Understanding of geographical cognitive abilities through maps and satellite images, a task in geographic education

Dhimitri J.[1], Duri V.[2]

[1] *Department of Geography, Faculty of History and Philology, University of Tirana, 11215, Tirane, Albania,* jostinak@yahoo.com
[2] *Department of Geography, Faculty of Education and Social Sciences, Gjirokaster 6001, Albania,* bongjeo@yahoo.com

Abstract
A map or satellite image presents unique information. Interpreting of geographical natural and human elements becomes simpler by knowing and reading them. The study assesses the importance of recognition, acquisition and skills' creating to interpret such didactic elements, whose involvement is part of school curricula and geographical programs. The paper presents an original study on the acquisition of geographic information through maps and satellite images to a group of 120 students in two high schools. It observed and analyzed the geographical cognitive abilities of students involved in sampling, by interpreting geographic information during both phases of the study, by fulfilling the questionnaire. So the students were given a satellite image and a thematic map of the same area and asked to indentify human geography features and natural environments, objects of natural and cultural heritage of the area, map symbols, define the distance and evaluate the importance of map and satellite image recognition taking an initial phase from them. After a wide explanation of geographical material, the students were asked to complete the questionnaire, underwent the second phase. For analysis of the questionnaire was used SPSS program.

Keywords: Western Lowland (Lushnja district), February-March 2014, interpretation by SPSS program, 120 sampling by questionnaires, thematic map and satellite image of the same area.

Περίληψη
Ένας χάρτης ή δορυφορική εικόνα παρουσιάζει μοναδικές πληροφορίες. Η κατανόηση γεωγραφικών, φυσικών και ανθρώπινων στοιχείων γίνεται απλούστερη με τη γνώση και την ανάγνωση τους. Η μελέτη εξετάζει τη σημασία της αναγνώρισης, την απόκτηση και δημιουργία δεξιοτήτων για την ερμηνεία τέτοιων διδακτικών στοιχείων, των οποίων η συμμετοχή είναι μέρος των σχολικών προγραμμάτων και των γεωγραφικών προγραμμάτων. Η εργασία παρουσιάζει μια πρωτότυπη μελέτη για την απόκτηση των γεωγραφικών πληροφοριών, μέσα από χάρτες και δορυφορικές εικόνες σε μια ομάδα 120 μαθητών σε δύο λύκεια. Παρατήρησε και ανέλυσε τις γεωγραφικές γνωστικές ικανότητες των μαθητών που συμμετέχουν στη δειγματοληψία, με την ερμηνεία γεωγραφικών πληροφοριών κατά τη διάρκεια των δύο φάσεων της μελέτης, συμπληρώνοντας το ερωτηματολόγιο. Έτσι, στους μαθητές δόθηκε μια δορυφορική εικόνα και ένας θεματικός χάρτης της ίδιας περιοχής και τους ζητήθηκε να προσδιορίστουν ανθρώπινα γεωγραφικά χαρακτηριστικά και φυσικά περιβάλλοντα, αντικείμενα φυσικής και πολιτιστικής κληρονομιάς της περιοχής, σύμβολα του χάρτη, να καθορίζουν την απόσταση και να αξιολογήσουν τη σημασία της αναγνώριση χαρτών και δορυφορικών εικόνων, λαμβάνοντας μια αρχική φάση από αυτούς. Μετά από μια μεγάλη εξήγηση του γεωγραφικού υλικού, οι μαθητές κλήθηκαν να συμπληρώσουν το ερωτηματολόγιο, υποβαλλόμενοι στη δεύτερη φάση. Για την ανάλυση του ερωτηματολογίου χρησιμοποιήθηκε το πρόγραμμα SPSS.
Χάρτες και δορυφορικές εικόνες αποτελούν τα βασικά εργαλεία της γεωγραφίας. Μας επιτρέπουν να μεταδώσουμε πληροφορίες που είναι συχνά δύσκολο να εκφραστούν λεκτικά. Η διδασκαλία της γεωγραφίας χάνει την αξία της εάν δεν χρησιμοποιείται στους χάρτες, έτσι δεν θα πρέπει να υποτιμάται. Μέσα από τους χάρτες και τις δορυφορικές εικόνες, οι μαθητές μπορούν να δουν καλύτερα τι εξηγήθηκε και τι πρέπει να μάθουν

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καλύτερα γεωγραφικά. Η ανάγνωση χάρτη, αναγνωρίζοντας τα βασικά στοιχεία του ήταν μια σημαντική πτυχή σε αυτή τη μελέτη. Το υπόμνημα του χάρτη είναι πάνω από όλα αυτά. Κατά τη διάρκεια της πρώτης φάσης της έρευνας, το υπόμνημα δεν ήταν στη διάθεση των μαθητών. Αφού δόθηκε η εξήγηση της διάλεξης, οι κειμενικές πληροφορίες και η εξήγηση του υπομνήματος του χάρτη με όλα τα σύμβολα, αυξήθηκε η αναγνώριση του περιοχομένου απο τους μαθητές.

Σκοποί και στόχοι για το παράδειγμα της γεωγραφίας στα προγράμματα περιλαμβάνουν εργασία με οπτικό- χωρικά εργαλεία. Εξετάσαμε σχολεία με διδακτικά εργαλεία, όπως θεματικούς χάρτες και εικόνες δορυφόρου. Το γυμνάσιο "Nushi Jani" έχει μια καλύτερη υποστήριξη των υποδομών σε σχέση με το "Vath Korreshi" γυμνάσιο. Οι μαθητές που ελήφθησαν στα δύο σχολεία έχουν δυσκολία να αναγνωρίσουν και να δουλέψουν με χάρτη και εικόνα δορυφόρου. Αλλά είδαμε μια βελτίωση των δεξιοτήτων τους μετά την παρέμβαση. Επεξήγηση σχετικά με την κλίμακα του χάρτη βοήθησε τους μαθητές να επιλέξουν μια δεδομένη απόσταση στο χάρτη και στη δορυφορική εικόνα. Άλλα στοιχεία του χάρτη, όπως: η βόρεια κατεύθυνση, πλαίσια, τίτλος ήταν μέρος του ερωτηματολογίου, ως μέρος των βασικών στοιχείων. Όσον αφορά σε αυτά, τα αποτελέσματα έδειξαν βελτίωση κατά τη διάρκεια του τεστ, αλλά ακόμα όχι σε σημαντικό επίπεδο. Η βελτίωση αυτή συνέβη ως αποτέλεσμα της:

1διάλεξης και της εξήγησης που δόθηκε πριν από την εφαρμογή της δεύτερης φάσης.

2Εστιάζοντας στην γνώση γεωγραφίας που αποκτήθηκε κατά τα προηγούμενα έτη.

Ένα θετικό γεγονός είναι ότι οι φοιτητές που ρωτήθηκαν είχαν σχετικές πληροφορίες για την φυσική και πολιτιστική κληρονομιά της περιοχής τους, αλλά χρειάστηκαν το δεύτερο στάδιο για να ανταποκριθούν με επιτυχία στις τοποθεσίες τους με σύμβολα. Οι περισσότεροι από τους μαθητές αισθάνονται πιο ικανοί όταν χρησιμοποιούν ένα χάρτη, και αυτό λόγω της χρήσης περισσότερο του χάρτη από ότι τις δορυφορικές εικόνες, κατά τη διδασκαλία της γεωγραφίας.

Οι ερωτηθέντες απάντησαν ότι η διάλεξη και το ερωτηματολόγιο υπήρξε τόσο αποτελεσματικό και χρήσιμο για αυτούς. Η ενθάρρυνση των μαθητών να εργαστούν γεωγραφικά με χάρτες και δορυφορικές εικόνες τους βοηθά στη βελτίωση των δεξιοτήτων τους, χρησιμοποιώντας διαφορετικές διδακτικές τεχνικές. Η χρήση τέτοιων πρακτικών από τους εκπαιδευτικούς θα τους βοηθήσει να αξιολογήσουν την κατάσταση της διδασκαλίας και στο να προσανατολίσουν τους μαθητέςνα εκπλήρωσουν τους βασικούς στόχους.

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1. Introduction

The map, satellite image, aerial photos, globe etc are didactic tools that give an unique and specific information to the students. Using them, the lesson and interpretation of geographic elements can be faster, easier and more correct by the students. They offers the students an infinite world and give them the opportunity for a critic thinking, group work, wide collaboration and education.

The importance of this paper is the estimation of the didactic role of map and satellite image, increasing the geographic cognitive abilities of the students.

The aim of the study consists in observation and analyzes of students skills to use satellite images and maps in geography subject.

The objectives: To identify, interpret the symbols of the thematic map, to have the sense of geographic space, to know the features of human and natural environment targeted in the paper, to know the relative locations and distances, to evaluate the importance of the use of maps and satellite images.

The work with maps and satellite images is very important for teaching and learning. Nishk and Breg (2002) evaluate the understanding and using role of "graphic language" in geography, as one of the four groups of intelligence: verbal, social, numeric and visual-space. According to Nish and Breg (2002), through this language the students understand, operate with the plan of a house, a city, with graphical presentation of a territory, or with the simple distribution of an occurrence, with the freehand, or the aerial photo of another area. The maps and satellite images are part of the use of graphic language.

The students take knowledge, skills and attitudes in schools. The teacher of geography is the one who should form and strengthen the geographical abilities and the skills of the students in the uses of didactic tools. According to Sula (2002) the success in teaching and in the process of geography learning consist in interaction of many factors, where she mentions:"...the achievement of clear and measurable objectives in accordance with students skills; ...providing the different and helpful materials like: the map, geographical atlas;... the use of practical activities during lessons time etc".

In pre-university education in Albania, the geography subject is always included in basic subjects, being accompanied with some elective subjects focused on geographical treatments like: subjects for estimation of natural and cultural heritage, climate changes, and environmental education. The summarized topics about these geographical issues can be found even in basic curriculum of geography subject.

If we could see inside the geography subject program, in pre-university education, there are general subject objectives like (Geography XII program):"...the student in the end of the curriculum should be able to distinguish the models and diversity of natural systems in the map and the factors that caused these models and diversities". It's the teacher's responsibility, with his dedication and work to realize this objective during an academic year, expressed in his daily pedagogical plans and activities.

In the two sampled schools, geography programs aim the use of maps and satellite images by:

1. developing the ability to use and work with simple geographic models (like sketches, planes, thematic maps, atlases, globe etc)
2. highlighting the ways and techniques of collecting geographic information, systematization, analyzing, graphic presentation (sketches, maps, aero photos, satellite images, etc) to the students and estimation of their role in organization and development of specific spaces.
3. developing the abilities, geographical skills to evaluate and to use globe, maps, atlas, literature, encyclopedia, internet and other computer programs to the students.

Through goals settled, objectives aim the students to be stimulated to investigate, to develop knowledge, competence, attitudes and values which will help them to answer these questions: where is the object or the occurrence?, the reasons why is there?, how is it

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formed?, what impact it may have?, how should the territory be organized for well-being of the society in different environments?

The students using their knowledge and skills must:

*define geographic position of the countries; define the distances knowing numerical, graphical scale and cartographic symbols.

*have the ability to use these knowledge for orientation, reading and working of the different thematic maps, where the reading of the legend is more important.

*calculate the absolute and relative height in topographic maps, or satellite images, read the maps and satellite images deepening in comparisons and causation of different phenomena depending on their location.

*understand the basic concepts, which enable the independent search.

*demonstrate communication skills, critical and creative thinking, of the problems solving.

*develop ability to solve the problems using geography.

As it can be seen, the goal, general objectives, curriculum programs of geography subject related to work with maps and satellite images, are well-defined, which orientate the geography teachers during their work. The integration of the work with different levels of knowledge, as it is mentioned the use of objectives through Brume's taxonomy (The Center for Teaching and Learning, 2014), helps teachers during their teaching.

2. Research sample and methodology

The paper shows the pedagogical importance of the maps, and their value in teaching and learning of geography, using a sampling in two public high schools in Lushnje: "Jani Nushi" and "Vath Korreshi". 120 students were evaluated about the cognitive abilities, the use of the maps and satellite images through two phase study. This way of study we can find in different articles and studies (Klonari, EJG,Volume 3, Issue 2: 43-53; Salkind, 2000; Rockland, 2001; Shuttleworth M, Pretest-Posttest Design, Explorable Psychology Experiments; Hantrakul et al, 2013; Ok A., Onkol P, 2007, Kerenxhi S.,Gjoci P., 2013). Demonstrating a thematic map of natural and cultural heritage objects of Lushnje (with covered legend) and a satellite image of this territory, the students were asked during first phase to complete a questionnaire with structured, closed and opened questions, and some according to Likert 5-scale.

Between these two phases was held a lecture about the recognition, the content of the maps and satellite images, about their elements, the use of the maps and the satellite images in determination of the natural and human objectives, of natural and cultural heritage. For this part was prepared a lecture that was explained to the students. Catling, S. (2005) emphasizes:"…children's competence in map work can be improved through teaching at all ages".

In the second phase was sampled a part of the questions by the first questionnaire to notice the development of the cognitive abilities, evaluation of the students achievements for geography cognition by these two didactic tools. During two phases was not any change in the general demographic data of the sampled group. (120 students, age of 17-18, 51.7% males and 48.3% females).

3. Research tool

The realization of the study was made possible by the use of the thematic map of natural and cultural heritage of Lushnje, of scale 1:200000, printed in A0 format (Figure 1.) and satellite image of the same area, printed in the same format (A0), (Figure 2). Also was prepared and scattered to the students, a lecture about elements of the map and of satellite images, importance and the work with them, and the information about natural and cultural objects of heritage in the studied area. It is selected the explaining, because as we can find it in Kualida (1997): "The explanation is giving the understanding to someone". In geography learning, the explanation is used when the teacher wants the students to understand: the concepts, causes and consequences, the geographical laws, processes, spatial relationships, etc.

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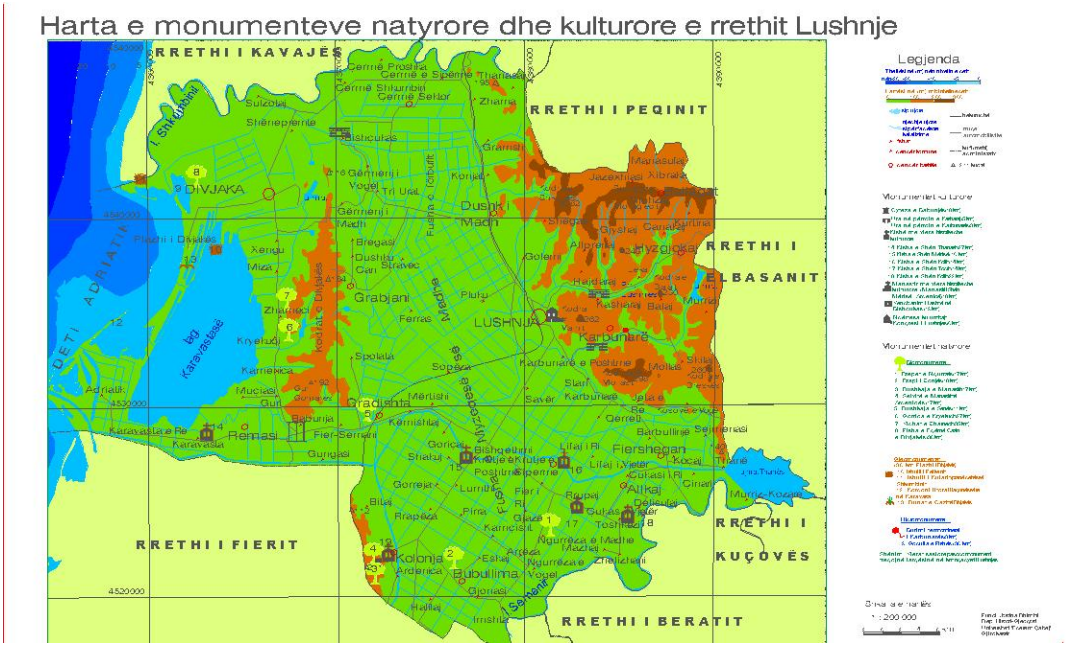

Figure 1: Map of natural and Cultural monuments in Lushnja District, created by PhD. Jostina Dhimitri

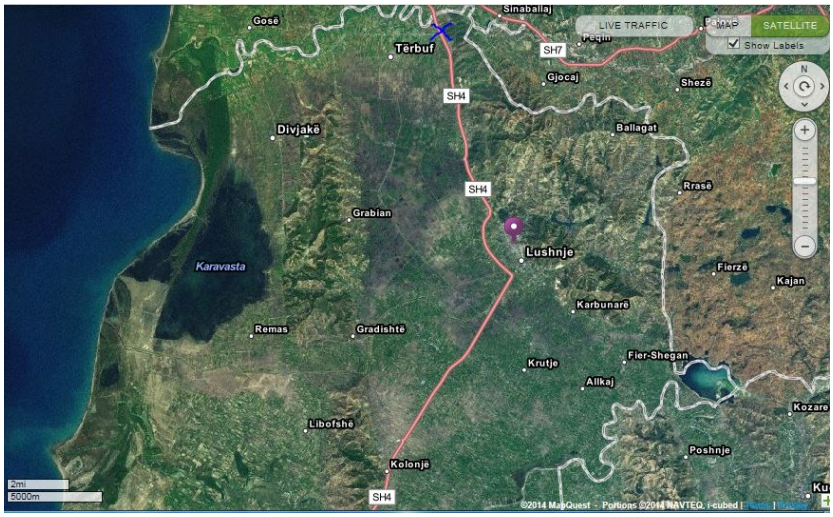

Figure 2: Satellite image of Lushnja District

Thus, during the lecture held between two phases of the sampling, the concepts of the cultural and natural heritage were explained to the students, and were defined their location for Lushnje district. Qiriazi. P. and Sala.S.2010, evaluate their scientific, didactic and aesthetic values. A special attention was paid their location along itinerary city center – Kolonje center. This itinerary is included in one of the questions realized in the second phase.

Also the main elements of a map and a satellite image were highlighted, focusing in their mathematical basis (the scale and its importance), north direction, legend, title, and the map frame. This moment is related again with the realization of questions in the questionnaire, where the students are asked to define the elements of a map, or to define the distances from the map or satellite image during pre and posttest.

During the explanation, an importance was given to the moments of ilustration of the area's physic-geographical characteristics, by giving the characteristics of the relief, hidrography, in objects of human geography, focusing in features of residential centres, communication and the symbolism of their appearance in the maps.

To continue then by identification of some natural and cultural heritage objects like:

a. bio monument – Rrapi of Zonjës, Bubullimë village
b. geo monument – Dunes of Divjaka'Oaz
c. culture monument – Church of St. Maria in Bishqethëm
d. culture monument – The House of Lushnja Congress
e. hydro monument – swamp of Pine, Divjakë

These are appeared evidently with the special symbolism in thematic map.

The explanation of the information of satellite images take a special place during the teaching because there were other questions during two phase of survey that are related with the identification of the objects of the natural geographic and human environment and in satellite image in Lushnje. Emphasizing on graphic scale attached to the image, the students are able to calculate the different distances asked in the questionnaire.

The students were asked to identify the objects of natural and cultural heritage in an determine itinerary and exactly the itinerary Lushnje-Ardenice.

There are these objects of cultural heritage in this itinerary:

a. Monastery of St. Maria in Ardenice village, declared in 1949. It is the most protected monastery in our country. In 1932 the part where the library was placed, finally lost, because of an accident in Monastery. A big help for dating this gives us the dates placed in different facade points, which are indicators of the building phases. In these dates, the oldest is in the facade from the yard in entry gallery- 1 May 1477.
b. St. Thanasi church in Karavasta village, announced in 1963. Nowadays, there are performed religious rites and services. This church is mentioned for his special architecture and his famous pictures made by Shpartaku brothers from Voskopoja.
c. The building where Lushnje Congress was held in Lushnje town. "Museum House "LUSHNJE CONGRESS" was opened as a museum house since 1959. In this house, Lushnje Congress held its works from 21 to 31 January in 1920. It is placed near the town centre. There are saved important documents of Lushnje Congress there.
d. There are many objects of cultural heritage in this district like: Todri's Church in Kadipashaj village, the old Town of Babunja in Babunje village, the Bridge in the brook of Kasharaj village etc.

The objects of natural heritage found in Lushnje-Ardenice national road:

a. Zonja's plane tree. It is near Bubullime village. It dated more than 400 years old. It is visited by Stop of driver -Bubullime road.

b. Oaks of Monastery. It is near Ardenice Monastery. It is visited by Kolonje-Ardenice Monastery road.

c. Cypresses of Ardenice Monastery. It is near Ardenice Monastery. It is visited by Kolonje –Ardenice Monastery road.

d. Here we can mention more and more other objects of natural heritage of Lushnje district like: Planes trees of Ngurreza, thermo mineral hydro source of Karbunara, Pelikan island, Kular island etc, which are shown in thematic map.

The questionnaire instrument contained two-page questionnaire, with 18 questions, where the two last were about the pleasure of realization of this teaching activity and were realized during the second phase.

The questions were with closed and opened end, and a part of them was based on Likert scale with 5 levels (expressed as: very much, somewhat, neutral, not much, not at all). Four first questions of the questionnaire, expressed demographic data of the sampled group, about the age, the gender, the school, the education of the parents. This part was used during the first phase because it was the same sampled group and realized in the same time.

In the following four questions, the students were asked if they like working with the map and satellite images and if they have any geographic ability to work with them; to write until 5 basis elements of a map and to define one distance by only seeing the map. These questions are related with cognitive abilities of the students and its using, (like map scale).

Then there are questions related with the content of the map where it is asked to identify 5 symbols <u>*not*</u> of the cultural and natural heritage (for example elements of relief, hydrography, residential centers, communication etc) (USGS, 2006); identification of 5 objects of natural

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and cultural heritage of Lushnje's district, which are shown in the thematic map of natural and cultural heritage of Lushnje's district. The students are asked for their comfort in using of map and the shown satellite image, the possibility of defining the distance north-south of Lushnje's district only by seeing the satellite image.

Mostly of the questions are repeated in the second phase and the results are significant for the most part of them.

The processing of the survey continues with encoding of the realized questionnaires and its analyze in SPSS 20 program. In order to see whether the differences between the mean scores were statistically significant or not, paired samples t-test were used, significant at the .05 level, Salkind J.N (2000).

4. Research results

To facilitate the comparison of the results of the same question in the two phases, we will show them in the same table:

The students' answers for the question (5 and 5_1): "Do you like working with the map and satellite images in geography subject?" are shown in tab.1:

Tab.1 Comparison of frequency between Q5 and Q5_1

	Frequency	Percent	Frequency	Percent
	pretest	pretest	posttest	posttest
Very much	39	32.5	58	48.3
Somewhat	36	30.0	48	40.0
Neutral	16	13.3	13	10.8
Not much	24	20.0	1	.8
Not at all	5	4.2	0	.0
Total	120	100.0	120	100

Referring to the tab.1 we can see an increased desire to work with maps and satellite images in geography subject, increasing the percentage of the students who like "most" from 39% to 58% and "somewhat" from 30% to 40%.

The students' answers for the question (6 and 6_1): "Do you have the geographical skills to work with them?" are shown in tab.2:

Tab.2 Comparison of frequency between Q6 and Q6_1

	Frequency	Percent	Frequency	Percent
	pretest	pretest	posttest	posttest
Very much	11	9.2	18	15.0
Somewhat	56	46.7	69	57.5
Neutral	18	15.0	23	19.2
Not much	32	26.7	10	8.3
Not at all	3	2.5	0.0	0.0
Total	120	100.0	120	100.0

According to tab.2, the most of the student have increased their geographical skills to work with them and teacher should be careful with about 27% of the students (33 students), who weren't able enough to use the maps and satellite images. The students feel more confident to work with the map.

The students' answers for the question (7 and 7_1): "Write to 5 basis elements of a map (thematic map, fig.1)." are shown in the Tab.3. According to it, the students increase their ability to mention the basic elements of a map, mainly 3 (20% into 30%), 4 (17.5% into 30%) or 5 (6.7% into 20%) elements of a map.

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Tab.3 Comparison of frequency between Q7 and Q7_1

	Frequency	Percent	Frequency	Percent
	pretest	pretest	posttest	posttest
1 element	6	5.0	5	4.2
2 elements	37	30.8	22	18.3
3 elements	25	20.8	33	27.5
4 elements	21	17.5	36	30.0
5 elements	8	6.7	24	20.0
no element	23	19.2	0	0
Total	120	100.0	120	100.0

The students' answers for the question (8 and 8_1): "Can you define a distance in the nature, only by seeing the shown map?" are shown in tab.4.

Tab.4 Comparison of frequency between Q8 and Q8_1

	Frequency	Percent	Frequency	Percent
	pretest	pretest	posttest	posttest
Very much	24	20.0	27	22.5
Somewhat	55	45.8	63	52.5
Neutral	15	12.5	19	15.8
Not much	17	14.2	9	7.5
Not at all	9	7.5	2	1.7
Total	120	100.0	120	100.0

Evaluating the tab.4, we can say that the differences are not significant. It is 2,5% for variable (very much) and 6.7 % for variable (somewhat). The work with the map scale must be in the centre of the teaching activity for the teachers and the learning process to the students.

The students' answers for the question (9 and 9_1): "Identify 5 symbols not of natural and cultural heritage that the map contains (for example: physic-geographical objects, relief, hydrography, residential centers, communication etc" are shown in the Tab.5.

The difference in tab.5 is significant especially for the 3 symbols (from 8.3% to 19.2%); 4 symbols (from 2.5% to 58.3%) and 5 symbols (from 0.8% to 17.5%), highlighting the impact of the information given to them.

Tab.5 Comparison of frequency between Q9 and Q9_1

	Frequency	Percent	Frequency	Percent
	pretest	pretest	posttest	posttest
1 symbol	9	7.5	1	.8
2 symbols	28	23.3	5	4.2
3 symbols	10	8.3	23	19.2
4 symbols	3	2.5	70	58.3
5 symbols	1	.8	21	17.5
no symbol	69	57.5	0	0.0
Total	120	100.0	120	100.0

The study shows that 85.5% "yes" of the students are informed about the objects of natural and cultural heritage of the district and 14.2% "no" are not (Q10). This level differs in 88% "yes" and 12%"no" in the posttest (Q10_1). Let's make a cross tabulation between the questions 10_1 and 11_1, where in the question 11_1 the students are asked to mention symbols of natural and cultural heritage, depending on the students who have knowledge about these heritage values. The results in tab.6 show that the students after the explanation have increased their cognitive geographic ability to define 2, 3, 4 symbols from the map.

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Tab. 6. Q11_1 * Q10_1 Cross tabulation

		Q10_1		Total
		Yes	No	
Q11_1	1 symbol	7	1	8
	2 symbols	21	1	22
	3 symbols	26	1	27
	4 symbols	15	0	15
	5 symbols	3	0	3
	no symbol	34	11	45
	Total	106	14	120

The questions (Q12 and Q12_1) show the security of the students to use the geographical knowledges and beyond that?

According to tab.7, the students continue having the security in using of the map (from 60% to 64% post test) because usually in geography subject teaching the map is used the most and they have difficulty in using the satellite images.

Tab.7 Comparison of frequency between Q12 and Q12_1

	Frequency	Percent	Frequency	Percent
	pretest	pretest	posttest	posttest
Use a map	60	50.0	64	53.3
Use a satellite image	16	13.3	9	7.5
Both of them	41	34.2	46	38.3
None of them	3	2.5	1	.8
Total	120	100.0	120	100.0

Question (Q13 and Q13_1) requires the students to show by named, two objects of the natural geographic environment, in the shown satellite image. The students are improved to indentifying them in post test phase (tab.8) significantly reducing the number of the students who couldn't identify any object of geographical environment from 67.5% to 20%.

Tab.8 Comparison of frequency between Q13 and Q13_1

	Frequency	Percent	Frequency	Percent
	pretest	pretest	posttest	posttest
1 object	13	10.8	33	27.5
2 objects	26	21.7	63	52.5
Cannot find	81	67.5	24	20.0
Total	120	100.0	120	100.0

Question (14 and 14_1) requires the students to show by named, two objects of human geographical environment, in the shown satellite image. The students are improved in identifying them in post test phase (tab.9) significantly reducing the number of the students who couldn't identify any object of human geographical environment from 70% to 19.2%.

Tab.9 Comparison of frequency between Q14 and Q14_1

	Frequency	Percent	Frequency	Percent
	pretest	pretest	posttest	posttest
1 object	13	10.8	31	25.8
2 objects	23	19.2	66	55.0
Cannot find	84	70.0	23	19.2
Total	120	100.0	120	100.0

Question (15 and 15_1) requires the student to define the distance North-South (in kilometres) of Lushnje's district, derived by satellite image. Also in this case the lecture results significant because the students are improved in defining a distance in a satellite image (tab.10).

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Tab.10 Comparison of frequency between Q15 and Q15_1

	Frequency	Percent	Frequency	Percent
	pretest	pretest	posttest	posttest
Determine the value	34	28.3	76	63.3
Don't determine the value	86	71.7	44	36.7
Total	120	100.0	120	100.0

Question 16, was asked only during the second phase, requiring the students to identify three objects of cultural heritage and three biomonuments that are near the national road: Lushnje-Ardenice. The students are not answered significantly this question. Tab.10 shows that the answers with 2, 3, 4 objects dominate. This shows that should work more in this direction.

Tab.11. Number of cultural heritage and bio monument objects found by students.

	Frequency	Percent	Valid Percent	Cumulative Percent
1 object	16	13.3	13.3	13.3
2 objects	39	32.5	32.5	45.8
3 objects	33	27.5	27.5	73.3
4 objects	23	19.2	19.2	92.5
5 objects	2	1.7	1.7	94.2
no object	7	5.8	5.8	100.0
Total	120	100.0	100.0	

Question 17 was: "Did the given information help you in increasing your ability to use, to work with the maps and satellite images?". The students answered giving importance the variables "more-44.2%", "a little-27.5%", "not more 6.7% ", "not at all – 8.3%" reflecting a positive significance. We raise a null hypothesis:" The training was not effective to the most of the students for an increasing ability to use the maps and satellite images." The test value is 1, corresponding to the "More" variable, in the answers given by the students.

Tab. 12. One-Sample Test

	Test Value = 1					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Q17	9.312	119	.000	1.07500	.8464	1.3036

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Q8 - Q8_1	.30000	.84615	.07724	.14705	.45295	3.884	119	.000
Pair 2	Q9 - Q9_1	.50833	2.13020	.19446	.12328	.89338	2.614	119	.010
Pair 3	Q13 - Q13_1	.64167	.87731	.08009	.48309	.80025	8.012	119	.000
Pair 4	Q14 - Q14_1	.65833	.94820	.08656	.48694	.82973	7.606	119	.000

Based on information presented in tab.12 the t-test statistics reveled that t calculated (9.312) is greater than t critical value (1.640), at 0.05% level of significance, so the null hypothesis is rejected. This means that the training was effective to the students, increasing their cognitive abilities and geographical skills.

The comparison between pretest and posttest activity implementation for question 8, 9, 13, 14 are presented in tab. 13, in a T-test for dependent samples analyze. Null hypothesis: there are no significant differences in means, by defining a distance in the nature, only by seeing the shown map (Q8); Identifying 5 symbols not of natural and cultural heritage that the map contains (for example: physic-geographical objects, relief, hydrography, residential

centers, communication etc (Q9); showing by named, two objects of the natural geographic environment, in the shown satellite image (Q13); identifying by named, two objects of human geographical environment, in the shown satellite image (Q14)

Tab.13 shows that t-obtained values for 4 pairs are greater than t-cal (1.645), so the null hypothesis is rejected. This activity has brought improvement to geographical skill and cognitive knowledge of students by using map and satellite images.

Conclusion

Maps or satellite imagery are the basic tools of geography. They have a multidimensional use. They allow us to transmit information that is often difficult to express verbally. Teaching geography loses its value if it is not used in the maps, so they should not be underestimated. Through maps and satellite images, students can see better what it was explained and what they need to learn best geographically. Map reading, recognizing its basic elements was an important aspect in this study. Leinhardt.G. and Bausmith.J.M., (1998), emphasized that "Traditionally, you used a map by looking in it". The legend of a map is foremost of them. During the first phase of the survey, legend was not available to students. After giving the explanation of the lecture, the textual information and explain of map legend with all symbols, the students increased recognition that its content.

Objectives and goals for the case study of geography in programs include work with visual-spatial tools. We sampled schools with didactic tools, such as thematic maps and satellite image. "Nushi Jani" High School has a better infrastructure support compared to "Vath Korreshi" high school. Sampled students at both schools have difficulty to recognize and work with map and satellite image. But we saw an improvement to their skills after intervention. Explanation on scale map helped students to pick a given distance on the map and satellite image. Other elements of map such as: the north direction, frames, title were part of the questionnaire as part of the basic elements. Regarding to them, the results showed improvement during posttest, but still not at the significant level. This improvement occurred as a result of:

a. lecture and the explanation that was given before the implementation of the second phase.
b. focusing on geography knowledge obtained in previous years. A positive fact is that the surveyed students had relevant information for natural and cultural heritage of their district, but they needed the second stage to meet successfully their locations by symbols. Most of the students feel more capable when using a map, it's due to: using more the map than satellite images, during geography teaching.

Respondents answered that lecture and served questionnaire has been so effective and useful to them. The encouragement of students to work geographically with maps and satellite images helps them improving their skills using different didactical techniques. Performing such practices from teachers would help them to evaluate the situation of teaching and to orientate students to fulfill the main objectives.

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