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Utilizing Project-Based Learning In 10th-Grade Geography To Develop Students' Communication And Collaboration Competencies

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Abstract:
This paper examines the application of project-based learning in teaching 10th-grade Geography at high schools, aligned with the 2018 General Education Program. Based on a theoretical analysis of project-based learning and an evaluation of 10th-grade Geography textbook content, the study establishes foundational principles tailored to the discipline's characteristics. Consequently, the paper proposes a three-step framework for implementing project-based learning in thematic modules: Formulating proposals and planning; executing the project; and synthesizing, reporting, and evaluating outcomes. The research findings reinforce the feasibility and significance of incorporating project-based learning into 10th-grade Geography instruction. This approach fosters students' knowledge, attitudes, accountability, and actionable skills regarding real-world issues, thereby contributing to the formation and development of their communication and collaboration competencies.

Keywords: *Project-based learning, 10th-grade Geography, High school, teaching methods, communication and collaboration competencies.*

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I. Introduction

The current 2018 General Education Program places a strong emphasis on fostering students' competencies and qualities, while stimulating learners' creativity and autonomy. Notably, learning themes in Geography provide students with in-depth knowledge of contemporary real-world issues in their surroundings, while offering career orientation related to geographical knowledge. Given that each student possesses a distinct perspective and approach to problem-solving, teachers are required to employ appropriate instructional methods to leverage individual student strengths. Project-based learning is a student-centered instructional model that fosters various competencies and attributes through open-ended tasks, enabling students to apply theoretical knowledge to practical situations. Therefore, project-based learning is highly suitable for teaching practical content, particularly the learning themes in 10th-grade Geography. However, the implementation of project-based learning in high schools remains severely limited, as teachers often lack extensive experience in organizing project-based activities, which hinders the method's overall effectiveness. Consequently, researching and utilizing project-based learning in 10th-grade Geography at the high school level is essential, holding both theoretical significance and practical value. On this basis, this paper focuses on clarifying the principles and requirements for implementing project-based learning in 10th-grade Geography instruction, while proposing a structured process for applying project-based learning to specific learning themes to enhance instructional efficacy and contribute to the development of students' qualities and competencies.

II. Research Methods

The method of document analysis and synthesis was employed to systemize the theoretical and practical foundations of project-based learning aimed at developing students' communication and collaboration competencies.

The method of content analysis of the curriculum and textbooks was used to review lessons and themes within the 10th-grade Geography textbook - Connecting knowledge to life, thereby identifying themes suitable for the project-based learning method.

The expert method was utilized to gather teachers' feedback regarding the suitability, feasibility, and effectiveness of the proposed pedagogical measures.

The pedagogical experimentation method was applied to initially verify the feasibility of several specific themes in 10th-grade geography instruction.

III. Research Results And Discussion

Concept of project-based learning

Project-based learning is a complex instructional method, typical of the student-centered teaching trend, in which the teacher organizes and guides learners to independently execute a complex learning task through the process of resolving a practical situational problem closely linked to the lesson content - the project, combining theory and practice to generate presentable products; learners participate in almost all stages of the project execution process: from defining objectives, planning, to executing, checking, adjusting, and evaluating the process and outcomes; teamwork and information technology integration serve as the fundamental modalities of project-based learning. Through this, learners acquire and apply knowledge while practicing 21st-century action and creative skills [2],[3].

During the project-based learning process, students are encouraged to research, explore, and contribute to the execution of the final project product, such as a presentation, report, model, or alternative creative product. This method typically possesses high practicality, helping students connect learned theory with real-world issues, thereby stimulating interest and responsibility toward their own learning.

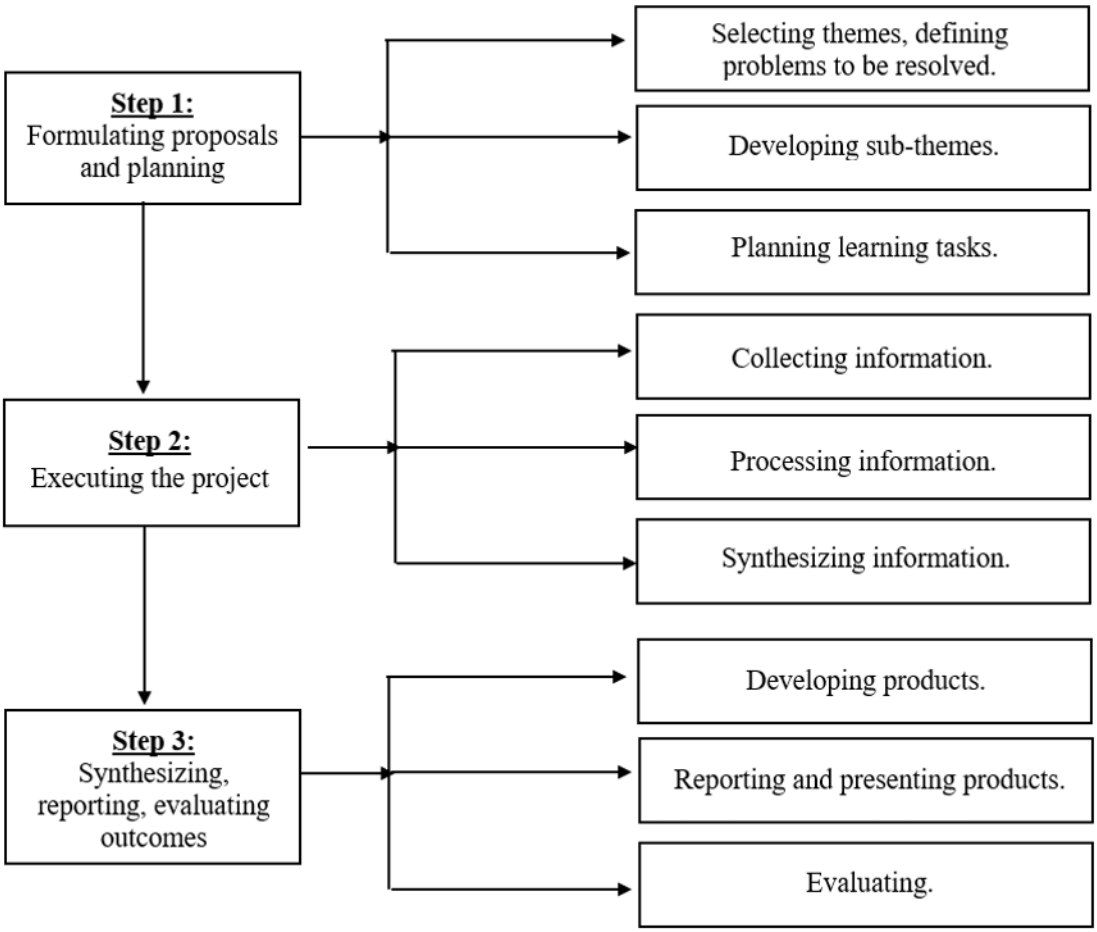
Principles of organizing classroom activities according to the project method

When organizing classroom activities according to the project-based learning method, teachers need to adhere to several principles to ensure an effective learning process and help students comprehensively develop both knowledge and skills. The basic principles include:

- Principle of clear orientation: Teachers need to clearly define the learning objectives and the final product that students need to achieve in the project. Specifically, students need to understand what they are learning, which knowledge and skills they need to acquire, and what product the project will yield upon completion.
- Principle of selecting appropriate and practically linked themes: Project themes should originate from practical issues, suitable for real life or social situations that students may encounter. The themes also need to match students' capacities and proficiency levels, helping students easily connect learned knowledge with reality.
- Principle of encouraging students' autonomy and creativity: students need to be provided with favorable conditions to take the initiative in planning, assigning tasks, and executing the project. This method encourages students to think independently, propose new ideas, and explore freely. The teacher acts as a guide and supporter, helping students take responsibility for their own learning outcomes.
- Principle of collaboration and teamwork: Project-based learning encourages the spirit of teamwork and cooperation among students. Teachers need to facilitate student groups to divide work, share ideas, and support one another, thereby practicing teamwork skills and responsibility toward shared work.
- Principle of process and product evaluation: Teachers need to focus on evaluating both the execution process and the final product of the project. Evaluation should be conducted through each stage, helping students adjust and improve throughout the project duration. Alongside the final product, it is necessary to consider students' learning attitudes, problem-solving abilities, and progress during the project.
- Principle of combining theory and practice: Project activities need to combine theory and practice, helping students both master theoretical knowledge and know how to apply it to reality. This helps students consolidate understanding and accumulate practical experience.
- Principle of flexibility and adaptation: Teachers need to have the ability to adjust and adapt to new situations or changes arising during the project execution process. Sometimes, the initial plan may need adjustment to fit students' progress and capabilities, helping ensure learning effectiveness.
- Principle of motivating and maintaining learning interest: Project-based learning needs to create a comfortable and encouraging learning environment, helping students feel interested in the theme and motivated to complete the project. Teachers should create reasonable challenges, encouraging students to strive to overcome them to complete tasks.
- Principle of regular feedback: Teachers need to provide regular feedback to students regarding the progress and quality of their work. This feedback helps students recognize points that need improvement and enhancement, while driving them to complete the project in a better direction.

General process of teaching according to the project method

The project execution process consists of 6 main steps: Selecting themes; planning; collecting information; processing information; reporting results; evaluating. However; to facilitate the organization of instructional activities; these steps are consolidated into 3 main steps as follows [2],[3]:



Utilizing the project-based learning method to design the project theme "SUSTAINABLE GREEN HUES"

IV. Project Information

1. Rationale for selecting the project

The theme "Sustainable development and green growth" in the 10th-grade Geography curriculum is an open, highly topical theme that is closely linked to the daily practical life of both the local community and the world. The documents, data, and practical models regarding this content are incredibly abundant and continuously updated. Therefore, this theme is highly suitable for teachers to utilize the project-based learning method to help students develop critical thinking, creativity, and the ability to apply interdisciplinary knowledge to solve real-world problems. Through the project, students have many opportunities to experience and discover their own capabilities. Consequently, the project not only stimulates students to develop 21st-century skills but also orients their life ideals and future careers in alignment with the green development trend of the era.

2. Project content

The project orients students to thoroughly investigate the environment, natural resources, sustainable development strategies, and green growth, while connecting these issues with local reality. From there, students gain practical and profound perspectives to take concrete actions to contribute to environmental protection, rational resource utilization, and the promotion of a green lifestyle.

3. Execution time

According to the educational plan, the theme "Sustainable development and green growth" has a duration of 3 periods.

V. Execution Process

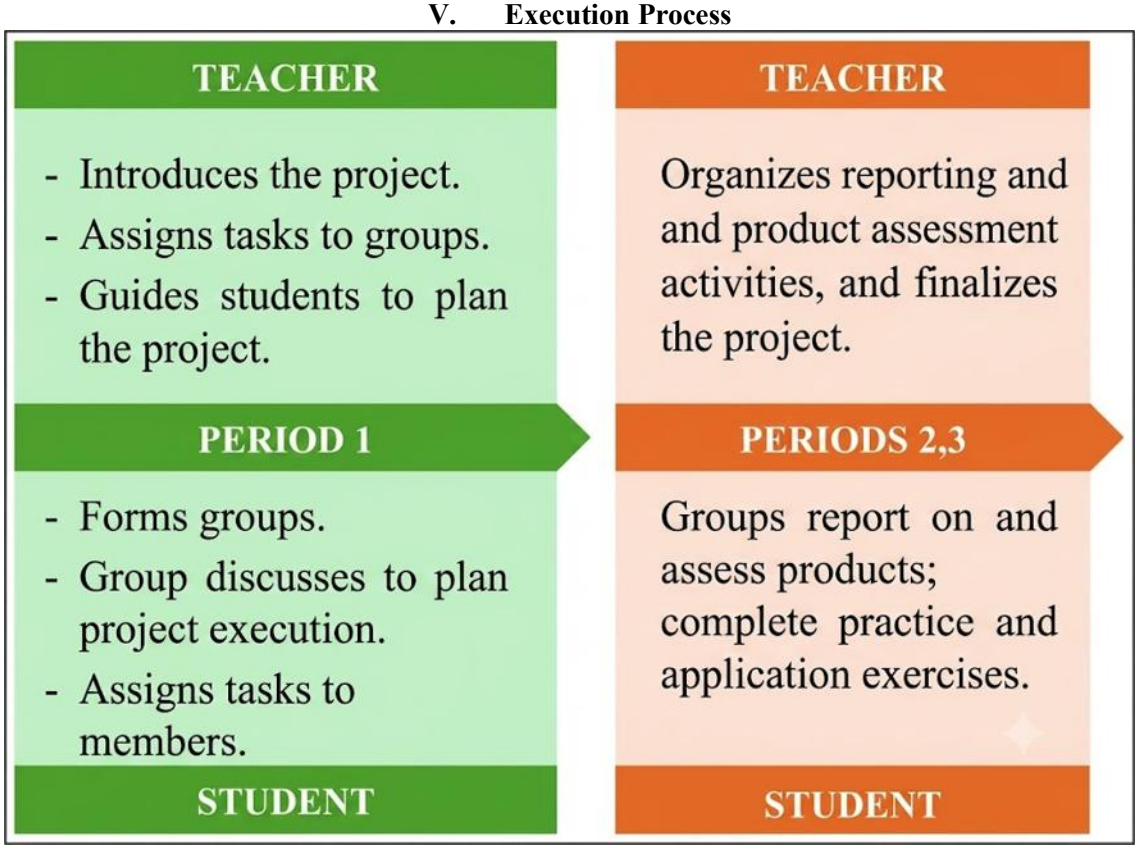


Figure 1. Implementation process of the "Sustainable green hues" project

VI. Organization Of Activities

Period 1: Project Introduction, Planning, Information Collection And Processing

1. Objectives: To introduce the project; to assign tasks to groups; to enable groups to develop a detailed project plan.

2. Implementation process

Activity 1: Introduction

a) Objective: To introduce the **"Sustainable green hues"** project and state project objectives.

b) Organization of implementation

Step 1: The teacher presents the video "Human and Earth" and requests students to share their feelings regarding the actions and consequences depicted in the video.

Step 2: Students watch the video and fulfill the teacher's request.

Step 3: Students express their feelings.

Step 4: The teacher summarizes the key points and leads into the project.

Activity 2: Planning, information collection and processing

a) Objective: To develop information collection and processing skills, field investigation; communication and collaboration competencies, autonomy, and self-learning.

b) Organization of implementation

Step 1: The teacher divides students into groups and assigns tasks; guides groups in planning and information collection and processing.

No.	Group name	Task	Expected product
1	Editorial	Investigating the concept and characteristics of the environment and natural resources.	Mind map
2	Design	Analyzing the role of the environment and natural resources in the development of human society.	Poster

No.	Group name	Task	Expected product
3	Painting	Investigating the concept and necessity of sustainable development.	Simulation drawing
4	Speaker	Investigating the concept and manifestations of green growth.	PowerPoint presentation
5	Communication	Connecting several issues regarding green growth in the local area	Film, video

Step 2: Groups discuss to execute tasks.
Step 3: Group representatives present draft plans.
Step 4: The teacher reviews and provides feedback for groups to finalize their plans.

Periods 2,3: Product Reporting, Evaluation And Project Synthesis
1. Objectives
- Students present project products and discuss related issues.
- Consolidating communication and collaboration, problem-solving and creativity, evaluation and self-evaluation competencies.

2. Participants
- Representatives of the professional department.
- Geography teachers and homeroom teachers participating in the project.
- Students of the class participating in the project.

3. Implementation process
Activity 1: Product reporting
a) Objectives
- Students present project products and discuss related issues.
- Consolidating communication and collaboration, problem-solving and creativity competencies
b) Organization of implementation
Activity 1.1. Investigating characteristics, concepts; analyzing the role of the environment and natural resources

Objectives
- Differentiating the concepts and characteristics of the environment and natural resources.
- Analyzing the role of the environment and natural resources in the development of human society.

Organization of implementation
Step 1: The teacher introduces the editorial group and design group to present project products.
Step 2: The editorial and design groups present products in turn. Maximum time for each group is 07 minutes.
+ Editorial group: appoints a group representative to present a mind map on the concepts and characteristics of the environment and natural resources.
+ Design group: appoints a group representative to present a poster on the role of the environment and natural resources in the development of human society.
+ Other groups observe, listen, and take notes of main contents.
Step 3: Discussion
+ After groups finish presenting, the remaining groups provide feedback and ask questions for the editorial/design group.
+ The editorial/design group notes down questions and provides answers.
Step 4: The teacher reviews and concludes knowledge.

Activity 1.2. Investigating the concept and necessity of sustainable development
➢ *Objectives:* Presenting the concept and necessity of sustainable development.
➢ *Organization of implementation*
Step 1: The teacher introduces the painting group to present the project product.
Step 2: The painting group presents the product. Maximum time for the group is 07 minutes.
+ Painting group: appoints a group representative to present a simulation drawing on the concept and necessity of sustainable development.

+ Other groups observe, listen, and take notes of main contents
Step 3: Discussion
+ After the presentation, the remaining groups provide feedback and ask questions for the painting group.
+ The painting group notes down questions and provides answers.
Step 4: The teacher reviews and concludes knowledge.

Activity 1.3. Investigating the concept and manifestations of green growth
➢ *Objectives:* Presenting the concept and manifestations of green growth
➢ *Organization of implementation*
Step 1: The teacher introduces the speaker group to present the project product.
Step 2: The speaker group presents the product. Maximum time for the group is 07 minutes.
+ Speaker group: appoints a group representative to present a PowerPoint presentation on the concept and manifestations of green growth.
+ Other groups observe, listen, and take notes of main contents.
Step 3: Discussion
+ After the presentation, the remaining groups provide feedback and ask questions for the speaker group.
+ The speaker group notes down questions and provides answers
Step 4: The teacher reviews and concludes knowledge.

Activity 1.4. Connecting several issues regarding green growth in the local area
➢ *Objectives:* Connecting several issues regarding green growth in the local area.
➢ *Organization of implementation*
Step 1: The teacher introduces the communication group to present the project product.
Step 2: The communication group presents the product. Maximum time for the group is 07 minutes.
+ Communication group: appoints a group representative to present a film/video on several issues regarding green growth in the local area.
+ Other groups observe, listen, and take notes of main contents.
Step 3: Discussion
+ After the presentation, the remaining groups provide feedback and ask questions for the communication group.
+ The communication group notes down questions and provides answers.
Step 4: The teacher reviews and concludes knowledge.

Activity 2: Product evaluation, project synthesis
a) Objectives
- Consolidating evaluation and self-evaluation competencies.
- Learning from experiences regarding limitations of oneself and peer groups.
- Evaluating the entire activity of students within the project.

b) Organization of implementation
Step 1: The teacher popularizes the evaluation process of project activities.
Step 2: Group leaders manage evaluation according to the sequence:
+ Groups evaluate one another.
+ Individual students self-evaluate.
+ Group members evaluate one another.
Step 3: Groups report evaluation outcomes and synthesize evaluation outcomes.
Step 4:
- The teacher reviews, provides general evaluation, and draws lessons from students' limitations.
- The teacher synthesizes evaluation outcomes of the whole class.
- Awarding rewards to individuals and groups with excellent task completion.

VII. Conclusion

The project-based learning method in teaching 10th-grade Geography at high schools is a necessary approach, aligned with the orientation of the 2018 General Education Program. Based on clarifying concepts, foundations for defining content, principles, and requirements for implementing project-based learning in 10th-grade Geography instruction, while proposing a structured process for applying project-based learning to specific learning themes, the paper demonstrates that 10th-grade Geography possesses numerous favorable conditions to apply the project-based learning method toward developing students' communication and collaboration competencies. The execution of the proposed general three-step process for teaching according to

the project method is feasible and appropriate for the discipline's characteristics. The research findings can be utilized as a reference baseline in designing and organizing 10th-grade Geography instruction toward developing qualities and competencies of high school students.

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