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ANALYSIS OF GEOGRAPHICAL REPRESENTATIONS FORMED ON THE BASIS OF LITERARY TEXTS

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ABSTRACT

In this research, were analysed the visual representations made by high school students as a result of reading a cult fairy tale and creating a project entitled "Harap-Alb's journey seen through the eyes of children" in the 10th grade geography lessons. The projects were carried out by 26 students, who worked in pairs. The geography teacher presented them on the Google Classroom platform the structure of the project (visual and written components), tasks (forming groups, reading fairy tales, making mind maps), instructions and requirements. The aim of this activity was to identify and illustrate ways in which certain cognitive barriers can be removed and through which dynamic and creative thinking can be acquired / encouraged.

Keywords: *mind map, cognitive map, project, representations, creativity, interdisciplinarity, fairy tale*

INTRODUCTION AND THEORETICAL FUNDAMENTALS

The use of geographical information is recommended by the literature for the formation of representations about the world (Dulamă, 1996, 2004; Dulamă & Roșcovan, 2007), being still in an incipient stage in Romania regarding the possibilities of exploration and capitalisation (Conțiu & Conțiu,

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2015, 2016). The use of literary texts favours the active involvement of students in unique creative learning activities, most often in an interdisciplinary context (Conțiu & Conțiu 2009, 2011; Davis & Palmer, 1992; Dulamă, 2010a, 2010b, 2011a, 2011b, 2012; Dulamă & Ilovan, 2016; Dulamă et al., 2012, 2016, 2017; Fitzhugh, 1992; Friend & Thompson, 1986; Hume, 1996; Ilovan et al., 2015, 2018; Silverman, 1981; Mallory & Simpson-Housley, 1986).

In recent decades, in the education of young people and in the use of learning content, there is a tendency of interdisciplinary organisation, in the context of an integrated education, as a natural constant of the curricular policy (Conțiu & Conțiu, 2014, 2015; Dulamă, 2008). Interdisciplinarity is, from a methodological perspective, a way of curricular (re)organisation, which goes beyond the area of content and the (artificial) boundaries between fields, creating the premises for the development of metacognitive abilities and skills (Ardelean & Mândruț, 2012; Bradu, 2013).

The relationship between geography and literature is biunivocal: on the one hand, the study of literature improves geographical understanding and knowledge, many literary works providing rich and suggestive geographical information, which contributes both to familiarising the reader with the environmental context of the narrative thread and the introduction to the study of geography as a science as well as the deepening of previously acquired knowledge, and on the other hand, geographical reality, in turn, through its specific features, can be an undeniable source of literary inspiration (Conțiu & Conțiu 2015, 2016).

In connection with this, Prof. Kenneth Mitchell eloquently presents this natural connection: "Geography has a profound influence on the shaping of any society ... [and] literature, like all arts, is ultimately a reflection and illustration of the landscape that produced them" (Mallory & Simson-Housley, 1987, p. 23). Literary and geographical language are therefore more than compatible, and such an interdisciplinary approach leads students to the idea that "together, geography and literature are relevant outside the classroom" (Hume, 1996; *cf.* Conțiu & Conțiu, 2015, 2016).

Research has shown that awareness of geographical realities among students is influenced by the travel experience more than any other factor (Bein 1990, apud Hume, 1996). Obviously, it is impossible to take each student on a tour of the world, the challenge being to create a learning environment that is closest to the geographical reality of a particular place / space. In this sense, literature is closer to achieving this goal than most other resources, because even audio-visual materials cannot explicitly convey the smells, tastes or other sensations of a place / space, just like well-written literature (Hume, 1996).

Students are more likely to understand geographical concepts if they use people and real situations as models / case studies (Friend & Thompson 1986; Hume, 1996; Silverman 1981), the literature stimulating at the same time their interest, imagination and creativity.

The use in geography lessons of some texts from Romanian or universal literature facilitates the formation and development by students of

the skills to analyse and interpret different aspects of reality using both a literary and a scientific language (Dulamă, 2010b). On the other hand, the capitalisation of geographical information through the reading of literary texts by students also involves the formation of representations about certain geographical realities, namely the creation of mental maps. Mental or psychological maps are defined as "cognitive projections at unequal scales of areas of a given territory, unevenly psychologically saturated, acquired by self-investigation of the environment or by consulting the knowledge base about that territory" (Miclea, 1999, p. 184). They differ from maps developed by cartographers because these are more schematic, they are acquired through a slower coding process, incomplete and full of confusion, without the application of mathematical calculations. Depending on their daily experience and the knowledge behind their production, some parts of the territory are better represented, containing more details, and others are briefer and more confusing (Miclea, 1999; Dulamă, 2006).

At the same time, a mental or psychological map is a mental image, that means "a cognitive representation that contains information about the shape and spatial configuration (relative position) of a set of objects, in the absence of the action of visual stimuli on specific receptors" (Miclea, 1999, p. 160). Mental images are dreams, dream images, images formed from a verbal message, such as, for example, reading a text from a textbook, or from another book, a report, a short story, etc. (Miclea, 1999; Dulamă, 2006). The phrase cognitive map appears in the literature, defined essentially as a network of representations that encode both the places and the sequential relationships between them (Moore & Golledge, 1976, apud Johns & Blake, 2001), a construction, a mental image of the space we use to know and understand the environment and to make spatial decisions (Kitchin, 1994). Psychologist Edward Tolman (1948) first formally defined cognitive mapping as "how humans think on and about space and also how they reflect and act on those thoughts in their everyday behaviors" (Gieseking, 2013, p. 713).

Even if researchers agree with the reality of "spatial knowledge", the existence of preconstructed cognitive maps, which we keep in mind, is intensely debated, with some raising the question of whether they are analogous to hypothetical maps or constructions (Kitchin, 1994), while others argue that navigating space leads to spatial knowledge (Heft, 1996; Ingold, 2000, apud Gieseking, 2013).

Starting from the two approaches and also recalling that the terms "cognitive mapping" and "mental mapping" are used by researchers in an "interchangeable" way, Jack Jen Gieseking (2013, pp. 712-713) argues that mind maps are procedural and representative, never complete, "describing all those representative maps of space derived from cognitive maps" (Wood, 1973, 1992, apud Gieseking, 2013); the mental mapping method illustrates how people produce and experience space, forms of spatial intelligence, and the dynamics of human-environment relationships (Johns & Blake, 2001; Gieseking, 2013).

METHODOLOGY

The research problem. Over time, we have noticed shortcomings in the complex understanding of a geographical phenomenon. Students fail or have difficulty interrelating the knowledge they acquire in school, and not only, from different fields of study. Through this research we wanted to identify and illustrate ways in which these cognitive barriers can be removed and can be encouraged, trained, dynamic and creative thinking. Basically, the students were required to use creatively the knowledge they had, using appropriate scientific language, in the context of some projects.

Research objectives. This research had the following objectives:

- to analyse the activities within the project "Harap-Alb's journey seen through the eyes of children";

- to analyse the compliance with the requirements imposed in the implementation and presentation of the project;

- to analyse the visual representations of students' fairy tales;

- to analyse the written explanatory texts regarding the visual representation of the fairy tale;

- to analyse the errors and difficulties of students in carrying out projects;

- to analyse the presentation and support of the project (argumentation, explanations).

Participants. 26 students, aged 16-17, participated; they were divided into 13 pairs. Given the pandemic situation, we opted for pairs of desk colleagues. The students agreed that their projects should be used in this study, on condition of anonymity. The first author of this study is also the class teacher, and the other two are researchers involved in the project.

Procedure. In order to achieve the proposed objectives, the students went through a learning activity based on reading and carrying out projects. *The project* is an applied method, based on active and integrative learning, included in the category of teaching-learning by doing methods, but also of alternative, complementary evaluation methods (Bocoș, 2016, 2019; Bocoș & Jucan, 2017), and complex ones (Dulamă, 2002, 2008, 2013, 2020; Dulamă & Roșcovan 2007). The project *Harap-Alb's journey seen through the eyes of children* was made at the beginning of the second semester of the school year 2021-2022, in the classes of Geography in the 10th grade, humanities, English-intensive social sciences specialisation. The story of Harap-Alb, by Ion Creangă, is studied in the Romanian Language and Literature discipline at the same level of study (10th grade), being included in the category of the epic species, the cult fairy tale. Several stages have been completed (Dulamă et al., 2012; Conțiu, Conțiu & Toderaș, 2021):

Stage 1. Discussing the tasks and objectives of the activity. At the beginning of the class, the teacher told the students that they would do, in pairs, a project with the theme: *Harap-Alb's journey seen through the eyes of children.* The teacher asked them the following questions: *Where do you think the events of this fairy tale would have happened if Harap-Alb had*

been real? Where would you place the fairy tale in historical time? Using the current means and your knowledge acquired in Geography and other disciplines (for example: Romanian Language and Literature, History, Fine Arts, etc.) locate them on the appropriate map. He told them that they would have a week to work and that they would present their project to the class, arguing the choices made. He explained to the participants the objectives pursued by this activity: they will learn to represent on a map elements that are found in literature (they will make a mental map), to locate in time and space a fairy tale, to analyse in writing and orally the choices made, to use creatively the different knowledge accumulated in various disciplines (Romanian Language and Literature, History, Visual Arts, Psychology, etc.).

Task: Form 13 pairs, desk colleagues. On the Google Classroom platform you will receive a file containing the text of the Harap-Alb fairy tale written by Ion Creangă and which you will go through it individually. In the geography class, a structure will be established that each group will follow in the project. Each pair will represent at home, as a theme, on an A4 sheet, the route and the tests that Harap-Alb goes through in the homonymous fairy tale. You will also write a text, on another A4 sheet, in which you will support your choices and at the end of which you will specify the bibliography. The time you have is one week. You will present the project to the class.

Stage 2. Reading the text and establishing the structure. After specifying the work assignment, the text was read at home by all students, and during the geography class, the elements to be followed were established, all under the coordination of the teacher. She also communicated to the students, in writing, using the Google Classroom platform, the structure of the project; she specified the obligation to comply with it.

It was decided that part of the structure of the project be built in collaboration with the students to help them more easily discern the elements to be followed in this project. The work was also enabled by the fact that this fairy tale was studied in Romanian Language and Literature in the previous semester.

Stage 3. Realisation of the project. Each group carried out their project outside of geography classes, as homework. The members of the group distributed their tasks in the sanitary conditions currently imposed by the pandemic situation. In this context, one of them drew and the other recorded the written part, agreeing with each element represented / written.

The final stage. *Project presentation.* Each team presented their project to the class during geography classes. After each presentation there were discussions in which the whole class was involved.

The data collected consisted of students' projects: mental maps and written texts.

***Research / evaluation tools*.** Each project was evaluated on the basis of the following grid (Table 1). The grid is aimed at: *general aspects*, *content (*visual component, written component*) and project presentation.* For the

evaluation of *the visual component*, three criteria and twelve indicators were established. For the evaluation of *the written component* of the project, three criteria and three indicators were established.

Table 1. Project evaluation grid

	Project components	**Criteria**	**Indicators**	**Score**
Content elements	**General aspects**	**The time** **The appearance of the project**	Time frame (one week)	3
			Page framing, Image correctness, Structuring information, etc.	3
	The visual component of the project	**The elements of the map**	Specifying the subject of the project / title	2
			Represented territory	3
		The elements of the legend	The title	2
			Explanation of symbols	5
		Locate the elements of the Harap-Alb story	The Kingdom of the Emperor	5
			Bridge test	5
			The forest where Harap Alb meets with the Glabrous Man	5
			The fountain in which Harap Alb, from the son of the Emperor, becomes the servant of the Glabrous Man	5
			The courtyard of the Green Emperor	5
			The proof of bringing salads from the bear's garden	5
			The proof of deer skin	5
			The proof of bringing the Red Emperor's daughter (Red Emperor's courtyard)	5
	The written component of the project	**Give arguments for framing the historical time** **Bibliography**	Geographical explanation of the choices made	5
			Framing in historical time, explanations	4
			Ordering the bibliography	3
The project presentation **Criteria: time, language, presentation, support (arguments, answers)**			Timeout/ Framing in time (8 minutes)	3
			How to present the project	6
			Scientific language	9
			Answers to questions / questioning	2
Ex officio				10
Total				100

RESULTS AND DISCUSSIONS

Analysis of the activities within the project "Harap-Alb's journey seen through the eyes of children". During the geography class, the elements that they had to follow for the realisation of the project were

discussed and established together with the students (making the visual material, where to locate the elements from the content of the *Harap-Alb* fairy tale: the kingdom of the Emperor, the bridge, the forest, etc.; and the written text, through which students explain and argue geographically the choices made: framing in the historical time, selection and ordering of the bibliography, the ways of presenting the projects presented in Table 1, the objectives, methods and procedures that could be used during the realisation of this interdisciplinary project have been made very clear to the students.

Assuming that oral messages can be perceived fragmentarily and quickly forgotten, assignments, requirements, and instructions were written and sent by the teacher to the entire class using the Google Classroom platform. During the week of the projects, the pairs worked either face to face at home or using video conferencing or learning platforms. We notice that the project was presented to the class by each pair during another three weeks; additional time was given to some pairs and the chance to improve their projects.

The fact that the presentation of the project was followed by a session of questions asked by the teacher and the students, allowed the understanding of the way of working in pairs, the use of time resources, means, the choice of places / routes to illustrate, in "real" mode, fairy tale action, etc.

The students collaborated very well not only face to face, but also through WhatsApp, Facebook Messenger, e-mail or using the Zoom.us platform, liking the task and considering it challenging. Some had the chance to capitalise on their talent for drawing, while others "protested," saying they did not know how to draw. During the presentations they were very attentive, asked many interesting questions, encouraged, and criticised each other.

Analysis of compliance with time requirements and the composition of groups. All students fit in time. Each group complied with the requirement to be two members, desk colleagues.

Content element analysis. The project had a structure that included a visual component and a written component. *The visual component (mind map)* included: specifying the subject of the project / title, the represented territory, the legend, locating the elements related to the content of the Harap-Alb fairy tale (The Emperor's kingdom, the bridge test, the forest where Harap Alb meets the Glabrous Man, the fountain in which Harap Alb, from the Emperor's son, becomes the servant of Glabrous Man, the courtyard of the Green Emperor, the trials to which Harap Alb was subjected at the courtyard of the Green Emperor: bringing "salads" from the bear's garden, proof of deer skin, proof of bringing the Red Emperor's daughter – the courtyard of the Red Emperor); *the written* component included the geographical explanation of the choices made and the framing in the historical time. Other requirements related to specifying data sources, undistorting the images and maps used. The teacher asked the students to specify the time they used to complete this project.

The title of the project was specified by only four groups. Regarding the represented territory, most of the groups opted for Romania: four drew the outline, two used the map of Romania and the Republic of Moldova, four used the administrative map of our country; one group used the political map of Europe as a basis. Only one group (7) did not want to use any map to represent concretely, but only drew lines that connect the different elements of the requirement.

The title of the legend was written on three of the projects, and the symbols used were varied: dots (usually coloured), surfaces, lines, drawings, etc. Only one group (10) did not explain the symbols used. Six groups (1, 2, 3, 7, 8 and 13) noted on the map / next to the map / in the written part other elements that referred to their own names that they would give to the characters in the fairy tale, moreover, some also wanted to specify their characteristics. Regarding the location of the elements related to the actual content of the fairy tale, it can be seen how the students were attentive to the choices made; with a few exceptions, all required items were solved.

The written component of the project preoccupied the students differently: some argued at large about the choices made (the groups 1, 2, 4, 5, 6, 8 and 11), others offered little or no explanation (9, 10, 13). The framing in the historical time chosen by the students was as follows: a group framed the action of the fairy tale in the 12th-13th centuries, a group in the Middle Ages (1505), two groups between 1700 and 1750, six groups in the period 1800-1900, one in 1910 and two in the 20th century. Groups 1 and 2 argued for this choice because the singing fountain still existed in Târgu Mureș – the place where they thought the Emperor's son stopped, and the 6th group argued that the action of the fairy tale would have taken place in 1837 because then its author, Ion Creangă, was born.

Only one group (11) used images in the project. They were not deformed. No group specified the source of the data. The teacher explained to them, again, the importance of bibliography. The average time students spent on the project was 81 minutes. Group 6 spent the most time (three hours), and the least time spent was 30 minutes (groups 9, 10 and 13). The allocation of time resources was reflected in the complexity of the projects.

Project presentation analysis. Each group presented their project in front of the class according to a certain schedule set at the beginning of the activity. In terms of time frame, out of 13 groups, only seven were classified. Groups 9, 10 and 13 briefly presented their activity, and group 8 exceeded the allotted time, most likely due to the large volume of information provided, but also due to their lack of structure. Nine groups supported their project well with arguments and explanations, satisfying the interest of the other colleagues. In general, students had appropriate scientific language and actively participated in this activity by asking and answering questions (Table 3). Some identification mistakes on the map were corrected by the students during their presentation.

Analysis of the visual representation of the fairy tale and the written explanatory texts. *Group 1.* The representation of the information from the fairy tale "Harap-Alb" was made on a map overlaid over the outline of Romania, drawn by hand (Table 2, Figure 1). The symbols with coloured dots, corresponding to the different cities, were written in the legend: purple (Piatra Neamţ), orange (Harghita), blue (Târgu Mureş), green (Hunedoara), brown (Reșița), yellow (Drobeta Turnu Severin) and red (Oradea). Other elements were represented on the map but were not included in the legend, as they were explained directly on the map: a sword under which Harap-Alb is written, a bridge (the bridge of the fortress in Piatra Neamţ – wooden bridge; there was confusion between Piatra Neamţ and Târgu Neamț where the Neamţ fortress is located); Harghita (Vărșag waterfall forest); a fountain (Tg. Mureş, the singing fountain); Hunedoara (the fortress); a salad (Reșita, salad plantation), two trees (Drobeta Turnu Severin, Crihala forest) and a fortress, Oradea. The different dots were connected by coloured lines. A short characterisation was made for each element on the map.

Group 2. The representation of the information was made on a map overlaid on the "Administrative map of Romania and the Republic of Moldova" (Table 2, Figure 2). The route was represented on the map with a blue marker: from Kishinev - bridge over the Prut (Pd is on the map) - Băile Tușnad (forest, P) - Târgu Mureș (fountain, Great Church) - Sibiu (V Î, Verde Împărat) - Târgu Jiu, Craiova (Î R, the kingdom of Red Emperor). Some proper names are listed/written in the legend in lower case. The letters on the map are explained, as well as the names given by the students to the characters in the fairy tale.

The explanation of the choice of these places to illustrate in a "real" way the action in the fairy tale is different: "I chose Kishinev as my starting point because in order to get to Romania I need to cross the bridge over the Prut. The forest in Băile Tuşnad being dense was a suitable place for the <labyrinth> to cross to the other world. The fountain in Târgu Mureş was suitable for descending. It was also a good place to change your identity. Sibiu is the Green Kingdom because it is a beautiful city with many historical buildings and many tourist attractions. I chose Craiova, Dolj County, because it is a place famous for crimes and aggressions, so it fits with all the trials and tribulations in the Kingdom of the Red Emperor".

Group 3. The representation of the information was made on a map overlaid over the outline of Romania, drawn by hand (Table 2, Figure 3). In the legend, the symbols corresponding to the different cities and different explanations are written with coloured markers. Two items were not included on the map, only in the legend: Dâmboviţa şi Roşia (Vâlcea). Two samples/tests/trials were not shown on the map. Some items represented on the map were not included in the legend: a blue castle (in Iaşi), a bridge (over Someşul Mare), a forest (Pădurea Hoia, Baciu), the river Olt, a fountain (fountain of Master Manole), a green castle (Green Emperor) and a red castle (Red Emperor).

The written explanation was briefly conceived, with only two elements: the wooden bridge over the Someşul Mare and the Master Manole fountain (choice motivated by the fact that this "is an important tourist objective and because everyone in the country should know that it is at Curtea de Argeş"). Outside the outline of the country are written the names of the people that the students attributed to those in the original fairy tale.

Group 4. The representation of the information was made on a map overlaid over the "Administrative map of Romania" (Table 2, Figure 4). The legend is missing, all the fairy tales trials are written directly on the map: a pink castle (the Emperor's Kingdom), a blue bridge (bridge), five trees (forest), a fountain, a deer fur, a salad (the bear's garden), a red castle (Red Kingdom) and a green castle (Green Kingdom).

The explanations given by the students were: "We chose Târgu Mureş as the location for the Emperor's Kingdom because we have a wonderful fortress in the centre. The Union Bridge because it is close to house of the Emperor's son to support the test. Hoia-Baciu Forest because it is a mysterious place. I chose the fountain of the master Manole because it has a story behind it, and it fits the theme of the Emperor's son. The Botanical Park in Timişoara, because it matches the bear garden test. Râmnicu Vâlcea Zoo because the second sample concerns bear fur. I placed the Red Kingdom in the fortress of Alba Iulia because it is a splendid tourist location and it matches the wealth of this Emperor. (...) The last stop, the Green Kingdom, is located in Constanţa at an Orthodox church called the Cathedral of the Holy Apostles Peter and Paul. This location emphasises the pure personality of the Emperor's son".

Group 5. The representation of the information was made on a map overlaid over the "Administrative map of Romania" (Table 2, Figure 5). In the legend are found the colours used on the map, with the observation that the scale is not respected (they used the same scale both for the representation of counties and cities): yellow (for the Emperor's Kingdom), brown (Năneşti bridge), four shades of green for: Neamţ, Arad and Bihor, blue for Mureş county; confusion between Târgu Mureş municipality and Mureș county), red (for Maramureş); the representation of the colour purple is absent. Harap-Alb's journey is marked by black lines. The explanations have been noted on the left side of the map.

Group 6. The representation of the information was made on a map overlaid on the "Administrative map of Romania and the Republic of Moldova" and capitalised on the legend on this map (Table 2, Figure 6). All the represented elements were positioned and explained directly on the map: three fortresses (corresponding to the three kingdoms), a bridge, a meadow surrounded by trees (The deer glade), two forests and a fountain.

The explanations were written separately: "I chose the city of Iasi because it is located in the Moldavian Plain, where the author of the work was born; Iaşi being one of the largest cities in the country and at the same time being at the north-eastern end of the country, it represents the Emperor's kingdom at the end of the world. I chose the city of Deta (Timiş) because it is an important administrative, economic and cultural centre for

the county and I considered that these features resemble the features of a Kingdom, but also because it is located at the western end of the country (...) as story, at the other end of the world, the Green Kingdom. Deer Bridge (Piatra Neamţ) was chosen because it "crosses the Bistriţa River" and can be "a delimitation between the two <realms> in the story. Chizid Forest (Hunedoara) is the forest in which the protagonist meets the Glabrous Man, in the opera he was big, dark and represents the unknown. Chizid resembles 50 hectares".

Group 7. She is the only one who did not use a default map, but drew a route that connects the points followed by lines. The means of transport was also drawn above them: from Los Angeles on foot to the Golden Gate Bridge (San Francisco), by plane to the rainbow eucalyptus forest (Hawaii), by plane to the Trevi Fountain (Rome), by car to the Green Kingdom (Vienna, Austria), by ship to the Red Kingdom (Greece) (Table 2, Figure 7). The legend included explanations of the names given by the students to the characters in the original fairy tale. The explanations were not structured. In the presentation of the project, the students stated that they really like to travel and for this reason they chose, for Harap-Alb, both the places they visited and others that they would like to see. They corrected themselves in terms of the misplacement of some geographical features (they placed Greece in east of Austria, instead of positioning it in south-eastern Europe).

Group 8. The students drew the outline of Romania (Tablel 2, Figure 8). Inside it were included several conventional signs that do not exist in the legend; some of these have been mentioned in the explanatory text. Both inside and outside the map were written some imagined names for different characters in the fairy tale (for example, Guerrilla, Setil, Eye, Hungry, Bird became David, Frank, Ionuţ, Andrew and Caesar in the choice of students, and the emperor Verde, Șercan) - some have been replaced and others have been associated. The information is not structured, there are also some drawings that do not exist in the fairy tale (a football field). They argued that this addition was because they thought that part of the map was too "empty" of information. The route followed by the students was as follows: Botoșani (Moldova) - the bridge over Siret - the fir forest and the fountain (The Firs Fountain, Harghita) - the Green Emperor (in Hunedoara, Corvinilor Castle) - the garden with bear salads (Romanian Plain) - the deer forest (Mociar Forest in Mureș) - the castle Red (Banffy Castle from Bonțida). In the written part, the students explained the choices made.

Group 9. As a cartographic basis, the students drew the outline of Romania (Table 2, Figure 9). On the right was placed the legend that includes only the names and their fairy tale correspondent. The localities or counties were connected by black lines. The written component of the project is missing.

Group 10: The cartographic basis of this project was the "Political Map of Europe" (Table 2, Figure 10). It has no legend or written explanation. Various elements were represented on the map: with purple, the Emperor's kingdom (overlaid over Portugal); with green, the kingdom of Green Emperor (Poland); in red, of the Red Emperor (Finland); then there is

a bridge (between Portugal and Spain), a forest (located in France) and a fountain (in Germany).

Group 11: The "Physical-geographical map of Romania" was used as a basic map (Table 2, Figure 11). It has no legend, only images corresponding to the numbers on the map. The route followed the following route: Danube Delta (The Emperor's kingdom) - bridge over the Danube (in Brăila) - Bălan forest in the Ceahlău Mountains (Durău, where Harap Alb's descent into the fountain took place) - Zichy hunting castle (Green kingdom) - Bâlea, Lăițel peak (proof of bringing salads) - Negoiu peak (deer skin proof) and Poienari fortress (Căpățâneni, Argeș County, Moldoveanu Peak, proof of bringing the daughter of the Red Emperor). The explanations of the images were written separately.

Group 12: The "Administrative Map of Romania" was used (Table 2, Figure 12). The legend included the elements represented on the map and some explanations were synthetically included. The proof of bringing deer skin is missing.

Group 13: They used, as a basic map, the "Administrative Map of Romania" (Table 2, Figure 13). It has no legend. On the map were drawn near the localities or counties symbols that explain the samples or the kingdoms: a house (in Iaşi), a bridge (in Suceava), a deciduous and coniferous forest (in Braşov), a fountain (Maramureş), a green castle (in Oradea), a salad (in Bucharest), a head of deer (in Harghita) and a red castle (in Bacău). All these elements are joined by a line drawn with a pencil. On the outside of the map, there are some explanations of the names given by the students to the characters in the fairy tale.

Static visual materials made by students after reading the Harap-Alb fairy tale and capitalising on their mind maps

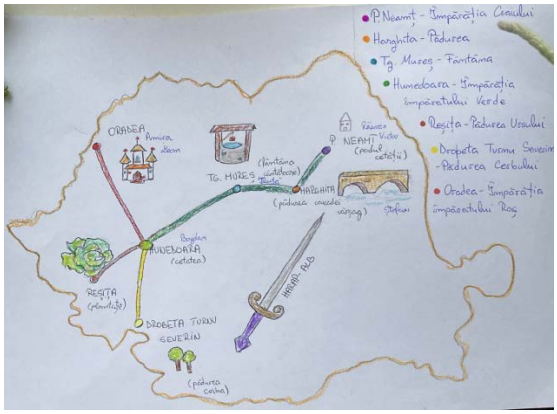

Fig. 1. Representation made by pair 1

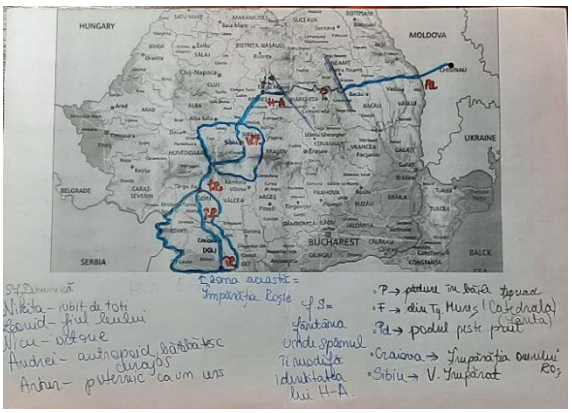

Fig. 2. Representation made by pair 2

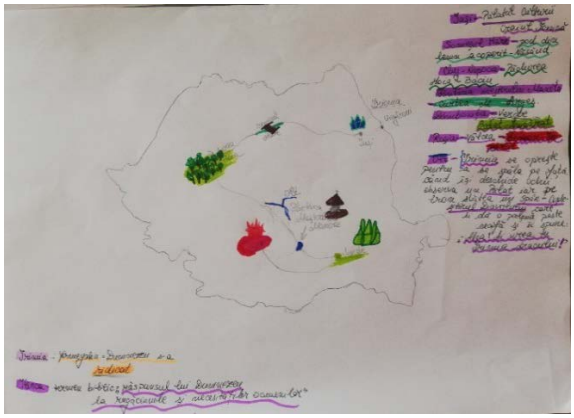

Fig. 3. Representation made by pair 3

Fig. 4. Representation made by pair 4

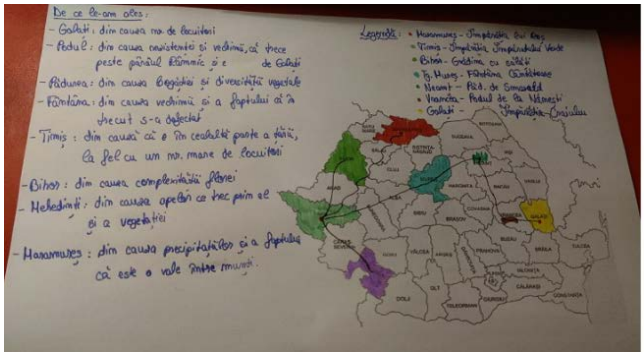

Fig. 5. Representation made by pair 5

Fig. 6. Representation made by pair 6

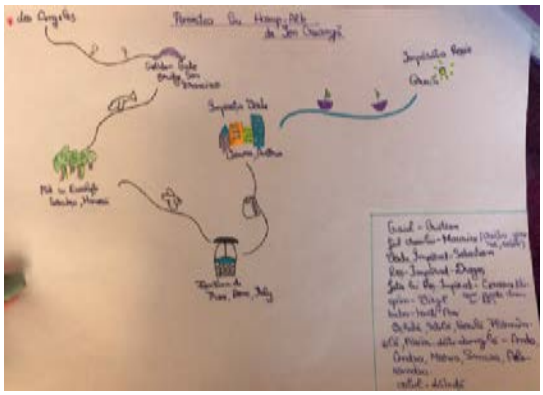

Fig. 7. Representation made by pair 7

Fig. 8. Representation made by pair 8

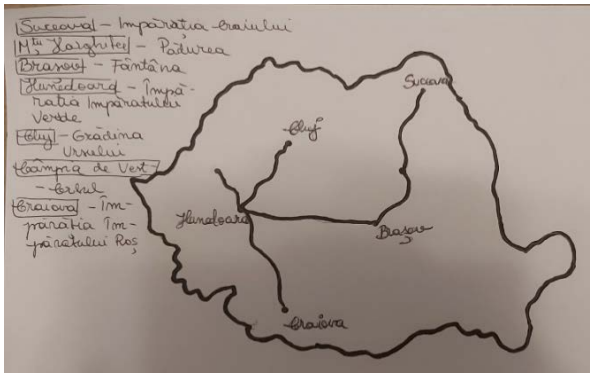

Fig. 9. Representation made by pair 9


Fig. 10. Representation made by pair 10

Fig. 11. Representation made by pair 11

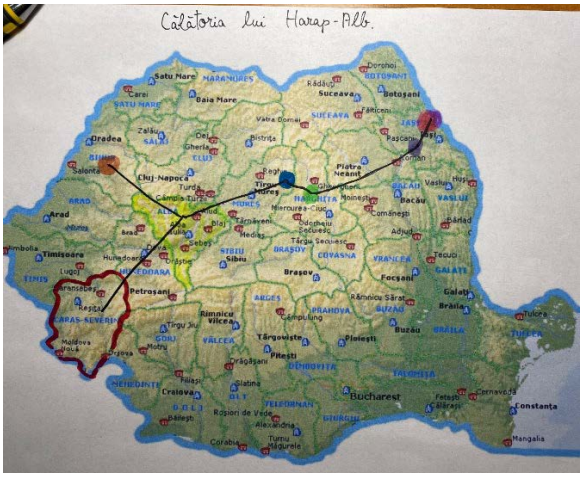

Fig. 12. Representation made by pair 12

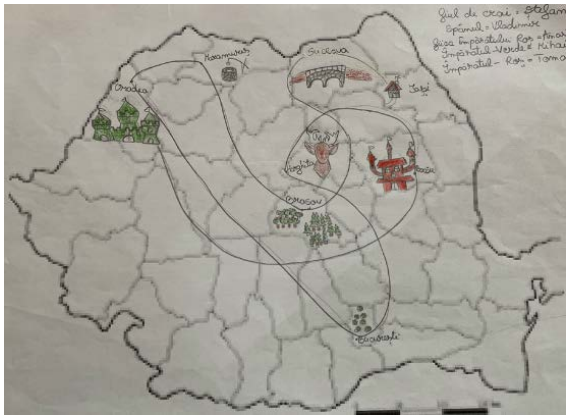
Fig. 13. Representation made by pair 13

Table 2. Evaluation of the visual and written components of the projects

Content items			Group												
			1	2	3	4	5	6	7	8	9	10	11	12	13
1. The visual component of the project															
Specifying the subject of the project / title			–	–	–	–	–	Yes	Yes	Yes	–	–	–	Yes	–
Represented territory			Romania (hand contour)	Romania and R. Moldova	Romania (hand contour)	Romania (administrative map)	Romania (administrative map)	Romania and Republic of Moldova	USA (the mainland)-Hawaii-Italy-Austria-Greece archipelago	Romania (hand contour)	Romania (hand contour)	Europa (political map)	Romania (physical-geographical map)	Romania (administrative map)	Romania (administrative map)
The elements of the legend	The title		–	–	–	-	Yes	–	–	–	–	–	–	Yes	–
	The symbol used		Coloured dots; the legend incomplete.	Capitalization and dots	Colours: incomplete legend	-	Coloured dots; the legend incomplete	No, just the basic map legend used	-	Various explanations are given; incomplete legend	Just a written part	-	Digits, images	Colours, lines	-
	Explanation of symbols		Correct	Unorganised; characters' names are also mentioned	Various explanations, including character names	Explanation directly on the map	Yes	Explanation directly on the map	Character names are mentioned	Unorganised; character names are also mentioned	Correct	-	Yes	Yes	Character names are mentioned
Locate the elements of the Harp-Alb story	The Emperor's kingdom		Piatra Neamţ	Kishinev	Iaşi	Târgu Mureş	Galaţi	Iaşi	Los Angeles	Botoşani	Suceava	Portugal	The Danube Delta	Ungheni (Iaşi)	Iaşi
		Bridge test	The wooden bridge	The bridge over the Prut	The wooden bridge over the Someşul Mare (Bistriţa-Năsăud County)	The bridge over the Mureş river, towards the Unirii neighbourhood	The bridge over the Râmnic river, Năneşti locality (Vrancea County)	Deer Bridge, Piatra Neamţ	Golden Gate Bridge (San Francisco)	The bridge over the Siret	-	Between Portugal and Spain	Bridge over the Danube (in Brăila)	The stone bridge (Iaşi)	Suceava
	The forest - the meeting with the span		Harghita (the forest of waterfall Vărşag or Secuilor)	The forest from Băile Tuşnad	Hoia Forest (Baciu, Cluj)	Hoia Forest (Baciu, Cluj)	The Emerald Forest (Neamţ County)	Chizid Forest (Hunedoara)	Rainbow eucalyptus forest (Hawaii)	Fir forest (Harghita)	Harghita Mountains	France	Forest in the Ceahlau Mountains, Durău	Bălan Forest (Harghita)	Braşov
	The fountain, Harap Alb becomes from the Emperor's son, the servant of the Glabrous Man		Târgu Mureş (the singing fountain)	Târgu Mureş (the singing fountain)	Curtea de Argeş (the fountain of the Master Manole)	Curtea de Argeş (the fountain of the Master Manole)	Târgu Mureş (the singing fountain)	Timişoara (The Fountain of Cardinal Points)	Fântâna di Trevi (Roma, Italia)	-	Braşov	Germany	Forest in the Ceahlau Mountains, Durău	Izvorul Sărat (Mureş)	Maramureş
	Courtyard of the Green Emperor		Hunedoara (Corvinilor Castle)	Sibiu locality	The place is drawn on the map, and Dâmboviţa is	Constanţa (Cathedral of the Holy Apostles Peter	Timiş	Timiş	Vienna (Austria)	Hunedoara (Corvinilor Castle)	Hunedoara	Poland	Zichy Hunting Castle	Alba Iulia	Oradea

					mentioned in the legend	and Paul)									
	The tests from the courtyard to the Green Emperor	The proof of bringing "salads" from the bear's garden	Reşiţa	Craiova (Dolj)	-	Timişoara (The botanical park)	Bihor	Piteşti (Trivale Forest)	-	The Romanian Plain	Cluj	-	Bâlea, Lăiţel Peak	Bihor	Bucharest
		The proof of deer skin	Drobeta Turnu Severin	Craiova (Dolj)	-	Râmnicu Vâlcea (zoo)	Mehedinţi	Poiana Braşov	-	Mociar Forest (Mureş County)	Western Plain	no	Negoiu Peak	-	Harghita
		The proof of bringing the Red Emperor's daughter, the courtyard of the Red Emperor	Oradea (fortress)	Craiova (Dolj)	The place is drawn on the map, and the locality Roşia is written in the legend (Vâlcea County)	Alba Iulia (fortress)	Maramureş	Râmnicu Vâlcea (Vâlcea)	Greece (misplaced/ wrong location)	Banffy Castle, Bonţida (Cluj County)	Craiova	Finland	Poienari Fortress (Căpăţâneni, Argeş County), Moldoveanu Peak	Caraş-Severin	Bacău
2. The written component of the project															
Geographical explanation of the elections			Yes	Yes	Yes, partially	Yes	Yes	Yes	Yes, partially	Yes	–	–	Yes	Yes, sketchy	–
Framing in historical time	Period / year		1910	1800-1900	1700	2005	1900	1837	2020	1890	12^{th}-13^{th} centuries	Middle Ages (1505)	1800	1750	1800-1900
	Explanations		Because there is still a fountain in Tg. Mures	Because there was a fountain in Tg. Mures	-	Da	-	The author of the fairy tale was born in 1837	-	-	-	-	-	-	-
3. Other items															
Images			-	-	-	-	-	-	-	-	-	-	Yes	-	-
Data source			-	-	-	-	-	-	-	-	-	-	-	-	-
Time required to complete the project			2.30 h	1.15 h	1.20 h	2 h	1 h	3 h	0.45 h	2 h	0.30 h	0.30 h	1 h	1.10 h	0.30 h

Table 3. Project presentation evaluation

	Group												
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Time frame (8 minutes)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No
How to present the project	Structured information, coherent presentation	Structured information, coherent presentation	Structured information, coherent presentation; some with elements from other literary works.	Structured information, coherent presentation	Structured information, coherent presentation	Structured information, coherent presentation	Consistently, the information presented is quite brief	Lots of information, but unstructured	Summary information	Summary information	Quite brief information	Structured, but concise information	Summary information
Scientific language	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Answers to questions /phrasing questions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

CONCLUSIONS

At the end of this research, we came to some conclusions. The analysis of the visual materials made by the students shows their diversity, which indicates the existence of very different mental representations of the content of the fairy tale, including the topological relationships in the students' minds. In this activity, we found some difficulties that students have in correlating knowledge from different disciplines, to translate them into a certain geographical area, but also in historical time, to make, analyse and interpret a map sketch.

The activity was challenging for the students. They were held accountable for having to argue geographically (including cartographically) and historically in front of colleagues about the choices they had made, drawing on previously acquired knowledge and using appropriate language. Students were able to better understand the complexity of the geographical reality and use their creative potential in unique directions; in this way they got to know each other better and even to form and consolidate certain skills, developing at the same time their relationship and communication skills.

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