity clippings showed positive results, this study also found obstacles in its implementation. The main obstacle faced by teachers was limited time in preparing teaching modules, making it difficult to optimally integrate character values and resulting in student character assessments not always being conducted on the same day. These findings are in line with the opinion of (Gunawan, 2022) which states that character development in learning requires adjustments to learning activities, achievement indicators, and assessment techniques so that character values can be measured properly.

In addition, (Hidayatullah & Rohmadi, 2010) One of the characteristics that teachers must have is competence. Competence refers to a teacher's ability to conduct learning and solve various problems in order to achieve educational goals. Teacher competencies include pedagogical, personal, social, and professional competencies. In this case, teachers have made efforts to provide solutions. The solution implemented by teachers to overcome this obstacle is

to discuss through the KKG forum in the preparation of lesson plans to include appropriate character values. (Asmarani, 2014) explains that the teacher working group (KKG) is a place for teachers to meet and develop their professional competencies. KKG has many benefits for teachers, especially in the development of teacher competencies.

One of the functions of KKG is as a place for discussion and problem solving for teachers who encounter difficulties in teaching activities. Thus, the preparation of lesson plans is very important for teachers so that they are well prepared to develop effective teaching methods. Therefore, good lesson planning is the first step in designing quality character education lessons. Research conducted by (Prastyo, 2022; Baeny & Handayani, 2025) conclude that learning planning is useful in determining the accuracy and suitability of all character education learning strategies and materials. This is done so that the principles of character education learning that have been compiled in the teacher's worksheet can be presented comprehensively, without any learning stages being left out.

Based on this discussion, it can be concluded that diversity clipping project-based deep learning is an effective learning strategy for instilling creativity and discipline in elementary school students. Although there are still technical obstacles in learning planning, this approach remains relevant and has the potential to be further developed as a learning model that supports character building in students. Furthermore, its implementation can enhance students' problem-solving skills by encouraging them to explore multiple perspectives and find innovative solutions. In addition, it helps create a more inclusive classroom environment where every student feels valued and motivated to participate actively.

CONCLUSION

Based on the results of the research and discussion, it can be concluded that the application of deep learning integrated with the Project-Based Learning model through a diversity clipping project can foster creativity and discipline in third-grade students at SD Muhammadiyah 16 Karangasem. Students' creative character developed through active involvement in group discussions, the ability to express diverse ideas, flexible thinking, and perseverance in completing learning projects. In addition, project-based learning also contributes to the development of students' discipline, as demonstrated by their compliance with learning rules, time management skills, and responsibility in carrying out group tasks. The role of teachers as facilitators and role models is an important factor in integrating character values during the learning process. Despite constraints such as limited time in developing teaching modules and implementing character assessments, project-based deep learning using diversity clippings still shows positive potential as a learning strategy to support the strengthening of creativity and discipline in elementary school students.

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