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Using Visual Channels In Teaching Geography 10 To Develop Students' Competencies

Do Van Hao, Cao Dai An
(Department Geography, Thai Nguyen University Of Education, Viet Nam)

Abstract
In Geography education, knowledge is not only stored in textual form but also conveyed richly through visual channels such as maps, diagrams, statistical tables, charts, photographs, videos, and documentaries. These visual resources offer strong illustrative value and stimulate spatial thinking - an essential competency in the discipline. Therefore, to optimize the process of knowledge acquisition, teachers need to actively guide students in systematically extracting information from both textual and visual sources. The effective integration of verbal explanations from textbooks with visual elements enables students to acquire knowledge more deeply, develop the ability to associate and generalize, and enhance long-term retention. The teacher's role in organizing and orienting activities that exploit visual channels becomes especially important in the context of the 2018 General Education Curriculum, which emphasizes the development of students' learner autonomy capacity and independent thinking. From this perspective, the use of visual channels aims not only to develop students' competencies but also to empower them to assert their position in the process of mastering geographical knowledge.

Keywords: *Teaching, Geography, Competency, Visual Channels, Teachers, Students.*

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I. Introduction

The Geography curriculum consists of three main parts: General Geography, World Socio-economic Geography, and Vietnamese Geography. In addition, the program includes thematic modules designed to align with the overall content structure. Alongside textual knowledge, geographical content is also preserved in visual form. Therefore, the method of teaching through visual channels has increasingly been emphasized in schools as a means of fostering students' competencies.

The 2018 General Education Curriculum (GEC) shifts its focus from mere transmission of knowledge to the holistic development of students' competencies. This requires flexible teaching methods that utilize visual aids, particularly visual channels, to not only facilitate knowledge acquisition but also to develop students' learner autonomy skills, critical thinking, and problem-solving abilities. Visual resources such as maps, charts, and geographical images provide learners with direct and vivid access to information, thereby nurturing research and inquiry skills.

In teaching Grade 10 Geography, visual channels are indispensable for transmitting information. Teachers should maximize the use of maps, diagrams, photographs, and videos to help students grasp geographical phenomena more effectively. Visual channels serve not only as illustrations but also as powerful tools for enhancing analytical and critical thinking skills. Teachers must flexibly integrate these tools according to lesson objectives and student abilities, thereby promoting self-directed learning and deeper understanding of the world.

The use of visual channels in teaching Grade 10 Geography, in accordance with the 2018 GEC, is a highly effective approach to competency development. Based on educational innovation theory, the psychology of 10th-grade learners, and curricular requirements, teachers should adopt visual channels in a flexible, creative, and scientific manner to enhance teaching quality and foster students' comprehensive competencies.

This paper aims to explore and propose principles, processes, and methods for using visual channels in Geography education, particularly in Grade 10, thereby contributing to the ongoing innovation of teaching practices to improve the quality and effectiveness of geography instruction in high schools.

II. Research Methods

Data collection and processing: Relevant literature, statistical data, and research projects at different levels related to the use of visual channels in Geography education were systematically collected and reviewed. The database for research was systematically organized, categorized by research content, and all sources were clearly identified and cited.

Analysis and synthesis: Based on the collected data, the authors synthesized and analyzed teaching practices in schools, factors influencing the application of visual channels, and the current status of implementation. This provided the basis for proposing principles and processes for using visual channels in teaching Grade 10 Geography to foster students' competencies.

Survey research: This method was employed to verify the accuracy of collected data by directly investigating schools, teaching methods, and classroom practices regarding the use of visual channels.

Pedagogical experiment: Experimental lessons using designed visual channels were conducted with selected classes. Feedback and outcomes from these trials were used to refine and improve the proposed methods.

III. Research Findings And Discussion

Principles for using visual channels in teaching Grade 10 Geography

Ensuring scientific accuracy and appropriateness for students

During the process of teaching Geography, the use of visual channels to develop students'competencies must ensure scientific validity and appropriateness for learners. Specifically, visual channels must guarantee scientific accuracy: Visual channels must be precise and up-to-date. In teaching Grade 10 Geography, they should be selected from reputable sources with high accuracy and updated according to the latest scientific knowledge. This ensures that students access correct information and avoid misconceptions during the learning process. Regarding content, visual channels must align with the lesson content: images, charts, and diagrams should correspond to the subject matter, illustrating and concretizing theoretical knowledge, clarifying abstract or complex concepts. Visual channels must help students gain deeper understanding of geographical phenomena, as well as natural and socio-economic laws. Regarding systematization and logic: visual materials should be organized systematically and logically, ensuring coherence between topics and contents, thereby enabling students to grasp knowledge in a structured manner.

Next, visual channels must ensure appropriateness for students. First, they should be simple and easy to understand: images, maps, and charts must be designed to be clear, straightforward, easy to observe, and suitable for the cognitive level of Grade 10 students. Overly complex visuals or those overloaded with information should be avoided, as they hinder comprehension. Second, they must match students' developmental level: visual channels should correspond to learners' cognitive development, prior experience, and reasoning capacity. Images should be selected and arranged in ways that suit logical thinking and avoid overwhelming students with excessive information. Third, they must encourage active student participation: visual channels should be employed as tools to promote self-learning and knowledge discovery. Learning activities should provide opportunities for students to analyze, compare, and draw conclusions from images, maps, and charts, thereby fostering self-learning skills and critical thinking.

From there, visual channels make important contributions to developing students' competencies: Creating opportunities for students to independently explore: the use of visual channels in teaching enables students to actively seek out and explore information from images, maps, and diagrams. This stimulates curiosity, eagerness to learn, and the development of competencies. Supporting self-study activities: images, diagrams, and maps can be integrated into group learning, discussions, or assignments based on visuals. This helps students enhance self-learning skills through exploration and knowledge sharing. Developing analytical and critical thinking skills: students are encouraged to analyze and evaluate information from visual channels, thereby strengthening critical thinking and problem-solving abilities.

The scientific and appropriate use of visual channels in teaching Grade 10 Geography not only ensures effective instruction, but also significantly contributes to the development of students' competencies, helping them become more active, creative, and efficient learners.

The principle of ensuring both scientific validity and appropriateness guides the selection of content as well as teaching methods in Geography. In the context where the body of geographical knowledge and related disciplines continues to grow, while instructional time is limited, teachers must refine and filter the content. Specifically, factual and fragmented information should be reduced, while emphasis should be placed on strengthening core concepts and theories. This approach not only helps students grasp the essence of geographical phenomena but also equips them with new, more effective methods of learning and research.

In addition, the content of each lesson must correspond to students' capacity to absorb knowledge, both in terms of quantity and complexity. Teachers should neither overload with excessive information beyond the textbook, nor oversimplify excessively. When designing question systems, teachers must avoid questions that are too easy or too difficult, and instead select knowledge appropriate to students' cognitive characteristics, while also contributing to the development of their thinking abilities. In the teaching process, organizing student engagement with maps plays an especially important role [1],[2],[5].

Ensuring systematic organization and connection with reality

Selecting appropriate visual channels: Use maps, charts, satellite images, and real-life photographs that are directly related to the lesson content. For example, when teaching about landforms, teachers can use topographic maps of Vietnam and the world, combined with illustrative images of each type of landform to provide students with a more intuitive perspective.

Connecting theory with reality: When using visual channels, teachers should link geographical knowledge with real-life contexts. For instance, when teaching about climate, teachers can use actual weather charts from online data sources or satellite images to illustrate current weather conditions and forecast future climate trends.

Developing skills in reading and analyzing images: Encourage students not only to observe but also to analyze visual channels. Teachers can pose questions that require students to interpret geographical phenomena through images, such as analyzing population maps or identifying natural features from satellite photos.

Creating related practical activities: Organize hands-on activities such as asking students to draw maps, compare different types of maps, or participate in educational games based on visual channels. This enables students to apply knowledge in practice and develop critical thinking skills.

Using technology to enhance systematization: Employ GIS (Geographic Information Systems) software, Google Earth, and interactive learning applications to allow students to explore and study geography proactively and systematically.

Assessing students through the use of visual channels: Design tests or questions that require students to analyze or draw conclusions based on visual materials. This ensures that students not only memorize but also gain deep understanding of geographical knowledge [1],[2],[5].

Ensuring educational value

The educational content of the subject Geography is reflected in the following aspects:

- Fostering students' qualities and ethics as citizens and modern workers, as well as patriotism and national pride, through awareness, actions, and attitudes toward particular issues.
- Fostering a dialectical materialist worldview in students: When studying Geography, students are constantly required to analyze causal relationships between natural phenomena, socio-economic phenomena, the components of nature, and the interactions between nature and social production activities. Through this process, students come to recognize the objectivity of natural and social phenomena. Such understanding gradually develops into beliefs and a worldview for students [1],[2].

Ensuring autonomy and cognitive development

In essence, this requires an optimal combination between the learner's active role in acquiring knowledge and the teacher's role in directing and guiding the teaching process, while criticizing the classical teaching approach that demands students to mechanically memorize an excessive number of facts. To ensure this principle:

- Teachers need to help students clearly understand their learning objectives.
- Priority should be given to thinking over memorization: enabling students to consciously grasp materials in a tightly logical sequence [1],[2].

Process of constructing a lesson using different types of visual channels

No	Step	Content
1	Step 1	Study the lesson objectives: knowledge, competencies, qualities, competency-oriented development, and methods of application
2	Step 2	Study the lesson content
3	Step 3	Build a suitable lesson structure and scenario: teaching aids and learning activities
4	Step 4	Conduct evaluation, conclusion, and improvement

Specifically as follows:

Step 1: Study the lesson objectives

From a technological perspective, objectives are the outputs, the goals that students need to achieve. By studying the objectives, teachers can determine the purpose of using visual channels in teaching (forming new knowledge or consolidating knowledge, competencies, and qualities). From there, they can establish the orientation for constructing lessons that meet the set objectives.

Step 2: Study the lesson content

In current general education, the curriculum framework is considered a "guiding compass" and a foundation of content for both teachers and students to interact with during the teaching process, whether in guidance or in knowledge acquisition. In teaching, the use of visual channels serves both as a means and as a

method of organizing instruction; therefore, visual channels must contain the lesson content. Through analyzing the relationships among the components of the teaching process, teachers can identify the instructional activities needed to exploit the knowledge embedded in visual channels. In practice, depending on students' characteristics and the specific lesson content, teachers can choose to use visual channels with different methods.

Step 3: Build a suitable lesson structure and scenario

Every lesson has its own structure. The structure of a lesson is the learning scenario for both teachers and students. The lesson structure requires teachers to prepare the necessary teaching aids, materials, and specific activities for both teacher and students, as well as guidelines for assessing results.

Building an appropriate scenario is an important step in designing a lesson that incorporates various visual channels. In this scenario, teachers express all their ideas, such as: planning to present lesson content through concepts and conceptual systems, phenomena, laws, objects, or sub-summaries; systematizing and generalizing certain contents or scientific issues through both language and visual representations (text, data, charts, diagrams, maps, drawings, videos, etc.). These should follow a rigorous, logical sequence that fits scientific content, students' cognitive levels, and subject teaching methodology.

Step 4: Conduct evaluation, conclusion, and improvement

A lesson designed with visual channels should be piloted and refined before being officially used in teaching, with the aim of promoting students' active engagement in learning.

Methods of using visual channels in teaching Grade 10 Geography

Using the Grade 10 Geography Atlas

In the teaching of Geography, the use of visual channels such as maps, diagrams, charts, or illustrations plays an important role in supporting students to access knowledge in a visual-spatial manner. From the perspective of modern pedagogy, visual channels are not only illustrative tools, but also instruments that stimulate geographical thinking, and foster the development of analytical, synthetic, and problem-solving competencies.

In the Grade 10 Geography curriculum, the Grade 10 Geography Atlas is a type of supporting learning material designed to visualize geographical knowledge. This form of visual learning resource provides a system of maps, diagrams, images, and charts that enables students to extract, compare, and analyze geographical information from multiple sources. The atlas does not merely serve as an illustration for lessons but also acts as a tool for developing students' map-using skills and independent geographical thinking.

Example: When studying Lesson 5: "Geographical Consequences of Earth's Motions" in Grade 10 Geography, the content related to the geographical consequence of Earth's rotation on its axis is the phenomenon of "Day and Night Alternation". Teachers can guide students to study the Grade 10 Geography Atlas in combination with Figure 5.1 (page 17, Grade 10 Geography Textbook - Knowledge Connection Series) in order to gain a deeper understanding of the consequence of "Day and Night Alternation".

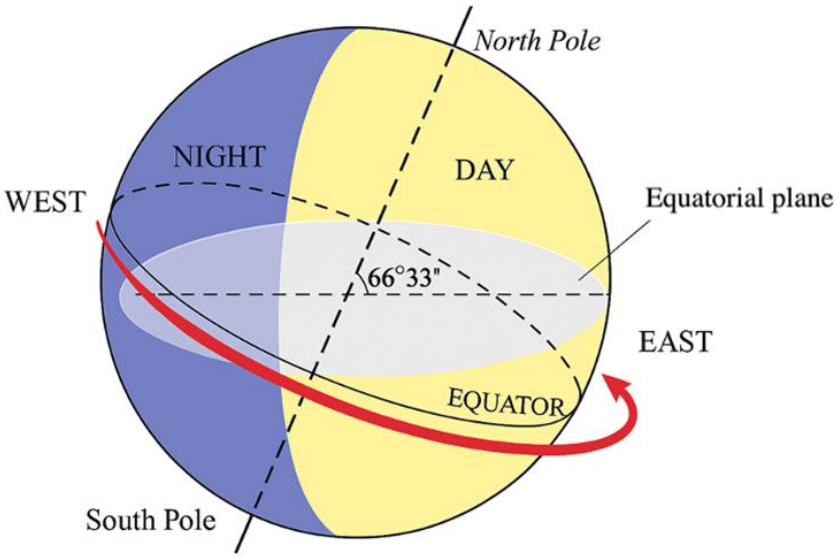


Figure 5.1. Earth' s rotation and the day/night phenomenon

Through the use of the atlas, students can observe the Solar System map and thereby identify the position of Earth within the Solar System. Students can compare the distances from the Sun to the planets to recognize that Earth receives sunlight from only one side, creating the illuminated part (day) and the dark part (night). Teachers can pose guiding questions for students:

Question 1: Does the Earth emit its own light?
Question 2: Why do day and night occur?

According to the map, how does sunlight reach the Earth? Through this process, knowledge is formed by means of vivid visualization. Specifically, the image showing that only half of the Earth is illuminated by the Sun, combined with the map of planetary positions in the Solar System, helps students clearly understand why Earth experiences day and night. By observing the division line between light and darkness, students can identify which regions are currently in daytime or nighttime, thereby understanding the consequence of Earth's rotation on its axis.

Organizing activities that exploit visual channels in a competency-oriented approach - such as coloring the illuminated areas, analyzing the geographical locations in day or night, and engaging in group discussions on the causes of the phenomenon - not only helps students master the knowledge but also contributes to developing their critical thinking, problem-solving skills, and ability to use geographical tools. This is fully aligned with the objectives of developing students' qualities and comprehensive competencies in the 2018 General Education Curriculum.

Method of extracting knowledge from diagrams and maps in Grade 10 Geography

Extracting knowledge from Geography diagrams allows students to identify the location and orientation of geographical phenomena, to understand the agents and significance of their formation in reality, and to establish causal relationships that explain important characteristics, particularly in the distribution patterns of geographical objects. This process also helps train students in using diagrams and learning tools, while developing their thinking, creativity, knowledge synthesis, and geographical competencies in the new curriculum.

Example: When studying Lesson 6: "The Lithosphere and Plate Tectonics", teachers can use the diagram "Tectonic Plates of the Earth" to guide students in exploring the plate tectonics theory in Chapter 3: The Lithosphere, Grade 10 Geography curriculum.

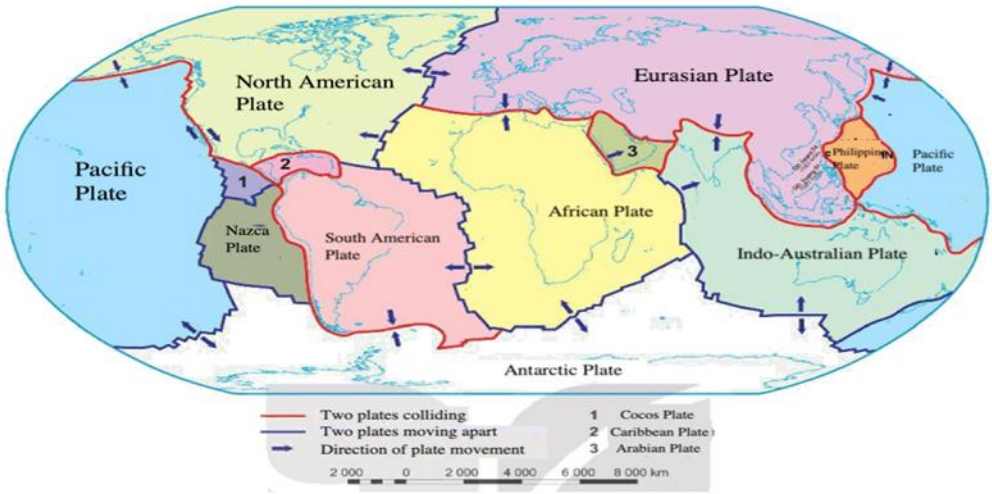


Figure 6.3. Tectonic plate map of the Earth

Teachers direct students to observe the diagram and answer several questions to identify the locations and names of major tectonic plates, recognize their movement directions, and determine the types of plate boundaries (convergent, divergent, transform).

Question 1: Why are there earthquakes and volcanoes in Japan or Indonesia?
Question 2: How are these phenomena related to the Earth's movements?
Question 3: How do their movement directions change?

These questions enable students to explain why earthquakes, volcanoes, and mountain building often occur at plate boundaries, while practicing skills in analyzing and cross-referencing geographical information on maps. Teachers can also combine multiple teaching methods to help students consolidate knowledge. In addition,

organizing learning activities to exploit diagrams encourages students to develop qualities such as cooperation and responsibility through group discussions and sharing map analysis results. It also enhances their ability to apply knowledge to real-life contexts, such as assessing the risk of earthquakes and volcanic eruptions in residential or tourist areas.

Thus, it can be affirmed that teachers' effective use of Geography diagrams in teaching Grade 10 not only helps students acquire knowledge more efficiently, but also directly contributes to the development of geographical thinking and student competencies, in alignment with the current orientation of educational innovation in general education.

Method of extracting geographical knowledge from statistical tables

For teachers, mastering the content and characteristics of statistical tables and knowing how to organize appropriate teaching activities contributes to enhancing instructional effectiveness, while also providing methods to guide students in extracting knowledge from statistical data.

Guiding students to read, process and relate statistical data contributes to the formation and development of important geographical competencies such as analytical thinking, problem-solving, and the ability to use geographical tools.

Example: When teaching Lesson 19 "Population Size, Population Growth, and Population Structure of the World", to demonstrate that the world's population has grown rapidly but has slowed in recent years, teachers can guide students to examine the following statistical table:

Table 2.2. World population size, 1950-2050
(Unit: billions of people)

Year	1950	2000	2020	2050 (forecast)
World	14,3	14,3	0	43,0
Developed countries	7,2	6,8	0,4	22,0
Developing countries	12,7	10,2	2,5	38,8

By observing this table, students can clearly see the significant changes in global population dynamics. They recognize that although the world population has continuously increased, the rate of growth has varied across different periods.

1. Period 1950-2000: Rapid population growth. In 1950, the world's population was about 2.5 billion people, rising to over 6 billion by 2000-more than doubling in just 50 years. This period witnessed a population explosion due to advances in healthcare and nutrition, which sharply reduced mortality rates while fertility remained high in many regions.
2. Period 2000-2020: Continued growth, but at a slower pace. Between 2000 and 2020, the population increased from about 6.1 billion to nearly 7.8 billion. The growth rate slowed slightly compared to the previous period, as many countries entered a phase of demographic stabilization with fertility rates falling below replacement level.
3. Forecast period 2020-2050: Slower growth, moving toward stabilization. Projections suggest that by 2050 the world population will reach about 9.7 billion. This indicates that the global demographic transition is underway, with clear declines in fertility in regions such as Europe and East Asia.

Through calculating and interpreting data from the table, students are able to retain knowledge about world population size more effectively and for a longer time.

To ensure students master this content, teachers can combine it with the heuristic dialogue method, posing questions based on the statistical table to help students reinforce their understanding.

Method of extracting geographical knowledge from charts

In teaching Grade 10 Geography, charts are an important form of visual representation that help students visualize relationships, comparisons, and fluctuations of natural and socio-economic geographical phenomena. Each type of chart corresponds to specific data sets, supporting students in understanding and forming basic geographical concepts such as structure, distribution, growth, and proportion.

Proper use of charts enables students to grasp the essence of issues, develop analytical and synthetic skills, and begin to cultivate geographical thinking. To effectively use charts in Grade 10 Geography teaching according to a competency-based approach, teachers need to guide students in selecting appropriate types of charts, reading them, and decoding information to extract core knowledge.

Teachers can guide students in using charts to analyze relationships between natural geographical factors.

Example: In Grade 10 Geography, helping students understand and analyze the interrelationships among natural factors is a crucial foundation for forming geographical thinking. A typical example is identifying climate types

based on temperature and precipitation. These elements do not exist independently but are closely interconnected and mutually influential, shaping the characteristics of each climate type.

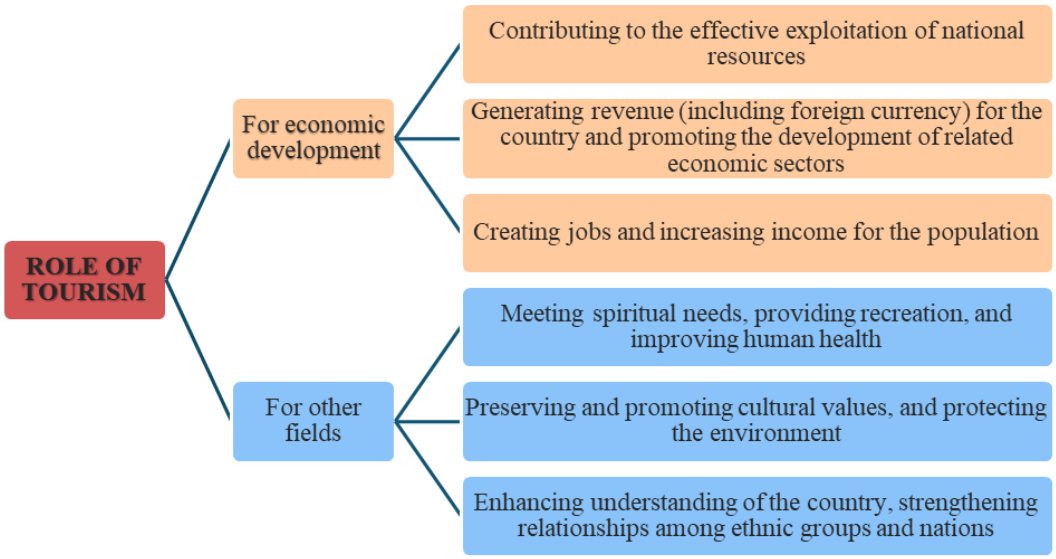
Specifically, in Lesson 10: Practice: Reading maps of climate zones and climate types on earth, and analyzing climate charts, teachers guide students to compare the patterns of monthly changes in temperature and precipitation when analyzing climate charts. From there, students can identify the characteristics of each climate zone and explain the causes of their formation. This process helps students understand the essence of interrelationships among natural factors rather than merely memorizing information in isolation.

Method of extracting geographical knowledge from diagrams

Diagrams are visual tools that help generalize and systematize geographical knowledge in a coherent and scientific manner. Through diagrams, students can more easily recognize causal relationships among geographical phenomena, thereby enhancing their ability to think critically and to retain core knowledge.

In teaching Grade 10 Geography, teachers may use diagrams available in textbooks or design their own diagrams suited to lesson content, for the purposes of consolidating knowledge, summarizing lessons, or explaining complex geographical phenomena. Using diagrams not only simplifies information but also creates opportunities for students to actively access and apply knowledge in a logical way.

Example: When teaching Lesson 36 "Geography of tourism", in Section 1: The role and characteristics of tourism, teachers can guide students to observe the diagram in the textbook (p. 101), which summarizes the role of the tourism sector.



In teaching Grade 10 Geography, exploiting mind maps also enables students to develop a systematic and logical perspective on the role of economic sectors, including tourism. The diagram "Role of Tourism" clearly illustrates two main groups of impacts: on economic development and on other social fields.

Economically, tourism not only contributes to the effective exploitation of natural and human resources but also generates significant revenue, promotes the growth of related industries, and creates employment opportunities.

Socially, tourism satisfies the need for recreation and health recovery, while also serving as a means of cultural heritage preservation, environmental protection, and fostering mutual understanding among nations and ethnic groups.

Teachers' use of this diagram helps students' cognitive processes, enabling them to understand the essence of causal relationships between geographical phenomena and the factors of sustainable development in practice.

IV. Conclusion

The improvement and innovation of teaching methods in Geography at the upper secondary level is an urgent requirement, aiming to transform the learning process into an active and creative activity for students. Through innovative methods, teachers not only convey knowledge but also create conditions for students to enhance self-learning and research abilities, practice problem-solving skills, and foster creative thinking within the context of current educational reform.

In the context of innovating teaching methods in upper secondary Geography towards competency development, the exploitation and use of visual channels in Grade 10 serve as a key solution. Guiding students to approach, analyze, and apply visual channels not only improves the effectiveness of knowledge acquisition but also trains their thinking, observation, and analytical abilities, thereby contributing to the improvement and enhancement of teaching quality.

The use of visual channels in Geography teaching strengthens the visual aspect of lessons while simultaneously stimulating students' initiative in the learning process. When guided in exploiting visual channels, students not only gain a clearer understanding of learning objects but also directly perform cognitive operations on the visuals. As a result, they acquire new knowledge with excitement and engagement, reinforce their confidence in the value of knowledge, and develop a need to independently seek solutions to posed problems.

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