

SCHOOL LINGUISTIC CREATIVITY BASED ON SCIENTIFIC GEOGRAPHICAL TEXTS

VIORICA BLÎNDĂ

Secondary School No. 7, Botoșani, Romania, e-mail: blanda_viorica@yahoo.fr

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ABSTRACT

The analysis and observation of the natural environment and of the social and economic one, observing phenomena, objects, beings, and geographical events are at the basis of producing geographical scientific texts. The symbols of iconotexts and cartotexts are another source of inspiration for linguistic interpretation. The linguistic creations that we selected for our study are the scientific analysis, the commentary, the characterization, the parallel, the synthesis, epitomizing and abstracting, the scientific communication, the essay, and the scientific description. The representations on maps, photos, graphics and profiles are translated into verbal or written expression in order to render geographical scientific information from diagrams and images through diverse discursive procedures. Through school linguistic creations, teachers develop their students' observation spirit, in a written and oral form, their geographical thinking through metaphors, they develop and stimulate their students' imagination and fantasy, their cognitive, reflexive and affective sensitivity, their abilities to express themselves, to present and argument in a scientific way according to different criteria (sufficiency, demonstrative reasoning, lineal reasoning, pros and cons, giving examples, inferential deduction through using truth tables, etc.). Through description, students give names and define geographical objects and beings (plants, animals, and people) according to their form and aspect, they explain toponyms and appellatives, they classify and make hierarchies, they define their identity through processes of differentiation, emblemizing, personification, location in time and space.

Keywords: *creativity, scientific terms, types of geographical texts*

INTRODUCTION

In order to elaborate a geographical text, we have to start from observing natural phenomena (Parfene, 1980, p. 368). After this stage of observations, we have to look for the necessary scientific geographical terms for producing texts and for expressing opinions on the observed processes. The creation of geographical texts on certain themes supposes a long series of direct and

indirect observations, producing descriptions, cause-effect explanations of diverse geographical phenomena, pro and con arguments.

Composing texts supposes a cognitive process consisting of understanding at different levels, of systemising and deeper understanding of knowledge, of a series of actions of rephrasing and repeating. Icons and symbols are compositional sources as, for instance, for imaginary travels on maps, drawings, and photos. Those routes may be in the local horizon, at the country or at the Earth's level.

School linguistic compositions may be large or small, oral or written, simple or complex, starting from a series of guiding lines, observing a plan: introduction, location and time of events and of phenomena. We could develop the respective subject through making strings of ideas, by observing concrete features directly in nature or indirectly, on maps, using conventional signs. Then, we complete the subject with informational type encyclopaedic information from our readings that lead to certain conclusions.

SCIENTIFIC OBSERVATION AND ANALYSIS

Constantin Fierăscu and Gheorghe Ghiță (1979, p. 274) perceive analysis as a form of thesis that capitalises on authors' opinions and knowledge about a certain scientific problem.

The geographer Vasile Nimigeanu defined scientific analysis as a process of decomposing "the entire object or phenomenon at the mental or material levels, of researching its components in order to study in detail the structure and functions of systems, the cause-effect relationships among parts", underlining that "the respective analysis should not step into the area of other sciences, although it has to be a detailed one" (Nimigeanu, 1984, p. 14).

In the same context, the linguist Constantin Parfene considered that through scientific analysis we underline "not only the network of the component elements, but also their functional and value hierarchy, through mental synthesis and operations of determining, interpreting and critically assessing" (Parfene, 1980, p. 234).

We chose for scientific analysis an icontext where authors represented landforms using hachures. The authors – Silviu Neguț, Mihai Ielenicz, Gabriela Apostol, and Dan Bălțeanu – explained that they used hachures "in order to show the direction of the strata that make up the landforms and in order to expressively show their slope " (2004, p. 21).

Text:

Analysing this piece of the hypsometric map we deduced the title-theme, "Representing landforms using hachures"; we noticed closed curved lines that showed us that all points have the same height along them. Between those curved lines, we noticed nuances of colours that varied from light green for low altitude values to dark green for high altitude values. We

also noticed several toponyms: Valea Groșlarea (the Groșlarea Valley), Dealul Groșlarea (the Groșlarea Hill), and Cornișiam. So, this iconotext included altitude steps meaning "altitude intervals with the same extension, distinguished through different colours or hachures" and these altitude values were placed in a hierarchy according to their value and function and that helped us in recognising and identifying landforms: heights, valleys, landforms characteristic of rivers, placing them in a hierarchy according to the criterion of value and function, and thus helping us recognising and identifying landforms: heights, valleys, landforms characteristic of the river system, spots to built on.

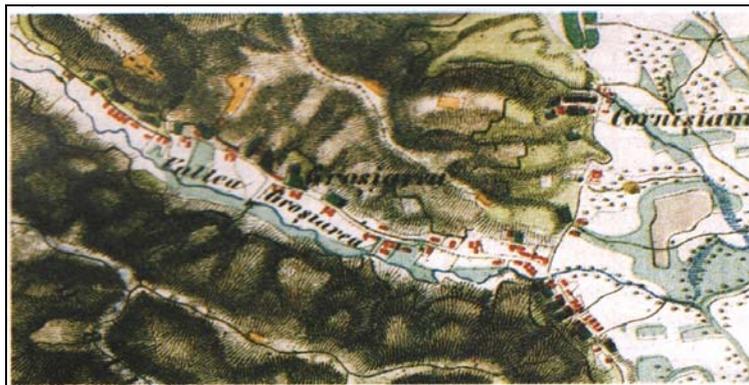


Fig. 1. Iconotext no. 1 – representing landforms using hachures
(Neguț, Ielenicz, Apostol, Bălțeanu, 2004, p. 21)

COMMENTARY BASED ON GEOGRAPHICAL SCIENTIFIC TEXTS

The commentary starts from analysis. The component elements of the commentary appear as a result of analysis and should be critically examined (explanation, interpretation, assessment, and links), often within short, synthetic, relatively limited in space and time communication" (Parfene, 1980, p. 234).

Below we rendered a discursive unit that presented the different economic situation of North Korea and of South Korea:

Text no. 1:

North Korea. "Its economy is characterised by socialist type organisation, with high centralisation. Superior coal resources and iron ore favoured the development of iron and steel industry especially in the towns on the seaside. Main harbours are Nampo and Wonsan" (Mândruț, 1998, p. 56).

South Korea. "Its economy is very diverse and modern and places this state among the most developed states of the world. The production of electrical energy is developed and almost 30% is obtained in nuclear plants. The following industrial branches also developed significantly: oil processing, electrotechnical industry, car production industry, non-ferrous and ferrous metallurgy, constructions of commercial ships and oil tankers (the second

place in the world after Japan). The main industrial cities are Seoul, Inchon, and Pusan, the largest harbour of the country" (Mândruț, 1998, p. 56).

Task: "Comment the following idea: If it were a single state the Korean Peninsula would be one of the most developed from an economic and commercial point of view and, at the same time, it would host many inhabitants " (Mândruț, 1998, p. 65).

Text

We noticed that between the two states there were important economic differences because of different state policies. For the modern economy of South Korea, the arguments are the presence of underground resources, link to the ocean that ensures the cheap transport of goods, economic relationships with Japan, which is an important world economic power. South Korea has a modern economy with new sources of energy, with nuclear plants, with constructions of commercial ships and oil tankers (the second place in the world after Japan).

CHARACTERISATION

Characterisation is a composition underlining the essential, defining features of a certain phenomenon, of a being, of a geographical event, etc.

We considered the following discursive unit showing the differences between the Curburii Carpathians and the other two groups of the Eastern Carpathians.

Text no. 2:

„The Curburii Carpathians have other features than the previous groups. They are made of a central, curved string of mountains, with 1,600-1,700 m high massifs, with increasing altitudes to the west 1,900 m – including here also the Bucegi Mountains with over 2,000 m – and, on the margins, mountains have low altitudes. They include the Vrancea Mountains, the Buzău Mountains (the Penteleu, the Siriu, and the Ivănețu), the Ciucaș Mountains (made of conglomerates, 1,954 m), and the Baiu Mountains. South of Brașov, there is a row of low altitude and round mountains, called *clăbucete*: the Clăbucete of Predeal and of Întorsurii. North of Predeal, there are two calcareous massifs: Piatra Mare and Postăvaru (or the Mountains of the Timiș). There lie also two small depressions: the Întorsura Buzăului and the Comandău. In the north lies the largest depression within the Carpathians – the Brașov Depression – with plenty of cloughs and passes in all directions and crossed by the Olt. A hydrographical characteristic feature of the Curburii Mountains is that the main rivers spring from the Transylvanian flank, but they cross the high mountain range and head to the Romanian Plain (the Bâsca Mare, the Bâsca Mică, the Buzău, the Prahova, and also the Dâmbovița with the Dâmbovicioara)" (Posea, 2000, pp. 11-12).

Therefore, the form "low altitude and round" mountains contributed to naming them *clăbucete* and to locating them using the syntagm: *the Clăbucete of Predeal and of Întorsurii*.

Exercise for writing a characterisation

Task: Characterise the relief of the Curburii Carpathians mentioning five characteristic features.

Text:

The maximum height of the Curburii Carpathians is in the Ciucaş Mountains, with Ciucaş Peak at 1,954 m, so they are the lowest altitude mountains in the Eastern Carpathians. They have *curved position* and thus their name and they have *a diversity of directions* of the mountaintops, including bizarre ones, as for instance, those of the Întorsurii Mountains. These mountains are made of *sedimentary and folded rocks – flysch*: gritstones, chalkstone, conglomerates, marls and resulted only from the process of folding of the terrestrial cover during the Alpine orogenesis. *The type of characteristic relief* is the one on conglomerates (similarly to the one of the Bucegi Mountains) with the following landforms: Babele la Sfat [The Old Women Talking] and Sfinxul Bratocei [The Sfinx of Bratocea] (eolian landform) in the Ciucaş Mountains. Within these mountains lies the largest depression in the Romanian Carpathians, with flat relief (the Braşov Depression).

The above characterisation observes the task, including the five requested for characteristic aspects: altitude, curved position, different directions of the mountain heights, rock composition, and landform types.

THE PARALLEL

School composition in parallel consists of a simultaneous writing of similarities and distinctions between objects, phenomena, beings (plants and animals, and people), events, etc. in order to underline, through comparison, the characteristic aspects, qualities, and features.

In order to show how texts can be composed in parallel, we chose the following samples from textbooks:

Text no. 3:

"The Maramureş and the Bucovina Carpathians have a well developed central strip (the Rodnei Mountains with the highest altitude) in comparison to which the volcanic mountains (in the west) and the flysch mountains (in the east) appear as two lower steps. The Rodnei Mountains are very much alike the Southern Carpathians due to their glacial relief, massiveness, and altitude (the Pietrosu Peak – 2,303 m). The Maramureş Depression, closed to the south and to the west by the volcanic range, but widely open to the north, is a landform unit that favoured the existence of traditional civilization and culture and of a special historic region: the Maramureş. In their eastern

part, the Obcinele Bucovinei [the Bucovina Mountains] descend to the Moldavian Tableland" (Mândruț, 2008, p. 12).

In this text, the author presented in parallel three different landforms: the Rodnei Mountains, the Maramureșului Depression, and the Obcinele Bucovinei Mountains. The following variables make the difference between the three landforms: altitude, geological evolution, landform types, fragmentation degree, and position.

SCHOOL CREATION ON SYNTHESIS THEMES

A school composition on a *synthesis* theme "begins from researching and studying a rich informative material on a certain theme or on a certain issue. Through synthesis, one identifies the essential or defining elements of the theme or of the issue and of their presentation in a certain order that best reflects the respective theme or issue" (Andrei, Ghiță, 1983, p. 213).

Text no. 4:

"Northern Europe – Synthesis

Northern Europe is one of the most articulated regions of Europe, including the largest peninsula of the continent, a series of islands and a small continental sector with low altitude values. The landscape of Northern Europe presents active volcanoes (in Iceland), fjords, glaciers, and lakes. Despite the high latitude where it lies, the climate is most of the time moderate, due to the influence of the North Atlantic Stream and of the Baltic Sea. It is one of the parts of Europe with the largest surface of woods. It is the least inhabited region of the continent, but with high values of urban population. It has certain underground resources (especially oil and natural gas, and ore) and soil resources (coniferous woods, pastures, and hydro-energetic potential). The processing industry is developed and its main branches are wood exploiting and processing, cellulose and paper production, construction of ships, and food industry. Animal breeding for meat and milk dominate the agriculture. It has a diversified transport network, but the maritime ones are the most developed" (Mândruț, Neaguț, 1996, p. 182).

EPITOMIZING AND RESUMING GEOGRAPHICAL TEXTS

The abstract is a written and oral synthetic form of the ideas in a theme, lesson, chapter, etc. Epitomizing is a systematic report on a theme, resuming a theme, lesson, chapter, etc.

We rendered below the short form of the lesson *Italy*:

Text no. 5:

Abstract: Italy has a position that conditioned its history and geography: it lies in the basin of the Mediterranean Sea and it is linked to the other parts of Europe through the curved string of the Alps. Although it has small quantities of natural resources and a small surface, Italy is – because of tradition, of organising, and of its inhabitants' talent – the fifth economic power of the contemporary world. It is the most typical Mediterranean country due to its climate, vegetation, and agriculture. Italy is made of three parts: a continental one (with the Alps and with the Po Plain), a peninsular one (the Italic Peninsula), and an insular one. The special touristic potential of this country attracts almost 40 million tourists each year. A part of the present of Italy is a continuation of a long history, its roots dating back to the Roman Empire (Mândruț, Neguț, 1996, p. 98).

The abstract of this lesson highlights the geographical position of Italy in the basin of the Mediterranean Sea, its natural resources, its climate, its vegetation and Mediterranean agriculture, its three components (continental, peninsular, and insular), its touristic potential, its Roman vestiges, and its unique elements. As one could see, the authors of any abstract present in a synthetic and systematic way the defining elements, the essential elements of a problem, while using a documentation source. Abstracting and epitomizing have the role to clarify, consolidate, and fathom scientific information.

SCIENTIFIC COMMUNICATION

Scientific communication is based on author's personal and original contributions and includes texts, cartographical texts, and iconotexts. Scientific communication has an innovative character through which the author brings forward a new issue, a new research subject.

Text no. 6:

"Tornadoes are fast rotating air columns, associated with powerful storms, caused by high speed wind. Favourable conditions for tornadoes appear when a cold air stream meets a warm air stream, creating huge black clouds, called Cumulonimbus. These clouds are the causes of thunderstorms, where warm air ascends generating strong drafts. At the top of the storm, strong air drafts begin to rotate faster and faster, creating a capstan. The capstan rotates spiral like, the spirals are thinner and thinner, increasing their speed and moving towards the clouds. Then, the tornado descends from the clouds and reaches ground very violently. Tornadoes also bring hail and can cause much damage in a very short time. They usually appear in the afternoon, between 4 and 6 pm, when the lowest atmosphere stratum is the most unstable.

In the evening of the 18th of August 2005, at 6 pm, such a tornado took place unexpectedly in Leorda, where wind with over 200 km/h speed paralyzed for 5 minutes the whole village, enough time to cause significant damage (tens of households were destroyed).

In only several minutes, the storm split trees and these fell down on houses, and the shingles, the sheet metal, and the wood of the roofs of some houses were taken by wind blasts as far as 2 km. The lime tree in the yard of the railway station, which had 2 m deep roots, was uprooted together with the concrete around it [...]. As a result of the rainfall between the 18th and the 20th of August 2005, there were 3 victims, 173 flooded households and hundreds of hectares of agricultural land, 190 evacuated persons, 113 damaged bridges, 489 damaged catwalks, over 700 km damaged roads, as well as damaged water treatment plants, the sewage network, wells, the water supply network, and the costs were about 170 billions old lei" (Blîndă, Mintici, 2007, p. 38).



Fig. 2. Iconotext no. 2 – effects of the tornado in Leorda
(Blîndă, Mintici, 2007, p. 38)



Fig. 3. Iconotext no. 3 – effects of the floods in Leorda
(Blîndă, Mintici, 2007, p. 39)

In this text, authors define tornadoes, they show how they appeared, their causal links, and focus on their catastrophic effects.

The photos we have chosen are obvious and credible proof about the effects of tornadoes and floods on anthropic components. They include the qualitative and quantitative cause-effect relationships and contribute to transmitting information about catastrophic geographical phenomena.

This scientific text that describes, explains, gives scientific arguments about these geographical phenomena, together with the above iconotexts (figures 2 and 3) are representative study materials for the scientific communication style.

THE ESSAY

The word *essay* in French means *trial* and it is defined as a short text. It is usually heuristic, didactic. According to its form, an essay may be structured, semi structured, or with a free form. According to the criterion of time, an essay may be a five minutes essay, a ten minutes essay, etc. In an essay, an author writes on a certain subject in an original interpretation, without targeting at exhausting the respective subject.

As a reflexive form upon a series of personal scientific observations, the scientific essay "focuses on research and achieves the features of a unitary and systematic composition" (Dulamă, 2008, p. 150).

Task: Write an essay in which you show the industrial transformation of the present day Botoșani County (model of essay – text no. 7).

Text no. 7:

"The industry of Botoșani County is influenced by natural, material, human resources, and by the local traditions. In the recent years, it suffered a vast process of reorientation and of profile change because of restructuring and of privatisation. Under these circumstances, many industrial plants ceased their activity, as changes also appeared in what economic competence, market, and competitiveness were concerned. The following ceased their activity: cotton mills, weaving mills, the factory for rubber products, breeding poultry for eggs and meat, the factory for vegetables and fruits processing, the factory for sugar in Trușești and in Bucecea, the factory for meat processing in Răchiți, etc. The activity of large factories, relevant at a national level, was taken over by societies on actions, by cooperative, and by non-cooperative societies. The most important industrial activity is capitalising the production from plant growing and animal breeding, consisting in animal origin products (slaughter house processing and meat products), milk processing, wine production, and alcoholic drinks production" (Mintici, Blîndă, Cocuți, Mihai, 2008, p. 114).

SCIENTIFIC DESCRIPTION

Geographical scientific description starts from direct observation in the field or from indirect observation of cartographical texts or iconotexts, in a rigorous order, using specialised language in order to show the main characteristic features of natural and human components (Parfene, 1980, pp. 255-256).

Let us analyse the following geographical scientific description.

Text no. 8:

"*The eastern plain, between the Argeş and the Prut is the largest and complex one. At the contact with the Sub-Carpathians lie high altitude plains (the Ploieşti Plain and the Râmnicului Plain) made of gravel cones formed by the rivers flowing from the mountains into the hills. At its exterior margin, there lies a stripe of low altitude plains (the Titu Plain in the west and the Inferior Siret Plain in the northeast), with big rivers that frequently cause floods during spring. The largest part of the plain is represented by large plains, which are flat, with small depressions and sand dunes on the right bank of the Călmăţui and of the Ialomiţa. Their altitude decreases from 90-100 m in the west to 20-30 m in the south and in the northeast. In the west lies the Vlăsiei Plain having in its central part Bucureşti city, and in the east lies the Bărăganului Plain, where the loess is the thickest. In the Bărăgan, there are sand dunes and oil and natural gas, as well as the largest number of salty lakes*" (Neguţ, Apostol, Ielenicz, 2003, p. 35).

CONCLUSIONS

School compositions contribute to developing students' senses of observation and analysis, developing their critical thinking, requiring for their imagination and fantasy, and valorising their cognitive and emotional sensitivity expressed in writing or orally. As discussed in this paper, school linguistic creations include a varied series of exercises focusing on observation, scientific analysis, description, explanation, and argumentation. Communicating geographical scientific information means using specialised vocabulary, signs and symbols in order to represent the objective reality.

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