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La orientación de la integración geográfica en la formación del profesor de Geografía
Geographical integration for training Geography professors

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Resumen: La orientación constituye uno de los procedimientos para la integración de componentes geográficos a nivel regional en el proceso de formación del profesor de Geografía. La orientación como proceso de ayuda al profesional en formación es de vital importancia para que este se apropie de conocimientos y habilidades durante el proceso de enseñanza-aprendizaje de las regiones geográficas y desarrolle modos de actuación profesional. A manera de ejemplo se presentan los procedimientos orientación y apropiación de la integración de componentes geográficos a nivel regional, los que se desarrollan a través de tareas docentes integradoras.

Palabras clave: Orientación; Procedimientos metodológicos; Integración geográfica; Componentes geográficos

Abstract: Orientation is one of the procedures for the integration of the geographical components at the regional level in the process of teacher training in Geography. Orientation as a process of assisting the trainee is of vital importance for the trainee to acquire knowledge and skills during the teaching-learning process of the geographical regions, and to develop modes of acting. As an example, the procedures related to guidance and appropriation of the integration of geographical components at the regional level, developed through integrating teaching tasks, are explained in this paper.

Keywords: Orientation; Methodological procedures; Geographical integration; Geographic components

Introduction

Training the citizens is one of the most important needs to be met by any country and society as it becomes an essential aspect for the development of that country. A modern nation requires that all its members possess a certain cultural level to make possible the development of an efficient work (Álvarez de Zayas, 1992).

Training is the process which function is to prepare man in all aspects of his personality. According to Álvarez de Zayas (1992):

> An individual needs (in order to consider himself prepared) to seize part of the culture that preceded him and, consequently know a profession, be instructed. A man is educated when he can solve the problems present in his daily activity, that is, when he masters his profession. The first thing that the training process has to solve, with a view to prepare men, is "to give human beings a career" (p.13)

When considering training as a process of apprehension and personal construction of socio-historical-cultural experience, with meaning and professional significance for the education of the new generations, whose essential content is the theoretical conceptual systems, values, performance and motivation with an ideological foundation and contextualized character, we can evaluate its various aspects.

The authors of this research consider that for the achievement of an integral training of the professional educator, actions, procedures, and abilities that foment the education of a logical, theoretical, divergent and causal thought, useful for the future work, must be developed.

This idea is reinforced in the postulate of Molina (2002) when he states:

> The educator must know what he teaches; the educator must know to whom he teaches; the educator must know what he teaches; the educator must know why he teaches; the educator must know how to produce pedagogical knowledge; the educator must be always updated in what happens in Pedagogy and must be competent in the management of the various modern means of communication and information (p.27).

In psychology, pedagogy and didactics the teacher-student relationship is sufficiently addressed, and the role of each subject in the teaching-learning process is clearly revealed. When analyzing the functions of the teacher in accordance with the interests of this research, the guiding function that includes guidance and support for students to achieve the objectives established by the development tasks, characteristics of their evolutionary stage, is highlighted (Castellanos, 2001).

These approaches allow us to assess the importance of orientation, prior to the executive stage of the cognitive activity that the student will develop when carrying out the study of the natural and socioeconomic components during the analysis of the geographical regions, and which must

guarantee the appropriation of the knowledge in an integrative way to contribute to the preparation of professionals in their initial training.

Geography investigates the interaction that exists between the spheres of the geographic environment: atmosphere, hydrosphere, lithosphere and biosphere, as well as the cosmic influence, not forgetting the economic transformations that man makes on this unique integral complex, which allows him to occupy an important place in the knowledge system of the material world (Nekliukov, 1990).

The geographical environment constitutes a material system that exists outside our consciousness. It is a natural planetary complex whose components: the atmosphere, the hydrosphere, the lithosphere and the organisms, are in a total interaction, carried out with the direct participation of solar energy and, to a lesser extent, the internal energy of the Earth, producing an intense exchange of energy, substance and information that conditions its dynamic and open state, constantly changing both in space and time, which favors the processes of integration of geographical components.

A diagnostic study carried out on the subject, allows to identify some shortcomings manifested during the training of the professionals that have an unfavorable impact on their preparation to develop a teaching-learning process with an integrative approach. That is why we offer methodological procedures for the orientation and appropriation of the integration of geographical components at the regional level in the initial training process of the Geography teacher.

Development

The integration of geographical components at the regional level is developed in the teaching-learning process of the Regional Geography discipline. As a cognitive activity of students it is especially directed to the assimilation of knowledge, and acquisition of habits and skills in the study of continents, regions and landscapes. Correctly structured, oriented and directed produces the development of the student, and in it lies a fundamental pedagogical principle: to achieve teaching development. It consists of three main elements: guidance, implementation and control.

The authors of this research consider geographic integration as that close interaction, relationship or interdependence that exists between all the components of the geographical environment in a continent, region, landscape or country. The integration of the geographical components is that interaction between the natural components, and between these and the socioeconomic components, which foundation is the law of the integrity of the geographical environment.

Orientation, in order to achieve the integration of geographical components, should guide the student to the execution of integrative processes, based on the diagnosis of their potentialities and needs, to consider the determination of the set of theories and methods for the development of orientation work in terms of integration, follow-up, and fulfillment of planning, based on the assessment of the social situation of the development of the professional in training.

For García (2002):

> The fundamental value of the orientation is that it guarantees the student's understanding of what he is going to do before starting action. As much as he knows, not only about what he is going to do, the product he will obtain, but also how he is to proceed, what materials and instruments he has to use and what actions and operations he must do and the order of his execution, the greater the quality of the execution and the product obtained (p.104).

In this sense, the orientation responds to the necessary requirements and demands and allows the student to form generalized procedures to address the solution of tasks.

From the pedagogical point of view, the principles declared by Addine (2002), on the instructive, the educational and the developer, as well as the unity between activity, communication and personality are the basis of research.

From the geographical point of view, geographical integration is assumed as a fundamental principle, taking into account the causal relationships established between natural and socioeconomic components in a geographic region (Massip, 1951). The principles stated by Cuétara (2004) on location, causality, connection, nature-society interaction, are also taken into account, which allow to establish and determine the causal relationship between objects, phenomena and geographic processes occurring in nature and in society.

In accordance with the above, some methodological procedures of orientation and appropriation are proposed with the aim of guiding the methodological action in the teaching-learning process with planned and organized character.

Procedure: orientation for the integration of geographical components at the regional level- actions carried out by the teacher that activate the development of the causal thinking of the professional in training, also aimed at developing general skills, specific skills of Geography and modes of professional action that integrate Geography components in the study of selected continents, regions, landscapes and countries.

The process of orientation is intended to guide the student to be able to explain the causal relationships between natural and socioeconomic components as a manifestation of geographical integration at the regional level. It must ensure that, from this, they can develop analytic-synthetic processes that favor abstractions, and generalizations, in order to arrive at an integrated idea about its object, phenomenon, geographic process.

Actions to be developed by the Geography teacher to guide the students:

• Review and analysis of the model professional of the career Bachelor of Education in the Biology-Geography specialty, and select general objectives related to geographical integration.

• Review of the Regional Geography program and identify: objectives, knowledge, skills and values related to geographical integration at the regional level.

• Consult bibliography of Didactics and Geography Methodology to select novel teaching methods that stimulate student activity and learning development.

• Select teaching aids necessary to achieve the integration of geographic components by students: updated geographic atlases, thematic wall maps by continents, regions and countries, updated encyclopedias, continent and regional map-schemes, geographic profiles, weather charts and population pyramids.

• Select the general skills to be developed taking into account the integrative concepts and levels of geographical integration.

• Select the working skills with the cartographic materials to develop the integration of geographical components in each of the integrating concepts and levels of geographical integration.

• Plan consultations to address individual students´ differences.

• Orient students to the development of conceptual maps, diagrams and content sheets to enhance the appropriation of integrating geographic content.

• Create integrative teaching tasks and formulate in these the training objective and the necessary orientations for the appropriation of the contents by the students.

Procedure: appropriation of the integration of geographical components at the regional level-activities that, under the guidance of the teacher, are carried out by students, to contribute to the development of integrative skills in the study of continents, regions, landscapes and countries.

In relation to appropriation, it becomes useful the conception expressed by García (2002), understood as:

> ... the most diverse forms and resources through which the subject actively and intimately interrelates with others (adults and contemporaries that surround him) endorses the knowledge, techniques, attitudes, values, ideals of the society in which he lives, as well as the mechanisms through which it achieves its self-development. That is, he converts into personal qualities the culture that characterizes the society in which he lives (p. 52).

In this sense it is important to draw attention to the active character that is reflected in this process where the subject, by appropriating culture, also builds, enriches and transforms, which in turn allows their own development.

The learning of the human being is a process of appropriation of the historical-cultural experience, and that appropriation becomes learning. On the other hand, the appropriation of the historical-cultural experience occurs through the learning process, whether directed or spontaneous (Bermúdez, 2002).

In this sense, the process of appropriation is individual, specific and unique for each individual; it occurs in each one with certain characteristics of their own, so it is necessary that the orientation

that makes the teacher also become individual, according to the requirements of each student. This appropriation, when it becomes part of the internal world of the student, causes changes in his personality closely related to his past, present and future history, the environment in which he develops and his integral vision of the facts, phenomena and processes with which he relates.

The analysis of these conceptions about the appropriation allows to determine important aspects about the same as: procedural character, the internalization and the development of capacities, forms of behavior, the active role of the individual in this process, its unity with the learning process and their impact on the development of him and the others.

The appropriation, training and restructuring of students' knowledge about the physical-geographic and socio-economic components developed in the Regional Geography discipline take place, intentionally, in the teaching-learning process.

The appropriation of the integration of the geographical components as a process is evidenced when the students demonstrate a total assimilation of knowledge and abilities, and they show modes of professional action corresponding with the causal relations established between the nature and the society in a determined geographic region. Appropriation has as essential base knowledge, skills and values developed by previous disciplines such as General Physical Geography, Socioeconomic Geography, and Cartography, which previous orientation by the teacher is guided by a common objective.

The appropriation of the contents takes place at several levels: orientation of the class objective by the teacher, search for previous information by students in different sources, development of the independent work oriented, development of practical lessons and seminars through integrative teaching tasks proposed by the teacher.

Students' appropriation of geographical integration occurs when they demonstrate that they have acquired general skills, and working skills with cartographic materials through which they are able to expose causal relationships between geographic components and integrate them for studying a continent, a region, a landscape, or a country.

From the above, the close interrelation between the categories analyzed, guided by a common objective, makes possible the integral evaluation and the functionality of a teaching-learning

process. When the relationship between these categories is made more dynamic from the content about the system of the Regional Geography, the result is the development of a causal and integrative thinking, and good modes of professional performance in students who are preparing to teach Geography in schools.

Actions to be developed by students to appropriate knowledge and integrative skills:

• Consult geographical atlases such as the Atlas of the Grijalbo World, the General Atlas (10th ed.), or other up-to-date atlases. Select thematic maps related to each of the geographical components in the continents, geographic regions, landscapes and countries.

• Make map-schemes with the cartographic requirements: scale, network of geographic coordinates, special circles and methods of cartographic representation.

• Use or employ the working skills with cartographic materials taking into account the actions and operations corresponding to each.

• Observe in the thematic maps the elements that make up the causal relation corresponding to the integrative concept in the geographic region to be studied.

• Identify on thematic maps the elements that make up the causal relationship corresponding to the integrative concept in the geographic region to be studied.

• Locate in thematic maps the elements that make up the causal relationship corresponding to the integrating concept in the geographic region to be studied.

• Characterize through simple map reading the causal relationship corresponding to the integrating concept in the geographic region to be studied.

• Compare the causal relationship corresponding to the integrative concept in different geographic spaces of the continent or region studied by comparing thematic maps, and reach for conclusions.

• Explain the causal relationships corresponding to the integrative concept through the complex reading of maps and complex geographic profiles.

• To argue affirmative judgments corresponding to the causal relations in each one of the integrating concepts in a continent or geographic region object of study, through the complex reading of maps and of complex geographic profiles.

• Propose geographical regularities manifested in the continents and regions studied through the generalization of the elements that make up the causal relationship of each integrating concept, based on reading.

• Consult specialized bibliography, updated encyclopedias, published information on the Internet, as you study each of the geographical components.

• Make content sheets as summaries with the information corresponding to each geographical component.

• Locate objects, phenomena and geographic processes related to geographic components.

• Make geographical profiles, weather charts, population pyramids, when studying the geographical components.

• Attend consultations planned by the teacher to explain and solve doubts and concerns.

It is proposed to develop the procedures orientation and appropriation of the integration of components by the students through the integrative teaching tasks, created for each integrating concept or geographic component to be studied.

Integrating teaching tasks:

Integrative teaching tasks in North America

1st level of integration: physical-geographic intra-components with socio-economic elements.

Integrative concept: geological-geomorphological component of North America.

Procedure: orientation for the integration of geographical components to students.

Objective: to explain the causal relationship: tectonic structure, geological age, rocks, relief typology, mineral deposits of North America, based on the geological and geomorphological processes involved in its formation, to contribute to the formation of a scientific conception of the world and modes of professional performance in students.

Requirement: the development of integrative skills is done by working with cartographic materials (maps and complex geographic profiles). In order to characterize, explain and compare the phenomena and processes corresponding to the geological-geomorphological component, one

must consult different bibliographic sources, synoptic tables and images related to this component.

Technique No. 1. Consult the following maps of the World Atlas Grijalbo: The world. Structure of the Earth, Major geological regions of the world, North American physical and mining resources. Maps of the General Atlas 10th. ed. 1990: The tectonic world and the world volcanism and seismicity.

Technique No. 2. Construct a map-outline (outline) of North America, represent the network of geographic coordinates, numerical scale and special circles (Tropic of Cancer and Arctic Circle).

Request: To identify and locate tectonic plates, their boundaries, types of land crust, and rocks predominant in different North American spaces, use the recommended maps as well as the summary table of the North American geo-morphological component.

Requirement: when locating the facts, phenomena and processes related to the component being studied, students must take into account that the ability to locate belongs to the type of ability cartographic knowledge of the map, and the operations are related to this ability. By characterizing the component studied, it can be done using simple reading skills and complex map reading.

Technique No. 3. Read in the book Regional Geography S.L. 2004 the chapter "Relief of the Americas", pp. 1-21, and Table 1.1. Relationship between the geological time, the most representative tectonic and orogenic processes and the mineral resources of the Americas. Make content sheets as a summary of the general characteristics of the North American relief. See also General Geo-tectonics (Jain T.I., pp. 241-279, 331-350, 380-382). Make content sheets on the characteristics of the Canadian shield and the sedimentary basin, as well as the characteristics, the geological and tectonic processes in the orogenic strips.

Technique No. 4. Construct index cards that characterize the relief of Paleozoic age structures The Appalachians, note: relief features, effects of structure formation and genesis, morph-structures and predominant morph-sculptures, mineral deposits. In order to characterize the relief of the Cordilleras, consider the origin, tectonic plate processes, predominant rocks, tectonic structures, relief types (morph-structures), and mineral deposits associated with the Rocky Mountains, the interior plateaus and the coastal mountain ranges.

Requirement: when developing the skills of explaining and comparing consider skills working with cartographic materials, complex reading, and map superimposition (maps: Earth structures, World Geological Regions and North American Physics).

Technique No. 5. Make a complex geographic profile of North America. The teacher must select an itinerary for each student. It is recommended to follow the W-E orientation. When working with the complex geographical profile take into account the methodology proposed by the author for their preparation. Represent in boxes below the hypsometric curve: tectonic structure, geological age, types of rocks, relief typology, mineral deposits.

Procedure: appropriation of geographical integration by students

In order to appropriate the integration of the geological-geomorphological component, the following activities must be carried out:

1. Observe the suggested thematic maps for the study of geological-geomorphological component of North America, identify and locate:

a) North American tectonic plates Juan de Fuca and Pacifica.

b) Limits and margins of tectonic plates.

c) Tectonic structures of the North American plate.

d) Type of earth crust characteristic of each tectonic structure, and types of predominant rocks.

2. According to the maps used, identify and locate in North America:

a) Precambrian structures of the North American plate.

b) Paleozoic structures of North America.

c) Structure of Alpine age and post-Alpine age.

3- Characterize in North America:

a) The relief of the North American plate with Proterozoic age, where the crystalline rocks surface.

b) The relief of the North American plate of Proterozoic age, where the crystalline rocks lie under the layers of sediments of more recent ages.

c) The Paleozoic relief on the North American plate.

d) The Meso-Cenozoic relief of the North American plate.

4- Observe the North American Mineral Resources Atlas of the Grijalbo World Atlas (p.7) and North America General Industry Atlas. Identify and locate the mineral deposits in:

a) The Canadian shield

b) Sedimentary basins (plains)

c) The folding of the Appalachians

d) The folding of the North American Cordilleras.

A. Explain the relationship of these minerals to rock types and geological processes.

B. Explain the economic importance of these minerals.

5- Explain the processes that intervened in the formation of shield structures in the North American tectonic plate and the processes that originated the predominant morph-structures. Consider the causal relationship tectonic structure- geological age- types of rocks- relief types and mineral deposits.

6- Explain the processes that influenced the formation of the sedimentary basins, as well as the morph-structures that predominate in them. Consider the causal relationship.

7- Explain why the Appalachian Mountains formed during the Paleozoic era on the east of the American plate. Consider the causal relationship.

8- Explain why in the west of the North American plate were formed during the Mesozoic and Cenozoic eras the highest mountains of the continent. How is it evident in these the causal relationship tectonic structure- geological age- types of rocks- relief types and mineral deposits?

9- The Canadian shield and the sedimentary basins of the interior of North America constitute the Proterozoic age structures of the North American plate. Establish a comparison between these

structures. Note: predominant rocks, geological processes, tectonic structures, predominant morph-structures and mineral deposits. Establish the economic importance of these.

a) Reach for conclusions.

b) Through generalization determine the geographical regularities that are evident. Take into account the causal relationship of the geological-geomorphological component in the Canadian shield and the sedimentary basins (Central Plains).

10- The San Andrés Fault, the volcanism of the Aleutian Islands and the Sierra Madre Meridional Mexicana show the manifestation of plate tectonics in North America today. Argue this statement and determine the processes that are manifested in each of these orographic accidents.

a) Through generalization determine geographical regularities that are evident. Take into account the causal relationship manifested between the elements that make up the geological-geomorphological component related to plate tectonics.

11- In the complex geographic profile that you made from the itinerary that the teacher oriented, take into account the causal relationship: tectonic structures and geological age, types of rocks predominant, types of relief (morph-structures) and mineral deposits.

a) Select a sector of Proterozoic age profile and explain the causal relationship of the geo-geomorphological component.

b) Select a sector of Paleozoic age profile and explain the causal relationship of the geo-geomorphological component.

c) Select a sector of its Meso-Cenozoic age profile and explain the causal relationship of the geo-geomorphological component.

Conclusions

Orientation, as a process prior to the student's development of the cognitive activity, is of vital importance, since it must guarantee the appropriation of knowledge in an integrated way and contribute to the preparation of professionals in their initial training.

The essence of the orientation-appropriation relationship of the integration of geographic components is satisfied when the teacher offers the student the level of support necessary to reach the establishment of causal relationships between the geographical components, and develop the causal thinking and modes of professional action.

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