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Didactics of and through Historical Geography Research: A Proposal for an Educational Workshop Based on Historical Iconographic Sources, Field Work and Cartographic Approaches

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Abstract

Recently, a wide debate has emerged in geographical studies regarding how to organize workshops and interactive training projects. However, this topic appears to be less frequently addressed within the field of historical geography. Inspired by reflections on participatory didactic of and through research, this article shares an educational project focused on the use of sources, tools, and methods that are specific to historical geography. In particular, the paper offers a historical geography competence-oriented framework based on GIS, field work and Repeat Photography applied to iconographic sources produced during the Grand Tour. The result is a competence-based didactic path built through research methods and tools that seeks to provide multiple skills to academic students of geography, as well as archaeology, history, or art history. Learning outcomes and tasks are discussed with reference to EU key competences and geographical competences. In conclusion, it is argued that this framework can assert the centrality of the spatial approach, in dialogue with other diachronic disciplines, as recommended by the national and international debate.

1. Introduction

In Italy, the reforms of the educational pathways, the landscape of university teachings, and the increasingly frequent calls for interdisciplinarity have been placing more emphasis on the teaching of concepts and methods in historical geography[1]. This is a sub-

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[1] Generally, historical geography and geohistory are considered two different research perspectives on past spaces and their changes, originating respectively from the Anglo-Saxon geographical school and the French *Annales* historiographical

field of geography that disciplinary didactic reflections had largely overlooked, until recently. Gino De Vecchis (2016) and Cristiano Giorda (2012) have commented on such emphasis on the union of history and geography in Italian educational pathways, advocating for the formulation of in-depth programs that can address a diachronic dimension while maintaining the focus on space and its representations. Additionally, at the international level, there has been a growing demand for interdisciplinary educational projects that can incorporate geomatic tools and new technologies in a project-oriented manner. This means teaching a modus operandi rather than merely focusing on themes (Keiper, 1999; Mares and Moschek, 2012; Manning, 2013; De Miguel Gonzalez, 2021).

In response to these stimuli, this paper aims to share a workshop-based educational project of historical geography, developed over the past two years through various experiences. The project will provide insights into research methods, through teaching experiences and workshops[2]. Putting an emphasis on the heuristic purpose of the project, the workshop aims to enhance a traditional GIS course by combining the use and creation of digital cartography with the collection, cataloging, and analysis of iconographic geohistorical sources. Among

them, are so-called "topographical art",[3] and the method of "Repeat Photography." In this way students can develop a broad range of methodological skills, which they can apply to multiple disciplines (Pesaresi, 2016). Such proposed pathway follows the above mentioned recommendations on the theoretical and methodological identity of historical geography, albeit with significant intersections with historical, archaeological, and art-historical perspectives. Moreover, it takes into consideration the framework on cognitive domains in geography proposed by EUROGEO (De Miguel Gonzalez, 2021) the key competences for lifelong learning elaborated by European Union (European Union, 2019) and the International Charter on Geographical Education[4]. In doing so, the program adopts a project-oriented approach aiming at "shift from learning about geography to learning to do geography" (Keiper, 1999, p. 57). Accordingly, the second paragraph addresses the issues underlying the current Italian didactic and educational system, demonstrating the need to develop historical geography didactic projects. The third paragraph introduces the tools, methods, and sources on which the project proposal is built, namely GIS, field survey, historical iconography, and Repeat Photography. The fourth paragraph discusses the theoretical foundations and educational objectives underlying the didactic project, in the light of the previously presented material. The fifth paragraph presents the didactic project, focusing on its modularity, strengths, didactic evidence, and methods for the collection of study materials. The final paragraph highlights the potential of such proposal to meet the needs of didactics from an historical geography perspective.

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school (Baker, 2002; Valette and Carozza, 2019). The different national canons on which the two perspectives are based attributes dinstinct epistemological content to these concepts (Quaini, 2008). This already disjointed academic framework is further complicated by the practice of defining " 'geohistory' " a combination of geography and history teachings in Italian high schools (Giorda, 2012, 2013). In this fragmented framework, considering the objectives of this article, I have chosen to adopt the definition of "historical geography" because it is a field of geographical studies, as suggested by Cristiano Giorda (2012, p. 15).

[2] It is important to emphasize that the workshop was specifically designed and tested with university students attending undergraduate programs in fields such as history, cultural heritage, and literature. Future developments may include a reconfiguration of the workshop tailored to high school students.

[3] The term "topographical art" refers to the artistic corpus comprising landscape views, sketches, drawings, or paintings, created by amateur or professional travelers between the 18th and 19th centuries during their journeys (particularly the Grand Tour). This corpus holds significant documentary interest for delineating landscape histories (Piana and Watkins, 2020).

[4] IGU-UGI, *2016 International Charter on Geographical Education*, https://www.igu-cge.org/wp-content/uploads/2019/03/IGU_2016_eng_ver25Feb2019.pdf (last accessed 12 april 2025).

2. The Italian Case: Perspectives for the Didactics of Historical Geography in Universities and High Schools

For some time now, teachers – at every level, from secondary school to university – have been urged to find new interactive solutions and to enrich traditional frontal lessons and lectures with experiential learning moments. Such moments should focus on sharing specific experiences and skills. Numerous proposals within the field of geography have moved in this direction, including those articulated in the International Charter on Geographical Education issued by IGU/UGI in 2016 (De Vecchis and Giorda, 2018). These aim to complement the transmission of knowledge with the mastery of tools (such as Geographic Information Systems) and even with fieldwork experiences. This will help students develop critical thinking and analytical exploration (Caruso, 2015; Garcia de la Vega, 2022). In this regard, numerous requests to develop and share interdisciplinary research-oriented didactic experiences have emerged. These should be capable of conveying some epistemological notions to students, by involving them in practical activities. They should also be able to demonstrate the basic articulation of a potential heuristic activity. Hence, they should serve as a preliminary methodological teaching model, to be further developed in both research and educational contexts (De Vecchis and Giorda, 2018; Messina, 2021). These requests, valid for every aspect of the discipline (Giorda and Puttilli, 2011), are even more pressing with regards to the historical-geographic domain (Baker, 2007; Giorda, 2013; Minelle et al., 2016). Within these areas of research, essays and articles dedicated to didactic are scarce, despite increasingly prominent issues. Firstly, the status regarding the union of Geography and History in the Italian secondary school systems is still vague. This corresponds to the danger of a subordinate view of the geographic component compared to the historical one (Giorda, 2012; Magnoler and Pentucci, 2017). Secondly, often historical geography courses are often integrated into degree program in cultural heritage or history[5].

Hence, the discipline faces the challenge of enhancing its own specificity, on the one hand, and opening up to multi and interdisciplinary dialogue, on the other. Thirdly, there has been an ever-growing demand for advanced educational projects that be aligned with research and yet flexible and easily applicable to various contexts (Gilardi et al., 2017).

At the European level, the Commission has defined eight Key Competences for Lifelong Learning as areas of education considered essential for personal development and active citizenship in a knowledge-based society, and which should be taken into account at every stage of the educational pathway. In Italy, national guidelines pertaining to geography across all educational levels place significant emphasis on diachrony, understood as the ability to read and interpret changes that have occurred in the past and to recognize cultural heritage. The aim is to foster active citizenship and participation in the management of contemporary territories. For instance, the interministerial decree issued by the Italian Ministry of Education, University and Research and the Ministry for Economy and Finance (MIUR and MEF) in 2010, regarding upper secondary education combines the teaching of geography with that of history, focusing on the techniques for reading and representing transformation processes. In technical institutes, geography is tasked with delving into the "delicate relationship between humans and the environment". The latter also needs to be approached diachronically, with an "interdependence between historical and geographical disciplines" (MIUR, 2010a, pp. 30-31; MIUR 2010b; subsequently reiterated in MIUR, 2014)[6].

From the examination of official documentation, some key guiding principles for teaching the discipline of geography at various

[5] Currently, there is no comprehensive overview of the state of geography courses in Italian universities, such as the one presented by Floriana Galluccio during her talk at the 2016 Geography Days in Naples. A sample review of the curricula from 13 Italian universities identified various courses titled "Historical Geography" or similar, offered in bachelor's (3) and master's (3) degree programs in History, bachelor's (4) and master's (2) degree programs in Cultural Heritage, and bachelor's (1) and master's (1) degree programs in Geography.

[6] This quote and the following ones, originally in Italian, have been translated into English by the author.

educational levels emerge: interdisciplinary and transversal competences; the development of critical thinking about space and its changes; close alignment with historical approaches; the necessity of interpreting space through cartography and comparison with real space; and the encouragement to utilize a multitude and diverse range of geographic sources and documents (Minelle et al., 2016).

Similar principles guide the definition of the competences that university students need to acquire. In the Italian system, human geography (identified with the code GEOG-01/A) is considered by ministerial tables as a fundamental educational activity for bachelor's degrees, not only in Geography, but also in Cultural Heritage, Modern Languages and Cultures, Tourism Sciences, History, Territorial, Urban, Landscape, and Environmental Planning Sciences (MUR, 2007). With respect to master's degrees, courses in human geography are considered defining Cultural Anthropology and Ethnology, Conservation and Restoration of Cultural Heritage, Territorial Planning, Historical Sciences, and, of course, Geographical Sciences, among other degrees. The Ministry's declaration of the scientific sector includes, among the research and educational objectives, the diachronic analysis of the territory and its knowledge, along with related narratives and representations, as well as the use of fieldwork, archival documents, and GIS.

A university professor teaching geography may thus encounter students with diverse skills and interests, many of whom are interested in diachronic themes, landscapes, and cultural heritage. It is therefore evident that there is a need to develop educational frameworks with various levels of difficulty and forms of in-depth exploration, depending on the level of education. These should integrate diverse transversal and disciplinary skills, geographic technologies, historical geographic insights, and critical reflection on spatial processes. This involves integrating various sources and methods to promote a holistic understanding of space and its representations, through interdisciplinary approaches inherent to geography, conceived as a "carrefour" science (Claval, 1993). The aim should be to provide tools for active citizenship and public participation in territorial governance, thus supporting an interest in cultural heritage with a territorial and diachronic perspective.

3. Tools for Teaching Historical Geography: HGIS and Repeat Photography

3.1 GIS and Historical GIS

Since the 1990s, Geographic Information Systems (GIS) have emerged as the primary tool for spatial data management and analysis across disciplines concerned with the study of spatial phenomena, ranging from geography to urban studies. Gradually, the development of increasingly accessible and user-friendly GIS platforms has facilitated their widespread adoption in research contexts and by the public. The success of GIS is attributed to their ability to combine data processing with a cartographic interface. However, the core function of GIS is not limited to producing raster thematic maps (a task perhaps more easily accomplished using other graphic software), but also encompasses the ability to construct and structure geodatabases and geo-datasets. As Peter A. Burrough wrote, the nature of GIS consists primarily of "a set of tools for collecting, storing, retrieving at will, transforming, and displaying spatial data from the real world for a particular set of purposes" (Burrough, 1986, p. 6). The development of interactive platforms through Web 2.0 has further enhanced their popularity among the public, offering diverse functions and features.

Within the realm of research dedicated to GIS and their applications in the humanities, broadly defined as Digital Humanities or Spatial Humanities, Historical GIS (HGIS) constitute a specific segment, endowed with its own strong identity. HGIS are "interdisciplinary research projects that integrate advanced methods and tools of geographic information science with sources and questions of historical geographic and historical research, in order to emphasize the importance of spatial contexts and relationships for understanding historical dynamics" (Grava et al., 2020, p. 3). The heuristic challenge underlying an HGIS is particularly ambitious, as it involves using a tool originally designed to master synchronous spatial dimensions to also

account for an additional variable, that of time, and to propose diachronic readings (Gregory and Ell, 2007). Nevertheless, despite a series of challenges related to the uncertainty of historical information, the risk of overinterpretation of sources, and the limited flexibility of certain software aspects, GIS have established themselves in all diachronic disciplines such as historical geography, history, archaeology, and art history (Maluly et al., 2023). Their uses have particularly concerned the reconstruction of past territorial and landscape configurations, by employing cartographic, aerial photographic, or textual sources, as well as the localization and visualization of information and sources thanks to their spatial coordinates.

3.2 Repeat Photography and Topographical Art

"The geographer's main tool is the eye. An eye trained to see the things around us and place them in an overall framework where each has its logical place" (Bonapace et al., 1983, p. 3) states an older yet robust geography textbook for high schools. In this context, an important source for the study of visual landscapes, alongside field surveys, can also be found in iconographic documentation. This is equally valid for the historical geographic approach, considering, for instance, photographs, views, or drawings created in the past. This type of documentation has long been employed in research on historical landscapes (among others, Sereni, 1961; Cosgrove and Daniels, 1988; Quaini, 2008; Leonardi, 2017; Piana et al., 2021). Meanwhile, Cesare De Seta (1982), and Denis Cosgrove and Stephen Daniels (1988) used landscape paintings to periodize the aesthetic canons related to the perception of landscape and the development of local place identities.

In the field of environmental sciences, a qualitative research method known as "Repeat Photography" (RP) has been developing since the 1960s. This method involves five steps: 1. Identifying a historical photograph; 2. Recognizing the depicted area and visiting the site; 3. Locating the original shooting point; 4. Taking a new photograph from the same observation point and perspective; 5. Comparing the two images to highlight any differences. The

result is a comparative analysis to assess topographical changes in land use, vegetation populations, or glacier fronts (Rogers et al., 1984). From its ecological uses, Repeat Photography has extended, through the works of Jean-Paul Métailié (1986; 1988), to studies on the historical geography of landscapes (Moreno and Montanari, 1989; Gemignani, 2013) and historical environmental heritage (Schaffland and Heidemann, 2022). This method meets "objectifs de recherche fondamentale et appliquée : connaissance des évolutions paysagères et des processus, conséquences dans la durée et sur le territoire, mais aussi sensibilisation et aide à la décision auprès des acteurs locaux" (Carré and Métailié, 2008, p. 124).

More recently, experimentation with Repeat Photography has expanded to considering other types of iconographic sources, such as views and sketches made by Grand Tour travelers between the 18th and 19th centuries. Research conducted at the University of Nottingham has brought to light rich collections of minor works, not considered by art history (the so-called "topographical art") but of enormous documentary value. These can be located on the map and compared with current photographs using the same RP method to reveal changes in biodiversity, land use, or settlements (Piana, 2020; Piana and Watkins, 2020; Piana et al., 2021). Naturally, both views and photographs, like any other geohistorical source, must be subjected to appropriate critique through comparison with other documentation, such as cartographic sources.

4. HGIS and RP, from Research to Didactics

In Italy, the national guidelines for all educational levels have long incorporated recommendations concerning the dissemination of cartographic tools, including GIS, as specific teaching objectives (MIUR and MEF, 2010, pp. 17-20). These guidelines emphasize the development of map interpretation skills for localization and mapping purposes. Additionally, they encourage the use of various methods and geographic documents, including photographs and iconographies, for the

"interpretation of historical processes" (MIUR and MEF, 2010, p. 7). In technical and professional institutes, students are encouraged to engage with geohistorical sources through workshop activities, conceptualized as "documentation centers, [as well as] through targeted activities, allowing the use of various languages (graphic, numerical, visual spatial, social, etc.)" (MIUR, 2010a, p. 32; 2010b).

Gino De Vecchis (2016) has highlighted the paradox created by the increasingly ambitious educational profiles of high schools, which regard geography as a cornerstone of the historical-humanistic area and cartographic tools as essential for citizens, on the one hand, and the progressively reduced hours allocated to this subject in school curricula, on the other.

In practice, the use of GIS in workshop settings goes far beyond mere software operations, and necessitates reflections on spatiality, projections, scales, the reading of symbols, and the relationship between real and represented space. Furthermore, cartographical and geographical competences find broad application in multidisciplinary courses and can attract the interest of students in archaeology, history, cultural heritage, and literature (Bertazzon, 2013). These competences include basic skills such as field data collection, data codification, and database creation (Carafa, 2013).

While the issues and potential of GIS in educational contexts at various levels have been extensively explored (*inter alia*, Keiper, 1999; Rød et al., 2010; De Vecchis and Pesaresi, 2011; Bozzato and Reali, 2012; Azzari et al., 2013; Bertazzon, 2013; Manning, 2013; Jo et al., 2016; Pesaresi, 2016; Scaglione and Gallia, 2021; Di Gioia, 2023; Morri et al., 2023), reflections on teaching through HGIS remain much more limited (Churchill and Hillier, 2008; Mares and Moschek, 2012). In this regard, Leonardo Rombai (2015) has repeatedly emphasized the need to define geohistorical source databases and to construct models of geographical and landscape analysis for use in educational contexts.

In the extensive literature dedicated to the cartographic approach as a valuable practical training strategy, an interesting focal point of discussion is the recommendation to view GIS not as an end in itself, but as a means for teaching research approaches (Keiper, 1999). Adrian Manning has advocated for a shift of the focus from the tool to the project, thereby transitioning from "simply teaching about GIS" to "teaching with GIS" (Manning, 2013, p. 36). Detlev Mares and Wolfgang Moschek argue that it is more effective to teach the creation of GIS maps not as final products, but as "intermediate stages in the context of a more comprehensive investigation" (Mares and Moschek, 2012, pp. 65-66). Thus, "basic skills" are subordinated to the development of "core knowledge" (Manning, 2013) in geography and cross-disciplinary areas, fostering a critical and autonomous approach to research problems.

Accordingly, the workshop can be enriched by incorporating additional sources, such as topographical art, to capture the complexity of a holistic, multi-proxy approach to the theme of space. The use of projects based on visual approaches and the collection and production of photographs is widely practiced in geography didactics at all educational levels (Hall, 2015; Puttilli and Gavinelli, 2020). Photographs and representations encourage "students to explore (and photograph) how social processes have impressed themselves on the urban landscape" (Sanders, 2007, p. 192).

Activities based on the use of iconographic sources, particularly landscape views, are less common, yet valuable. Some authors have focused on the importance of these documents for studying landscape canons, aesthetic values, or social perception (Prince, 1984; Korinth, 2024). According to Karl F. Nordstrom and Nancy L. Jackson (2001), historical paintings can be used as sources to prompt students to reflect on changes in humanized areas such as coasts. Other authors argue that this documentation is well-suited for characterizing cultural and environmental heritage (Schaffland and Heidemann, 2022).

Key stage	Name	Key competences for lifelong learning	Key geographical competences	Tasks and Skills
1	Fundamentals of GIS Cartography	Digital competence: ability to use digital technology Mathematical competence and […]: apply mathematical principles in everyday contexts Competence in science, technology […] ability to use and handle technological tools and machines	ST I. Locate (Orientation, location, projections, scales) ST II. Process (Obtaining, processing geographical information, geospatial technologies) ST I. Represent (Spatial visualization cartographical)	Creating and Exploring a Basic Map in QGIS Navigating in map Canvas in QGIS Layers and data management in QGIS Creating Print Layout in QGIS Georeferencing in QGIS
2	Transitioning from Photo to Map through Gaming	Digital competence: ability to use digital technology Competence in science, technology […] ability to use and handle technological tools and machines Cultural awareness […]: knowledge of local and global cultures and expressions; understanding different ways of communicating ideas including gaming	ST I. Locate (Orientation, location) ST II. Process (Obtaining, processing geographical information, geospatial technologies) ST I. Represent (Spatial visualization: figures, cartographical) GTU I. Describe (Spatial description) GTU II Explain (Physical and human systems. Geographical organization and settlement) SC I. Interpret (Critical thinking, Global understanding)	Interpreting landscape photos Exploring maps
3	Selection and Inventory of Iconographic Sources	Literary competences: awareness of […] non literary text; abilities to distinguish and use different types of sources, to search for, collect and process information Digital competence: ability to use and access […] digital content Cultural awareness […]: understanding different ways of communicating ideas including art; understanding of cultural heritage	ST II. Process (Obtaining, processing geographical information) ST I. Represent (Spatial visualization: figures) SC I. Interpret (Critical thinking, Global understanding)	Archival, bibliographic, or web research Iconographic source inventory Source selection
4	Localization of the Viewpoint	Competence in science, technology […] ability to use and handle technological tools and machines Personal, social and learning […]: ability to learn and work both collaboratively and autonomously; problem-solving attitude	ST I. Locate (orientation, location) ST II. Process (Obtaining, processing geographical information, Fieldwork, Geospatial technologies) ST I. Represent (Spatial visualization: figures, maps) Use of GPS Orientation in the field Reading space and comparing field observations with photos Interpreting space and its changes Organizing field surveys Landscape photography	Use of GPS Orientation in the field Reading space and comparing field observations with photos Interpreting space and its changes Organizing field surveys Landscape photography
5	Comparative Analysis and Reflection	Literary competence: ability to distinguish and use different type of sources. Competence in science,	GTU I. Describe (Spatial description) GTU II Explain (Physical and human systems. Human-	Comparative approach to sources Analysis of Repeat Photography

		technology […]: critical appreciation and curiosity […] support for environmental sustainability. Citizenship competence: critical understanding of history and sustainable systems. Cultural awareness […]: knowledge of cultures and expressions, including heritage and how arts can be a way o views the world	environment interactions, Social and economic processes, Geographical organization and settlements) SC I. Interpret (Critical thinking, Global understanding) SC II. Act (Engagement, Youth empowerment)	Reading landscape transformations and understanding territorialization processes

Table 1. Composition of the educational course modules and their respective key geographical competences, skills, and tasks. Source: elaboration by the author with reference to De Miguel Gonzalez, 2021, p. 60 and European Commission, 2019.

Therefore, the educational project presented in the following section begins with a basic GIS workshop and expands to considering the historical iconographic documentation of topographical art produced during the Grand Tour. The latter represents landscape as both a material and perceptual object, intersecting geographical, historical, archaeological, and art-historical perspectives (Castiglioni, 2016). This approach aims to combine diverse skills and methods to offer a comprehensive geohistorical educational experience and to experiment with different approaches.

5. The Educational Project

The educational project is structured into five distinct yet integrated key stages, each serving as a prerequisite for the next, with the goal of exploring various geographic tools—cartography, iconography, survey methods—to develop a critical approach to spatial analysis and engage in a research experience using the well-established academic method of Repeat Photography. The five stages are:

- Fundamentals of GIS Cartography;
- Transitioning from Photo to Map through Games;
- Selection and Inventory of Iconographic Sources;
- Localization of the Viewpoint;
- Comparative Analysis and Reflection.

Table 1 illustrates the structure of the educational pathway in modules and the corresponding geographical competences and methodological skills developed.

1. The first stage aims to provide the fundamental skills needed to use the GIS software. For this purpose, open-source and free software such as QGIS are recommended. QGIS can be downloaded by students onto their personal computers, enabling them to revise or delve deeper into the material covered during the workshop at home.

An introductory session on basic GIS functions is essential. This includes selecting coordinate reference systems, basic functions related to movement and scale, layer visualization, importing base maps, creating shapefiles, structuring a table, and preparing a print project. The basic functional approach should correspond to modules 1, 2, 3, 4, 5, and 13 of the QGIS Training Manual[7]. Depending on the available time, it may be beneficial to include other functions. For instance, although not necessary for the current project, exercises involving the georeferencing tool could be interesting. This tool allows the georeferencing of a historical map by identifying coordinates of specific control points on a base map (Module 14.2 of the QGIS Training Manual).

These workshop activities will enable students to acquire the basic skills that are necessary to address subsequent modules. Preparing handbooks, outlining functions and commands, or recording the screen during the

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[7] Qgis, QGIS Training Manual, 2024, https://docs.qgis.org/3.34/en/docs/trainingmanual/.

lesson, provides supplementary educational material that can be given to students. They need to be able to find specific references for each function, a task that should be practiced repeatedly to become automatic. For independent student work, sharing references to both introductory and modular QGIS guides is useful, allowing for autonomous exercise under supervision (Sutton et al., 2009). The objective is for students to develop skills that can be applied in stages 4 and 5.

2. The second stage introduces students to a visual approach, to the relationship between photographs and cartography, and to the critical reading of landscapes through the use of a game. Playing games is recognized as an effective introductory educational method for capturing the interest and attention of a student audience (Yildirim, 2017). In this regard, reference is made to the website GeoGuessr (Girgin, 2017)[8]. This platform utilizes images from Google Street View and the cartographic interface of Google Maps. Players are presented with a random image from the Street View library, which could depict a location anywhere in the world. They are required to interpret the landscape and territorial clues present in the photo and pinpoint its location on the world map. Within a time limit, players can freely navigate within the Street View interface, including moving and rotating. Naturally, the difficulty is directly related to the location depicted in the photo: urban or rural contexts, visible signage, specific environmental conditions, and other variables strongly influence the player's ability to precisely locate the photo.

Free registration on the site allows users to set up their own quiz by selecting locations and starting images. It is recommended to adopt a sequence of increasing difficulty to familiarize students with the interface: the first level could involve a famous monument such as the Eiffel Tower or the Big Ben; the second level a site near a recognizable monument to introduce map exploring. Subsequent levels may include urban contexts with distinctive architecture and indicative signage, such as the walls of Timbuktu, bilingual signs in Ireland, or the urban canals of Amsterdam. Moving into rural

contexts increases the difficulty and requires, for instance, to be able to recognize the vegetation. It is also possible to introduce some "traps", such as the vegetation of the Sila Mountains in Calabria (South of Italy), which may suggest an alpine context.

Having volunteers complete various levels with the participation of the rest of the students, expressing their reasoning aloud, creates an atmosphere of exchange and comparison. In this way, students are encouraged, by playing a game, to interpret the represented landscape and territorial elements; to compare photos taken in specific seasons or weather conditions; to stimulate their basic geography skills regarding environments and cities worldwide; and to navigate within the cartographic interface independently and with the guidance of peers in order to provide the answer regarding the location of the site. This type of exercise is particularly useful for fostering initial interest in images and maps, which will then develop into the acquisition of specific skills in subsequent stages.

3. The third stage focuses on historical iconographic sources, such as topographical art. This type of documentation may include sketches, engravings, or paintings depicting elements of urban or rural landscapes within the territorial context that students should recognize and identify. Depending on the level of difficulty of the course and its depth of analysis, the sources may be entirely provided or a phase of independent research may be envisaged. The documentation can be sourced from various web contexts. These include the websites of local conservation institutes, as exemplified by the Biblioteca Digitale Trentina project of the Municipal Library of Trento, which displays numerous digitalized engravings portraying the territory of historical Tyrol[9] and allows users to download them freely.; Another useful source are the sites of general collections, such as the WaterColour World project, which gathers watercolors produced by travelers between the 17th and 19th centuries worldwide[10].

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[8] https://www.geoguessr.com/.

[9] https://bdt.bibcom.trento.it/Progetti/Incisioni-del-Trentino.

[10] https://www.watercolourworld.org/.

Title of the field	Content	Example
Cod	Unique code identifying the view	Havell_1
Author	Author's name	Frédéric Mercey and Robert Havell
Origin	Author's origin	France and United Kingdom
Title	Title of the view	Pont de Trente
Creation_date	Year of creation	1833
Pub_date	Year of publication	1835
Tecnique	Drawing technique	Copperplate engraving
Size	Size of the drawing	106x159 mm
Source	Reference to the conserving archive or the published volume from which the view was taken	Biblioteca Comunale di Trento
Link	Any online resource link	https://bdt.bibcom.trento.it/Iconografia/4244#page/n0
Lat	Latitude (WGS84) of the viewpoint of the view	46.069888
Long	Longitude (WGS84) of the viewpoint of the view	11.117601
Precision	Degree of accuracy with which the view was located (1 absolute; 2 uncertain; 3 unknown)	1
Direction	Direction of the view with respect to the viewpoint	E
Description	Keywords to describe the content and location	Trentino-Alto Adige, Trento, Torre Vanga, Adige River, cattle, trade, navigation, mountains, bridge, castle

Table 2. Simplified form used for the census of iconographic sources, filled with the data regarding Figure 1A as an example.

Finally, digital reproductions of travel accounts contained in edited and published volumes, often accessible through Google Books or portals of British, American, and French libraries such as Gallica[11], may also be consulted. In any case, it is always necessary to ensure the use of images that are freely available and not subjected to copyright. After providing some examples, students can conduct independent research at libraries preserving travel accounts or compendiums of local iconographic works, or at conservation institutes with local iconographic collections or private archives of travelers.

Once the iconographic documentation representing local contexts has been identified, it is important to proceed with its cataloguing, by transcribing a series of pieces of information that can help contextualize the work and support its use. In this regard, a simplified version of the form developed by the PRIN 2022 PNRR *Envisioning Landscapes* project for a national census of iconographies related to the Grand Tour can be used. This module also allows for the involvement of students of archival studies or art history, who are being taught geography classes as part of cultural heritage courses.

The purpose of the cataloguing is to systematize as much information as possible regarding each iconographic source, in order to record its formal characteristics and place it within its historical-artistic production context. The entries on the form, presented in Table 2 using Figure 1A as an example, are thus divided into elements identifying the author, characteristics of the work, the archival reference, and view location. Some of the information pertains to objective features, such as dimensions or technique. Other data, such as location or description, rely on the interpretation of the compiling student. Coordinates, in the WGS84 system, the same used by Google Maps, are collected during Stage 4.

4. Stage four is centered around field recognition, aiming to achieve two main objectives: gathering coordinates of the depicted points in selected images and taking photos for a comparative analysis with historical landscape views. This requires the use of two main instruments: a camera and a GPS device. In instances of large groups and inadequate GIS equipment, one may resort to freely available GPS apps for smartphones, enabling path tracking and notable site recording. The methodology involves identifying the original viewpoint and direction, then capturing a

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[11] https://gallica.bnf.fr.

photograph from that perspective to reproduce the same area as accurately as possible. Often, the represented spatial segment may no longer be entirely visible due to new building constructions or the expansion of wooded areas. Hence, recognizing the view entails an initial critical analysis of the occurred changes.

GPS aids in gathering precise coordinates, which are to be entered subsequently into the designated fields of Table 1, as outlined in Stage 3. Moreover, facilitating the transfer of data to students in point format within a GIS project is even more interesting and useful to them, allowing them to learn the importation of GPS data and conversion into a shapefile format. This activity presents an excellent opportunity for students of archaeology and geography to engage in terrain data collection through GPS (Carafa, 2013; Musci, 2016).

5. The final stage involves the systematization of the data collected in the preceding modules, the preparation of a map depicting all viewpoints, and the comparative analysis of the historical representations with current photographs. The second step can be facilitated by importing the data collected through the GPS system during the survey onto QGIS. Additionally, the localization of viewpoints, if conducted on historically georeferenced cartography, can benefit from a comparative analysis with such cartographic source. This helps improve the characterization of the information on the addressed viewpoint.

Furthermore, the comparison between aerial photos and historical views, following the method of Repeat Photography, constitutes a valuable exercise in interpreting landscape depictions and understanding territorialization processes. Changes in urban landscapes, architectural forms, land use, and vegetation coverage can thus be identified. An example is the exercise of Repeat Photography illustrated in Fig. 1B, based on a comparison between a mid-19th-century representation of Piazza Duomo, in Trento, and a current photograph of the same square.

Certain elements, such as the Neptune fountain, the arcades of the square, and the street opposite to the observation point, Via Belenzani,

are immediately recognizable. However, the comparative analysis of the two images reveals a historical element of the urban landscape that is no longer present. The so-called *roggia*, an artificial canal that once ran across the square, testifies the dense water network that supplied the city with water, a vital resource and source of motive power, and that is now completely covered. From this view, it is not only possible to locate the *roggia*, and verify its correspondence on cadastral historical maps, but also to document the social dimension surrounding the water resource, illustrated by the women doing their laundry in the canal.

Figures 1A and 1B, on the other hand, provide examples of areas that were once outside the city walls and are now part of the city center. This allows students to reflect on the process of twentieth-century urbanization. Many of the buildings depicted have disappeared or changed; Torre Vanga (Fig. 1A) appears very different, serving as a paradigmatic example of the transformation of the building heritage. Figure 1A also shows the former course of the Adige River, moved in the mid-nineteenth century and now replaced by a road, offering a unique view of a landscape, that of the ancient river city and its bridge, which has now completely disappeared.

As emerges from this example, it is advisable to conduct a discussion with the students, not only on the differences between the two photos, but, especially, on the visible landscape changes. This will lead to reasoning around the territorialization processes underlying these changes. At the same time, it is essential to prompt critical reflection on the previously noted limitations of the source and on the risks of conducting a geo-historical analysis of the landscape based solely on visual evidence (Quaini, 2008). Contextualizing iconographic sources with respect to the author, artistic conventions, and historical framework enables a more rigorous critique of the material; likewise, the comparison of multiple iconographies or supplementary documentation must be regarded as a necessary step in evaluating the reliability and validity of the information provided.
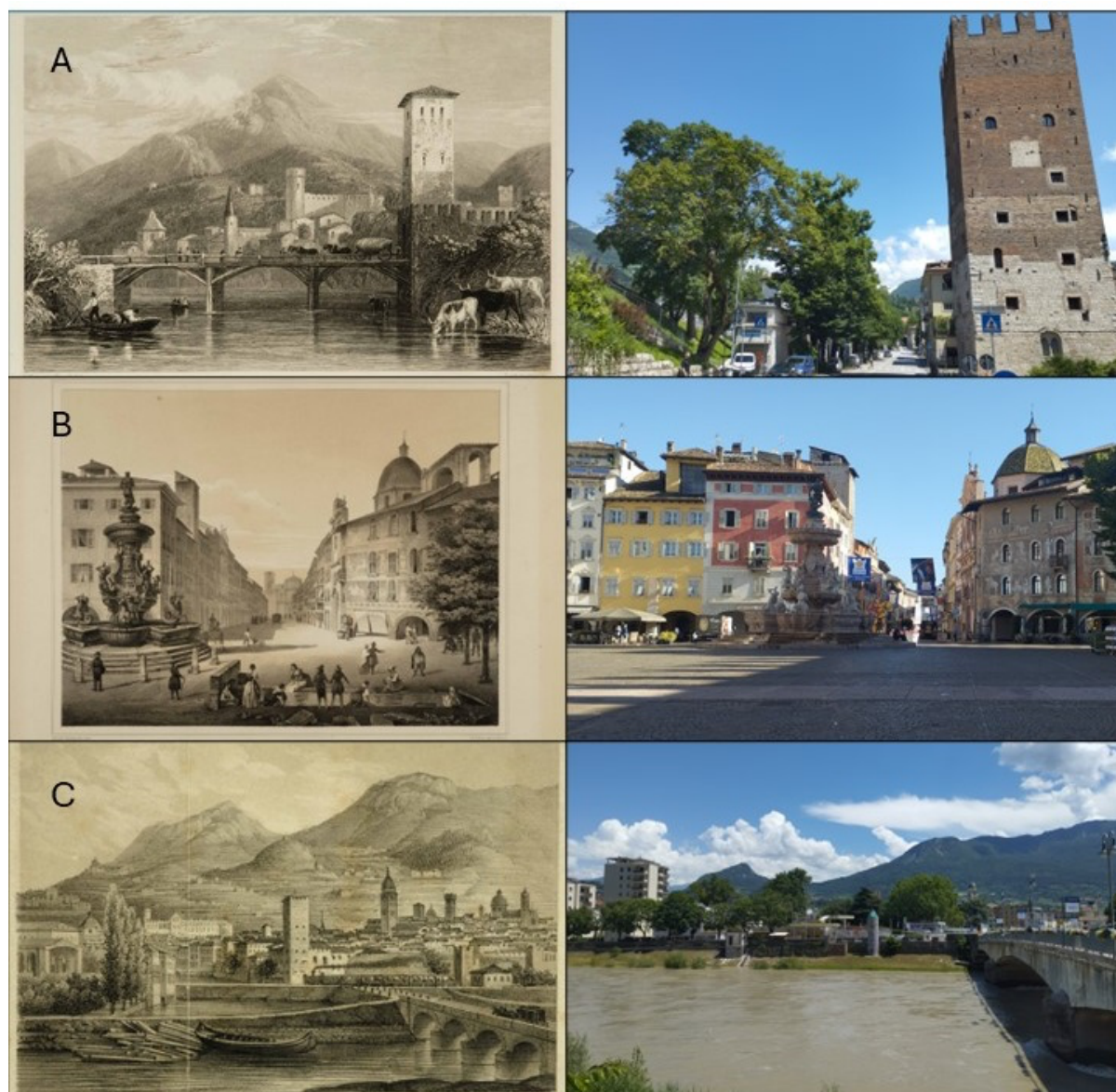
Figure 1. Examples of Repeated Photographies taken during the surveis. A. Mercey Frédéric, Havell Robert, Pont de Trente, Copperplate engraving, 1835, in Biblioteca Comunale di Trento, Iconographic collection (BCT), T I b 082.B. Basilio Armani, *Piazza grande di Trento e veduta di Cont. Larga*, lithography, 1844-1845 in BCT, TI 1 e 044; C. Basilio Armani, Trento, lithography, 1859-1868, in BCT, T II k 0136. Current photos made by the author.

6. Conclusive Remarks

As Alan Baker (2007) highlights, teaching historical geography, understood as the comprehension of spatial processes, can be highly relevant not only for disciplinary purposes but also for the education of citizens. Furthermore, university teachings of this discipline, often integrated into multidisciplinary courses within historical or archaeological frameworks, must embrace diachronic methods and multidisciplinary work strategies. Hence, it is important to create and share resources and pathways that can effectively be utilized to teach procedures that may prove useful and engaging for all students.

In this regard, GIS is commonly regarded as an innovative tool, capable of building skills for geographical and workshop-based teaching

activities. Simultaneously, many scholars have recommended viewing GIS not as the end of teaching but as a tool for discussing concepts and core knowledge skills interactively. At the same time, fieldwork is considered a teaching strategy that offers numerous benefits for students in terms of developing observation, analysis, and interpretation skills, as well as autonomy, spatial orientation, and the ability to manage diverse inputs (Garcia de la Vega, 2022, pp. 3-4).

The educational project presented here moves in this direction. Indeed, it aims at constructing a workshop- and competence-based pathway, guiding students in the acquisition of discovery methods and strategies, and consolidating operational procedures for applying such methods, encouraging them to seek new solutions and innovative procedures.

To this end, the proposed focus is on travel views and their mapping, through the presentation of a potential project capable of building a network of references and topics around geographical and cartographic competences that may be of interest for history, archaeology, and art history. The educational project involves a five-step procedure, easily modifiable to adapt to other educational levels or different territorial contexts, creating challenging yet potentially formative courses.

In this context, the visual approach and the use of iconographic sources, hitherto less utilized compared to geomatics laboratories, can be a less strictly didactic but stimulating tool for studying a territory. The method of Repeat Photography helps students reason not only on the landscape as it appears today but also on the changes it has undergone, with a focus on territorialization processes.

The educational objectives are manifold: providing students with basic research experience and the tools to continue autonomously; offering a holistic view of spatial themes and appropriate interdisciplinary connections; stimulating a critical analysis of represented and real space and its transformations over time, with an eye towards its sustainable management. This pathway facilitates not only the acquisition of methodological and technical skills but also critical reflection on spatiality, the relationship between real and cartographic space, and the interpretation of landscape and territorial changes. It does so by emphasizing the importance of autonomous data acquisition, as well as the possession of technical knowledge.

This is in line with the European framework of Key Competences and their cross-cutting nature. The work presented here involves the development of different types of competences in a contextualized way (see Table 1). Moreover, the proposed workshop reflects many of the key themes emphasized in the International Charter on Geographical Education, particularly regarding spatial thinking and the effective use of tools and methods such as fieldwork and GIS. It also engages students – including those from history and cultural heritage programs – in critical reflection on issues such as scale, geographical location, and the transformation of places and landscapes.

More recently, EUROGEO has created an analytical framework of key geographical competences, divided into seven cognitive domains related to the knowledge, application, and acquisition of critical and analytical spatial and geographical thinking, which may also contribute to the development of spatial citizenship. The domains are divided into the three areas of Spatial Thinking (ST), Geographical Thinking and Understanding (GTU), and Spatial Citizenship (SC), involving active approaches such as localization, interpretation, and representation (De Miguel Gonzalez, 2021). Referring to this integrated framework of geographical competences (De Miguel Gonzalez, 2021, p. 64), as shown in Table 1, the pathway considers most of the key geographical competence domains. Simultaneously, it implies gaining, applying and practicing the skills required to develop complex reasoning and critical, analytical, and lateral thinking abilities. For this reason, further research will be carried out in the future to modify the educational program for secondary school students.

In conclusion, it is worth emphasizing how this pathway addresses what appear to be the most pressing needs presented in the specialized literature on the teaching of historical geography: the multi and interdisciplinary opening in directions that can be formative for

students, without abandoning the geographical focus; the opportunity to present project-based teaching experiences, where tools and methods are used as means to achieve a heuristic objective. Concretely, the didactic project seeks to unite the teaching of research methods with teaching through research.

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