

“Whose story is being told?”: Local History, Cultural Heritage, and Digital Maps

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Abstract: A critical outcome in social studies education is identity development, and an important component of this process is students establishing a sense of place in their communities, nation, and world. Using data from a southwestern city in the United States, researchers investigated the intersection of local history, identity development, and cultural heritage resources using GIS technology. The instructional unit in which students participated utilized a variety of geospatial technologies which facilitated the visualization of geographic concepts, field-based data collection of geocoded places, and creation of a digitally-mediated cultural heritage map, which allowed students to create a narrative around their cultural identity. The study followed an interpretive case study design. Based on the findings from this study, important implications emerged, which are valuable for both future research in this area, as well as for teachers who wish to replicate this pedagogical approach in their own teaching practice. The implications include the flexibility of geospatial technologies for addressing content-area concepts at all levels of the instructional unit, the potential of geospatial technologies for supporting student cultural identity development, and the value of school-university partnerships in promoting innovative teaching strategies in a high school classroom.

Every city has a story to tell. We know this from talking with people who have lived in a city for many years, enduring changes to the physical, economic, political, and social landscape. We hear it as they describe their *topophilia*, an emotional connection to a space through cultural, historical, and personal artifacts (Casey, 2009). We see it as we walk through neighborhoods, communities, and city centers and observe which buildings and artwork have been preserved, which have been removed, and to what extent new structures mirror the historical identity of the city. Included in the methods and resources used to preserve history are the historical markers placed around a city in order to tell the story of the people and events that lived and happened in the past. In this way, historical markers serve as a collective narrative or cultural heritage. Considering the diverse identities and backgrounds of the people who make up our society and the ever-changing composition of those living in our communities, it is fair to question the extent to which these historical markers equally represent the cultural heritage of the taxpayers who paid for them. In essence, these monuments present an invitation to ask, “Whose story is being told?”

State History and Historical Markers

The mission statement of one such historical agency states, “To protect and preserve the state’s historic and prehistoric resources for the use, education, enjoyment, and economic benefit of present and future generations” (THC, 2022). State historical agencies consist of appointees by the state’s governor (e.g., historians, archeologists, architects, and other economic development and urban planning professionals), and historic preservation of this nature is often publicly funded by the state. Additionally, many historical markers and monuments reside on public land, which raises questions about who and what is being preserved and whether it represents the public funding these projects (Neel & Aumen, 2022). For this reason, state historical agencies must consider representation across many racial and ethnic histories in order to preserve a state’s diverse cultural heritage.

The manner in which history is preserved and chronicled has come under scrutiny in the last several years. Ranging from some groups demanding the removal of confederate statues from public land (Neel & Aumen, 2022) to governors of certain states declaring the “official” version of their history as factual and indisputable (VanSledright, 2008), the issue at both ends of these perspectives is centered on how history is told and whose perspective is represented. This is particularly problematic in public high schools, which have become increasingly diverse over the past 20 years (United State Government Accountability Office, 2022), yet are bound to a state-mandated history curriculum that may or may not represent the background and heritage of all students. To add complexity to this issue, many states now require students to pass a battery of “end of course” exams in order to graduate, among which U.S. History is now included (Grant & Horn, 2006). Even though students must memorize their state’s “factual and indisputable” history, their teachers can provide opportunities for students to investigate their own cultural identities within that history even when it is overlooked in the state-mandated curriculum.

Curriculum Context

The National Council for the Social Studies (NCSS) (2010) emphasizes the importance of student cultural identity development throughout its standards. In some instances, culture is defined broadly as a set of “socially transmitted beliefs, values, institutions, behaviors, traditions and way of life of a group of people” that “encompasses other cultural attributes and products, such as language, literature, music, arts and artifacts, and foods” (NCSS, 2010). Culture is an understanding that helps groups and individuals explore differences and similarities between themselves and other groups and individuals. In other instances in the standards, culture is positioned alongside other themes, such as place, environment, and networks. In this way, it is contextualized as both tangible and intangible resources that exist within space and can be transmitted between people and generations. Finally, in these standards culture is interpreted as a crucial component of personal identity development. The NCSS (2010) states, “Social studies programs should include experiences that provide for the study of individual development and identity.” Culture is viewed as instrumental in shaping a student’s personal identity, placed alongside other factors such as social norms, groups, institutions, and lived experience. Students are encouraged to explore the influence of peoples, places, and environments on personal development, advancing the interdependence of both cultural and personal understanding.

Cultural Heritage Mapping

Cultural Heritage Mapping can be defined as both a research methodology and civic engagement activity where stakeholders identify a community’s strengths and its resources, re-think history, and promote creativity and development (Creative City Network of Canada, 2010). At the philosophical core of cultural heritage mapping is the contrast between space versus place. Space can be described as an identified physical location, defined by geographic coordinates, boundaries, and proximity to other spaces. In its broadest sense, space could be understood as “homogeneous extendedness in which particular locations can be specified. As the space itself has no characteristics that are specific to particular locations within it, so the locations are more or less arbitrary portions of, or positions in, that space in which one location is not intrinsically different from any other” (Malpas, 2008, p. 202-203). According to this definition, the only factor differentiating spaces is their geographic coordinates and distance from each other.

This differs from “place,” which is characterized as space plus something else, typically referred to as the meaning associated with a space (Menin, 2003). A sense of place often encompasses both a sense of the character or

identity that belongs to certain places or locales and to a sense of our own identity as shaped in relation to those places, such that we might even be said to belong to those places (Malpas, 2008). The character and identity of a place is its cultural heritage, which Malpas (2008) describes, “[T]o be a rather broad concept that refers us to that which we collectively 'inherit', and that ought properly to be understood to encompass the natural as well as the non-natural, the tangible from the intangible” (pg. 199). What gives a space its meaning, making it a place, is the interaction of people with its land, natural resources, and each other, and it is from these interactions that culture is born.

With these definitions in mind, cultural heritage mapping is a mechanism that allows various groups to assert the identity and meaning of a place by tracing cultural assets in the community, and to visualize how various resources may interact, conflict, complement, and ultimately support each other (Pillai, 2020). For example, cultural mapping projects typically connect the architecture, neighborhoods, parks and natural resources that reflect a community's history, art, identity, and legacy. In this way, mapping is a way to construct a visual narrative about a place's identity, through the communities and groups' eyes (Cabeça, 2018).

GIS and Cultural Heritage Mapping

As a vehicle of information the map is extremely versatile (CCNC, 2010). Maps can be annotated with many kinds of data that can then be unpacked, isolated and reconfigured. Maps can range from an artist's hand-crafted rendering to a web-based digital representation that supports graphics, data layers, and analysis between components. Regardless of the form it takes, a map has much greater potential for communicating meaning and interconnectedness than an inventory or list of cultural assets. A graphic map communicates rapidly and in a holistic fashion; a web-based map can be multidimensional and reach a broad audience. Additionally, a digital map can be created collaboratively and asynchronously by many stakeholders at once from various locations and times.

The current generation of geographic information system (GIS) tools is well suited for cultural heritage mapping. Tools such as ArcGIS Online provide users with thousands of data layers, which provide rich data for the purpose of contextualizing, analyzing, and explaining geospatial phenomena. Users can add demographic data, such as average age, race, household income, and level of education achieved. Data layers may also include air quality, average wind speed, ground temperature, or yearly rainfall. The most recent tools in the ArcGIS suite include field-based data collectors such as Field Maps and Survey123, which allows users to enter observational data in a form, then geocode those locations (i.e., sync the place and data to a web-based map) into a common map, where data is stored as a layer. This allows users to create a visualization of their data points, as well those of other users, and demonstrate how those data compare and contrast to larger data sets.

Carrigan, Bodzin, Hammond, Rutzmoser, Popejoy, and Farina (2019) used this technique to identify “hot spots,” or areas of a school property with exceedingly hot ground temperatures, which led to recommendations for the placement of new trees at the school (which were eventually planted!). Similar projects include EmoMap (Klettner, Huang, & Schmidt, 2011), where users coded their walking routes with their emotional state for the purpose of creating “happy” paths, and the Invisible Cities Project (invisiblecitiesproject.com), where performance artists designed a musical tour through various cities, creating a “journey through hidden threads of cities we live in and forgotten spaces that live inside us.” The rest of this paper will explain a project with high school ethnic studies students, where they created maps of the cultural, economic, and historic places within their community, and identified those assets which reside inside them.

Purpose of the Study and Methods

The purpose of this paper is to highlight a critical pedagogical framework for analyzing the intersection of local history, identity development, and cultural heritage resources using GIS technology. In addition to this pedagogical framework, we will outline the methods used to implement this framework within the context of a high school ethnic studies class as a way to support both student learning and identity development.

This study employs an interpretive case study design (Yin, 2003) with the goal of comprehending the natural process of planning, implementing, evaluating, and refining the use of geospatial tools and concepts within the context of regular classroom instruction. This allows researchers to grasp a holistic understanding of the process

at various stages and from multiple perspectives (Creswell, 1998; Eisenhardt, 1989). The interpretive case study design (Andrade, 2009) is particularly well suited for this study because of the collaborative nature of the school-university partnership, where neither party is a passive recipient of an intervention or observer of a phenomenon, respectively, but both actors are “passionate participants” (Guba & Lincoln, 1994, p. 115) in the process of examining innovative uses of GIS technology in teaching and learning and developing a framework for future implementations.

The pedagogical approach under investigation leverages cultural mapping as a framework for facilitating student identity development using historical and cultural resources from their local community. Cultural mapping can be defined as a “process of collecting, recording, analyzing, and synthesizing information in order to describe the cultural resources, networks, links, and patterns of usage of a given community or group (NCCA, 2009, p. 14). In this project, students used digital maps, map layers focused on local and state history, and data collectors to identify patterns, themes, and intersections of cultural resources within their community. This activity brings the concepts of human geography into a tangible, real-world context for students. The most relevant C3 standard is D2.Geo.6.6-8, “Explain how the physical and human characteristics of places and regions are connected to human identities and cultures” (Grant, Swan, & Lee, 2015). However, this activity reaches beyond the scope of the C3 standard by exposing the multiplicities of place and identity, the contrasting frames of cultural vs. economic wealth that are present in every community (Yosso, 2005).

Findings

This study began as a school-university partnership in a large urban high school in the southwestern United States. The high school is next door to the university, which made the partnership both convenient and viable. Caleb, a high school geography and ethnic studies teacher, joined the project during the fall 2020 semester in order to learn more about using GIS tools as part of his instruction. The university researchers, who were able to support the project through external funding, offered professional development (PD) once per month for a small group of high school teachers from several content areas. The PD consisted of training on the use of ArcGIS Online and the suite of tools included in this online software platform. Participants learned various tools and strategies at each meeting, the research team assigned a small project to complete before the next meeting, and the teachers and researchers participated in discussions about classroom applications of the GIS tools and concepts. Teacher participants were continually challenged to explore areas of their curriculum that had a geospatial component (e.g., locations on a map, change over time, proximity and distance, and boundaries). The eventual goal for the participants was for them to develop a curriculum-aligned class learning activity or project that would infuse geospatial tools and concepts into the learning objectives. The university researchers ultimately wanted to explore the effect of these geospatial-infused lessons on students’ geospatial thinking and reasoning, which is beyond the scope of this paper.

After a couple of weeks of brainstorming, Caleb and the university team collaboratively designed a project where students would investigate historical markers placed around the city by the state historical commission. The first objective of this class activity would be to analyze the distribution of these markers, their representation, and the extent to which they aligned with current demographics in the areas of the city in which they were situated. The goal was for students to see how city demographics change over time, even when the state’s record of its past does not. Another goal of this phase of the class activity was to use the state historical marker data to identify areas of the city currently devoid of markers. Through this phase of the activity, students were able to identify the nature of the historical markers they explored. Many of the markers represented people who were considered influential to the city’s and state’s history, such as politicians, business and landowners, and military heroes. Other markers represented the sites of the oldest or first of common community resources (e.g., churches, cemeteries, schools, factories, etc.). Through this analysis, students discovered how their state’s historical markers tended to be clustered in certain parts of town, particularly near the city center or historical neighborhoods, and predominantly represented people from one demographic category.

The second phase of the activity involved students using a GIS-enabled data collector to inventory the common community resources in their own neighborhoods. The school was able to set up a free ArcGIS organizational account, so every student and the teacher could login to ArcGIS Online (AGO). Caleb and the

university partners created a data layer students could use to collect geocoded data, and the data collector included items related to common community resources such as grocery stores, restaurants, convenience stores, parks, churches, schools, and businesses. Students had a week to complete this neighborhood survey, and their observations were synced to an AGO map. Once all students had completed the neighborhood survey, they were able to view the results on the map. Students could see which resources they shared with their classmates, as well as how resources were distributed throughout their community. Their analysis of the data included measuring the distance from their homes to the nearest grocery store, police and fire station, and the school they were attending. The community survey portion of this activity led into the final activity, where students would create their own Cultural Heritage Map by geocoding and annotating both tangible and intangible community resources that held personal, familial or cultural significance.

In order to introduce the third phase of this activity, Caleb held a discussion with his students about how certain resources and locations within a community may hold significance for people on a personal, familial, community, and cultural level. Those significant locations and resources reside within the community, but they also reside within the people who live in the community, making them part of each person's identity. What makes a location or resource significant is the value placed upon those places by individuals, groups, or the entire community. For the next portion of the activity, students identified locations and resources within the community that held personal, familial, community, and cultural heritage. These locations, which students geocoded and synced to the classroom map, could be tangible (e.g., homes, parks, businesses, schools, areas of town, etc.) or intangible (e.g., represents a student's goals, hopes, special memories, etc.). Students entered each location in Field Maps, attached a picture of the location, and wrote a brief description about the significance it held for them. The students had two weeks to capture these observations, at which time they viewed the results as a class and Caleb introduced the last part of the activity. The Cultural Heritage Mapping unit culminated with students building a StoryMap in ArcGIS Online, where they highlighted each location on their map, wrote a description about why it was significant to them and their identity, and included pictures or other media to support their claims. The students also wrote a reflection at the end explaining the extent to which this activity helped create new pathways to understanding their community and heritage in new or unexpected ways. The StoryMap was submitted as a final project for the semester-long course.

Implications

There are some important implications, or conclusions, that can be inferred from this case study. These implications can inform future research in the area of integrating geospatial concepts and tools into 7-12 instruction, as well as advise teachers who want to utilize these tools into their own instruction. The first implication from this study is that geospatial technology can be integrated into the curriculum content at various phases of the instructional process, and they can be used to support various methods of instruction (e.g., explaining information, place-based and experiential learning, creative expression). The ArcGIS suite of geospatial tools is flexible enough to allow a wide variety of student interaction with the content. Teachers can share maps with students that help them visualize the placement of historical markers throughout their community, and the intersection of those markers and demographic data in each area of the city. The layering of geospatial data highlights the manner in which two separate, yet related, sets of data interact with each other, helping students see the interdependence of seemingly disparate phenomena. This same suite of tools allows students to geocode and markup observations in their community. Field-based data collection tools, such as Field Maps and Survey123, allow users to geocode data in real time and from a physical location, and those data are synced to a digital map. Similar to the way the historical marker data created a visualization of their distribution throughout the community, field-based data collection strategies can show students how their observations interact with, corroborate, or contrast from larger data sets. Finally, students were able to develop a narrative around their own Cultural Heritage data using StoryMaps. The multimedia capabilities of StoryMaps supported the inclusion of personal photos, videos, and written descriptions. Since StoryMaps allows users to add customized maps to the timeline, students could contextualize their descriptions with geospatial data and visualizations. For teachers considering using geospatial technology in their

instruction, this study has demonstrated the importance of using tools flexible and adaptable enough to encompass everything from visualizations to creative expression.

The second implication from the findings of this study is that geospatial technologies can be useful in helping students explore their cultural identity. Visualizations such as the map layer of historical markers and neighborhood demographic data provide a broad context for how seemingly unbiased and innocuous information about the city can follow a certain pattern and exclude members of the community. Students can not only see how markers are clustered and distributed, but they can also see who and what they represent compared to what is omitted. Similarly, geospatial technologies allow students to see the connection between their surroundings and broader geography concepts, such as culture, resources, and human-environment interaction. One of the persistent challenges with teaching geographic concepts is the difficulty students have with associating the world with which they interact every day with the world represented in maps and globes (Brillante & Mankiw, 2015). Developing this sense of place is crucial for identity development (Tuan, 2001). Geospatial data collectors, such as ArcGIS Field Maps provide a mechanism for students to make observations of the world around them and sync those geocoded observations to a digital map. In essence, students can orient the place they are familiar with to the broader space around them. Students were also able to geocode places that held personal, familial, and cultural significance, then create a narrative around those places. The instructional sequence of the unit, which involves geospatial technologies at each stage, guides the students from broad social geospatial concepts to deeply personal applications of these concepts where students couple geographic places with their personal histories, values, and aspirations - in other words, their identities.

The final implication from this study is that school-university partnerships are an effective strategy to develop innovative teaching practices. In this particular partnership, Caleb and the university researchers each played a crucial role in implementing this project. The university researchers were able to draw from their experience working with other teachers, attending conferences focused on geospatial education, networking with other geospatial professionals, and leading professional development with geospatial technologies. Their connection to the broader geospatial education community cultivated new ideas and perspectives on how to implement this project in the classroom. As an educator with more than a decade of experience in this school, Caleb was able to add context to the project. For example, Caleb understood how much work his students could realistically complete in one class period, which helped with project stay on track. He also knew strategies for motivating his students so they would complete the portions of the project that students completed independently (e.g., data collection in the community with Field Maps). Based on his experience, he knew students would not complete assignments that were not required for the course, so he incentivized students completing the activities. He also helped with writing instructions and other materials in a way that students could understand and follow. To the extent that the university researchers were able to draw from their geospatial education network to conceive of the activity, Caleb understood the contextual nuances that made it a reality.

Conclusion

The purpose of this study was to investigate a critical pedagogical framework for analyzing the intersection of local history, identity development, and cultural heritage resources using GIS technology. The instructional unit in which students participated utilized a variety of geospatial technologies which facilitated the visualization of geographic concepts, field-based data collection of geocoded places, and creation of a digitally-mediated cultural heritage map, which allowed students to create a narrative around their cultural identity. The study followed an interpretive case study design because the researchers and the teacher responsible for implementing the project were both active participants in the process. Based on the findings from this study, important implications emerged, which are valuable for both future research in this area, as well as for teachers who wish to replicate this pedagogical approach in their own teaching practice. The implications include the flexibility of geospatial technologies for addressing content-area concepts at all levels of the instructional unit, the potential of geospatial technologies for supporting student cultural identity development, and the value of school-university partnerships in promoting innovative teaching strategies in a high school classroom.

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