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MEANINGFUL LEARNING: CASE STUDIES ON THE TERRITORIAL IDENTITY OF HISTORICAL URBAN CENTRES

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Abstract

Engaging university students into meaningful learning activities enables critical thinking and understanding (i.e. active learning), instead of memorising knowledge (i.e. passive learning). In this context, we researched the way students at the M.Sc. level learn, at the specialisation of *Regional Planning and Development*, in the Faculty of Geography, at Babeș-Bolyai University, in Cluj-Napoca, Romania. The aim of the activity was to discover the best means for students to analyse urban cultural landscapes. We offered them plenty of images (i.e. aerial photos) of a series of historical urban centres in Romania (Cluj-Napoca, Brașov, Sibiu, Oradea, Timișoara, Bistrița) and, while working individually, we asked them to analyse the elements of the city centre and of the urban landscape: the features of the square, its arrangement, the features and the functions of the buildings. Students were also asked to use other sources of images (e.g. Google Earth, Google Maps, etc.) to complete the task, and then they used ArcGIS (a specialised software). In the end, we provided them with an observation protocol that they had to complete with the identified urban elements. We concluded that their in-depth analysis, enabled by an observation protocol, determined students' in-depth learning of the evolution characteristic of historical urban centres.

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Keywords: Urban landscape, images, ArcGIS, observation protocol, in-depth learning, Geography university education.

1. Introduction

Engaging university students into meaningful learning activities encourages critical thinking and understanding. Recent studies support the necessity of greater landscape understanding and the need for Geography university students' analysing and interpreting landscapes (Dulamă et al., 2016a, 2016b, 2016c; Ilovan et al. 2016; Rose, 2012; Yahner, & Nadenicek, 1997). Within the competence-based and active learning paradigm, to develop students' higher order thinking (Cook, & Babon, 2017), which the Romanian education system observes, first, we focused our research on the use of images for research and for teaching/learning, and secondly, on using an observation protocol starting from images.

Geographers are interested in making Geography relevant to students (Kalafsky, & Rosko, 2017) and, therefore, they are concerned with a critical pedagogy, combining more theoretical and practical insights (Martin, 2017). In this context, many cities in Romania have historical centres which, due to their territorial identity, host cultural landscapes (Calcatinge, 2013; Ciangă, 2016) and may use this as a resource for sustainable local development (Popa, & Enache, 2016). Thus, it is important to get Geography university students involved into learning activities that enable them understand development and planning for a sustainable future, as well as for landscape understanding and preserving the cultural heritage (Yahner, & Nadenicek, 1997). In addition, raising inhabitants' and authorities' awareness about cultural landscapes related to urban culture and architecture (Stan, 2010) helps in diminishing or preventing their neglecting.

Moreover, the impact on and usefulness of the new technology and the use of images on learning in higher education has been approached frequently in the recent decades (Nellis, 2017). For instance, using GIS to assess landscape dynamics also starting from digital sources (e.g. photo archives) (Popa, & Enache, 2016), using geo-tagged photos collected from Flickr and proposing a geo-clustering algorithm (Spyrou et al., 2017), using photographs depicting the urban landscape as a method for social critique (Kim, 2016), using satellite images to monitor and analyse landscape changes (land use and land cover) in coastal areas (Kara et al., 2013, El Banna et al., 2009). In the field of Cultural and Political Geography, research explored the use of propaganda photographs and the promotion of geographical education, while producing nationalist landscapes during the process of nation-building (Tyner et al., 2015), and also explored the use of photos in enabling cultural interaction and understanding (Lemmons et al., 2014).

2. Problem Statement

People in general, including students, are often superficial observers of cultural urban landscapes (characteristic features, similarities to, differences from other landscapes, and their value). Therefore, in Romania, many historical cultural landscapes were damaged, especially after the 1990s, through the irremediable destruction of the original façades by means of "refurbishment" works or of the new buildings nearby that were different as architectural style, and also because of the low interest in preserving them (because of the owners' lack of money or education), and now they are too little capitalised (from a touristic perspective, for instance) (Dulamă et al., 2016b; Popa, & Enache, 2016). Moreover, in the Romanian geography education system, people paid little attention to urban landscapes (Dulamă et al., 2016b).

3. Research Questions

Our research questions were the following: (a) Which are the aspects that the students identify when analysing a historical urban centre? (b) Which are the elements of a historical urban centre that students discover/identify when using specialised software (ArcGIS)? (c) How much does in-depth understanding of the cultural urban landscape increase when guiding students' analysis with an observation protocol?

4. Purpose of the Study

Our purpose was to analyse the efficiency of certain materials, of a specialised software (ArcGIS), and of an observation protocol, in comparison with the independent analysis that students realise by themselves on certain cultural urban landscapes (i.e. historical urban centres).

5. Research Methods

To answer our research questions, we organised a didactic experiment getting involved six students at the M.Sc. level, in their first year of study, at the specialisation of *Regional Planning and Development*, in the Faculty of Geography, Babeş-Bolyai University, Cluj-Napoca, Romania. They volunteered to be part of this research. We asked our students to analyse the historical centre of a Romanian city they visited. We offered them a list with a selection of cities and each student choose three from the list, in the order he or she preferred. The first author of this paper decided which city was to be analysed by each student. During the first stage, the students received *task 1*: *Write a text where you analyse the historical urban centre of ... (the square and the neighbouring buildings), using the photo we recommended and other photos from the Internet*. During the second stage, we received *task 2*: *Complete the previous text using ArcGIS*. During the third stage, they received *task 3*: *Take pieces of information from the previous text and write them briefly in the table (Table 1)*. Mark in different colours the texts written during the three stages. Under the table, write the important information that you could not include in it. Mention the other sources you used. Students sent the solved task by e-mail and received the task for the next stage.

Table 01. Observation protocol for a square/central area

Category of elements	Elements	Questions	Answers during each stage		
			1	2	3
Natural and anthropic components	Landforms	What *major landform* does the central area/square lie on?			
		What *minor landform* or part of the landform does the central area/square lie on?			
		What is the slope of the land in the central area/square?			
		How has the landform favoured the emplacement of the central area/square?			
	Vegetation	Which are the visible vegetation species?			
		Which is the percentage from the central area/square of the vegetation areas?			
		Which is the percentage from the central area/square of the herbaceous associations?			
		What landscape arrangements with plants exist in the square?			
The square	Form	What *form* does the square have?			
		Why do you think the square has this form?			

	Size	Which are the width and the length of the square?			
		Which is the area of the square?			
	Structure	How is the square organised?			
		Which are the components/arrangements of the square?			
		Why do you think the square has such an arrangement?			
		What kind of material is the square paved with? Why?			
		Which is the percentage from the square of the asphalted/paved parts?			
		Which is the arrangement of the alleys within the square?			
		Which is the arrangement of the streets relative to the square?			
	Functions	Which are the present functions of the square?			
		How is the cultural function of the square ensured?			
		How is the commercial function of the square ensured?			
		How is the aesthetic function of the square ensured?			
		How is the leisure function of the square ensured?			
	Present state	What is the degree of preservation for the square?			
		What is the degree of cleanness for the square?			
	Originality	How original do you consider the square to be?			
	Style	What is the architectural style of the square?			
The buildings neighbour-ing the square and within it	Size	How many buildings are there around the square? (Approximate!)			
		How many storeys do the buildings have?			
		What is the height regime of the buildings?			
	Aspect	What is the architectural style characteristic of the buildings?			
		What colours do the buildings have? What is the prevalent colour of the buildings?			
		What are the buildings covered with?			
		How are the plants used for decorating the buildings?			
	Important buildings	Churches. In what part of the square is the church? Why? What is its height? Why is it the highest construction? When was it built? What is its architectural style?			
		Are there any museums?			
	History	What year/period/century were they built?			
		Historical personalities associated with the square/central area			
		Historical events associated with the square/central area			
		Historical significance			
	Present state	Which is the preservation state of the buildings?			
		Which is the cleanness/maintenance state of the buildings?			
	Functions	Which are the present functions of the buildings?			
		How many areas ensure the commercial function?			
		How many areas/buildings ensure the residential function?			
		How many areas/buildings ensure the cultural function?			
Landscapes	Types	In which categories of landscapes can one include the central area/square?			
SWOT	Strengths	Which are the strengths of the square and of the neighbouring buildings?			
	Weakness-es	Which are the weaknesses of the square and of the neighbouring buildings?			
	Opportunit-ies	What conditions are favourable to the development of the square?			
	Threats	What conditions are threats to the square?			

At the end of the experiment, they completed a questionnaire, in order to get students' feedback. Related to the analysis of the historical centres, we asked them to solve the following items: "Which are the strengths/advantages of each stage? Which were your difficulties during each stage? Assign a score from 1 to 5 for each stage, according to how useful you considered the offered materials (photos/software/observation protocol) in order to analyse the historical centre, What are your proposals to enable other students to analyse more easily or better such urban landscapes? and Other comments ..."

During the processing of data, we assigned 1 point for each answer written in every text box from the observation protocol and we realised the sum for each stage. To analyse those squares and the neighbouring buildings, the students did not go in the field (except the one analysing Sibiu).

6. Findings

Our findings resulted from the analysis of the students' results after using aerial photos (stage 1), the software (stage 2), and the observation protocol (stage 3).

6.1. Analysis of students' results after using the aerial photos (Stage 1)

During this stage, the text about Cluj-Napoca and Sibiu were the longest (Table 2), possibly because the respective students knew them very well from direct observation (score 5) (Table 3). According to the observation protocol, these texts included the richest information (i.e. Cluj-Napoca - 36.54%; Sibiu - 26.92%) (Table 3). Systemizing the text and the rich information about Cluj-Napoca could be explained also through the fact that the respective student used previously an observation protocol for a rural landscape, during another research of ours. Even if the texts about the other cities were shorter and the information not so rich, we underline that the students wrote down many of the features characteristic of the urban landscapes and used specialized language, from the fields of urbanism and territorial planning, this indicating their appropriate competence level. To sum up, according to the assessment that one can realize using the observation protocol, during the first stage, the scores were low (a mean value of 12), the share of the information obtained by analysing the photos was small (15.38-36.54%), and the length of texts averaged 1,157.5 words.

Table 02. Length of texts and the assigned scores during the three stages of the didactic experiment

City name	Stage 1				Stage 2				Stage 3	
	No. of words	Words (%)	Score	Score (%)	No. of words	Words (%)	Score	Score (%)	Score	Score (%)
Cluj	2,678	100	19	36.54	1,040	100	11	21.15	26	50.00
Brașov	366	13.67	13	25.00	122	11.73	6	11.54	32	61.54
Sibiu	1,629	60.83	14	26.92	137	13.17	0	0.00	35	67.31
Bistrița	912	34.06	9	17.31	-	-	4	7.69	35	67.31
Timișoara	637	23.79	9	17.31	164	15.77	5	9.62	39	75.00
Oradea	723	27.00	8	15.38	478	45.96	1	1.92	41	78.85
Mean	1,157.5		12		323.5		4.5		34.67	

Students considered that the photos offered some advantages in observing the space: "visualising at the macro scale the researched area", "a wider perspective upon the square, from the level of the highest building", "identifying colours, forms, typology, and functionality of the analysed area", "identifying the height regime of the buildings, the layout of the roofs and of the buildings", "possibility to analyse again and realise changes/improve", realising certain "comparisons (historical period, different moments during a day/season)". They noticed the following difficulties: "the low quality photos are making more difficult establishing the limits of and spatial analysis of the area", they do not enable the precise identification of the size the elements have, visualising details (building materials, small objectives), and photos cannot render the whole area. Related to the usefulness of photos (the offered ones and the ones students found in the Internet) for the analysis of the historical centre, the mean value was 3.66 (out of 5) (Table 3).

Table 03. Students' feedback on their direct experience with and knowledge about the respective urban centre and the usefulness of the offered materials for the analysis

City name	Score (1-5)			
	Knowing the city from previous direct observation	Using photos (Stage 1)	Using ArcGIS (Stage 2)	Using the observation protocol (Stage 3)
Cluj	5	5	4	5
Brașov	2	3	3	3
Sibiu	5	4	4	5
Bistrița	4	1	2	3
Timișoara	0	5	3	3
Oradea	2	4	4	3
Mean	-	3.66	3.33	3.66

For this stage, so that students understand/analyse more easily/better these urban landscapes, they proposed the following: "creating a system for collecting data" that would enable identifying information, collecting and organising it. This system should include: "selection criteria", "macro scale features", "algorithm lists", etc. They proposed: using as many suggestive images of the analysed area as possible and of diverse types (in a plan, diagonal, aerial, remote sensing photos, etc.), "from all possible angles", searching for "images of the whole urban landscape, not only of its parts", "more precise" images, and "to make sure that the respective photo renders the present image of the respective urban landscape".

6.2. Analysis of students' results after using the software (Stage 2)

The longest texts realised using the ArcGIS software were about Cluj-Napoca and Oradea (Table 2). The text about Cluj-Napoca included the richest information correlated to the observation protocol (11 questions; 11.55%), while the text about Oradea was correlated only with one question. The number of pieces of information completed using the software was lower than that due to using the photos, with a mean value of 4.5. During this stage, students wrote shorter texts (with the mean of 323.5 words, as compared with the previous stage with a mean value of 1,157.5). One student wrote comments about using the software, not information obtained by using it.

Students considered that analysing historical centres using the software offered certain advantages because it enables the following: "identifying certain quantitative elements", "the analysis at a micro scale level of the studied area", "identifying precisely the functions of buildings and of the general space", "identifying elements of the natural environment, by using thematic maps (topographical, geomorphological, meteorological, hydrological, etc.)", "examining in detail every corner of the square (even though you were not in the field)", obtaining "newer data than those from Google Maps", deriving information "about the structure, general form, area, length and width", and realising "a GIS analysis". They listed the following strengths of the software: "facilities were more easily recognised", it offers "the whole image", "details", "updated information", and the "aerial image of the square". Students listed also the following problems: "limits of the database for the researched area", "low quality of certain databases that limit the efficiency of analysing and interpreting the studied area", "the use of base maps requires better Internet connection", while its absence is a "hindrance". Related to the use of the software for analysing the historical centre, the mean value was of 3.33 (out of 5) (Table 3), smaller than the one for using photos, probably because students had already realised an analysis of those areas. To enable the understanding of urban areas, the students proposed: searching for "other visual materials (ortophotoplans, remote sensing images, programmes for visualising space in real time – *GoogleEarth, Google Maps, INIS,* etc.)", "generating a map", and collecting and organising information using a check list.

6.3. Analysis of students' results after using the observation protocol (Stage 3)

Using the protocol, the richest information was completed for the historical centre of Oradea, and the protocol had the highest efficiency in this case. The smallest number of information pieces was completed for Cluj-Napoca, because its centre was best known from direct observation and being almost exhaustively analysed in previous stages (using photos and ArcGIS). To sum up, all our students received better scores than in the previous stages (26-41) and answered to many questions from the observation protocol (50-78.17%). These results show us the efficiency of the observation protocol for analysing these areas. Students underlined the following strengths of the protocol: "logical organising of the collected data", studying an "area observing a theoretical algorithm", "collecting historical data using bibliography", collecting data "in a more accessible and quantifiable manner". They noticed that, due to the protocol, they identified/analysed the features they missed during the previous stages or that they studied superficially, and that they collected richer information from diverse categories. The protocol helped them "focus on what they were required to". They got aware of the need to use the materials from the previous stages (images, maps, references, field trips). They also had the following problems: not knowing certain information or not being able to access it, repeating some of the information pieces collected during the previous stages. One student noticed that he was "under the impression that some relevant aspects were missing, while others could be spared", in comparison with the first two stages. Although students got higher scores during this stage, still, their perception about the usefulness of the protocol for analysing the historical centre resulted in the mean value of 3.66 (out of 5) (Table 3), equal to the one for using photos. To increase the quality of the analysis, students proposed: "using as much bibliography as the researcher (student) can get"; realising a "detailed description of the analysed space"; completing the protocol with "other aspects relevant for the urban landscape"; students should ask other questions besides the ones in

the protocol in order to better understand the city and the professors elaborating the protocol should ask more questions such as "why?" or "what do you think about…?"

7. Conclusion

A complex approach of the reality, using many complementary research tools clarifies knowledge and underlines the limits of each of the respective tools. The aim of this study was to contribute to a competitive educational paradigm in learning Geography, which refuses passive learning. We concluded that the in-depth analysis, enabled by an observation protocol, determined students' in-depth learning of the evolution characteristic of historical urban centres.

Acknowledgments

References

Calcatinge, Al. (2013). *Peisajul cultural. Contribuţii la fundamentare teoretică*. Sibiu: Editura Universitară Ion Mincu.

Ciangă, I. Fl. (2016). *Peisajul urban în vedutismul transilvan*. Cluj-Napoca: Risoprint.

Cook, B.R. & Babon, A. (2017). Active learning through online quizzes: better learning and less (busy) work. *Journal of Geography in Higher Education*, 41(1), 24-38.

Dulamă, M.E., Ilovan, O.-R. & Buş, R.-M. (2016a). Cultural landscapes and geography university students' learning on Facebook discussion groups. In: M. Vlada et al. (eds.), *Proceedings of the 11th ICVL* (pp. 50-57). Bucharest: Editura Universităţii Bucureşti.

Dulamă, M.E., Maroşi, Z. & Ilovan, O.-R. (2016b). Chapter 3: Geography university education for the protection and capitalisation of cultural urban landscapes. A case study: the Museum Square, Cluj-Napoca, Romania. In: O.-R. Ilovan & M.E. Dulamă (eds.), *Territorial Identity and Values in Geographical Education* (pp. 59-118). Cluj-Napoca: Presa Universitară Clujeană.

Dulamă, M.E., Vana, V.-M. & Ilovan, O.-R. (2016c). Assessing territorial planning M.Sc. students using Facebook. In: M. Vlada et al. (eds.), *Proceedings of the 11th International Conference on Virtual Learning* (pp. 66-74). Bucharest: Editura Universităţii Bucureşti.

El Banna, M.M. & Frihy, O.E. (2009). Natural and anthropogenic influences in the north eastern coast of the Nile Delta, Egypt. *Environmental Geology*, 57(7), 1593-1602.

Ilovan, O.-R., Doroftei, I., Buş, R.-M. & Kosinszki, S.-A. (2016). Chapter 1: Territorial identity, cultural landscapes and values education. A brief approach. In: O.-R. Ilovan & M.E. Dulamă (eds.), *Territorial Identity and Values in Geographical Education* (pp. 13-30). Cluj-Napoca: Presa Universitară Clujeană.

Kalafsky, R.V. & Rosko, H.M. (2017). Applying geography course projects to issues in city resilience and global connectivity. *Journal of Geography*, 116(2), 67-78.

Kara, B., Esbah, H. & Deniz, B. (2013). Monitoring and analyzing land use/land cover changes in a developing coastal town: a case study of Kusadasi, Turkey. *Journal of Coastal Research*, 29(6), 1361-1372.

Kim, G. (2016). Paper, photography, and a reflection on urban landscape in 1960s Japan. *Visual Resources*, 32(3-4), 230-246.

Lemmons, K.K., Brannstrom, C. & Hurd, D. (2014). Exposing students to repeat photography: increasing cultural understanding on a short-term study abroad. *Journal of Geography in Higher Education*, 38(1), 86-105.

Martin, G. (2017). Scaling critical pedagogy in higher education. *Critical Studies in Education*, 58(1), 1-18.

Nellis, M.D. (2017). Transitions in US higher education: implications for geography learning. *Journal of Geography in Higher Education*, 41(2), 155-165.

Popa, A. & Enache, C. (2016). Urban landscape history revealed by digital sources. In: A. Sandu et al. (eds.), *New Approaches in Social and Humanistic Sciences* (pp. 423-427). Bologna: Medimond.

Rose, G. (2012). *Visual Methodologies: An Introduction to Researching with Visual Materials*. Sage.

Spyrou, E., Korakakis, M., Charalampidis, V., Psallas, A. & Mylonas, P. (2017). A geo-clustering approach for the detection of areas-of-interest and their underlying semantics. *Algorithms*, 10(1), Article 35.

Stan, A. (2010). Cultură urbană – peisaj cultural urban. *Urbanism. Arhitectură. Construcţii,* 1(1), 19-24.

Tyner, J., Kimsroy, S. & Sirik, S. (2015). Landscape photography, geographic education, and nation-building in Democratic Kampuchea, 1975-1979. *Geographical Review*, 105(4), 566-580.

Yahner, T.G. & Nadenicek, D.J. (1997). Community by design: Contemporary problems historic resolve. *Landscape and Urban Planning*, 39(2-3), 137-151.