Mapping a Sense of Place in the Classroom

by
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Abstract

GIS technology is not widely used to map the *sense of place*. This classroom activity helps students learn how to map a *sense of place* for a group of people through GIS. This learning activity is used to transition from lecture to laboratory settings in a semester long introductory landscape analysis class. Students are asked to rate whether they "strongly agree" to "strongly disagree" on a 5 point Likert scale with identifying a city as part of a particular region. Using city locations and ratings by the students, an inverse distance weighting procedure generates contours of "The Sense of Place." Through this activity, students become more active learners rather than passive listeners. Informal qualitative and quantitative analysis indicates that students had an understanding of the process of data collection, encoding, analysis, and interpretation of geospatial data because of this active learning project.

Introduction

This paper provides an overview of a classroom exercise that involves mapping a *sense of place* with students. This exercise is used in an introductory geographic information systems and landscape analysis semester long class to achieve several pedagogic and classroom management objectives. The course roster includes a mixture of undergraduate landscape architecture and natural resource conservation and management students as well as graduate students from several programs. Most students have not considered mapping a *sense of place* on the continental scale. Students participate in mapping a region of the United States in this example, "The South."

Mapping a *sense of place* is not something new. Some authors argue that a *sense of place* is purely socially constructed (Geider and Garkovich, 1994). However, Stedman (2003) demonstrates that landscape attributes matter a great deal to constructed meanings of place and the constructions are not exclusively social. The mapping of where the South is located is not new either. J. S. Reed (1993a) traces where and how the south has been mapped over the decades. The South has been mapped using socioeconomic conditions, kudzu growth, cotton, plumbing facilities, Baptists, and music to name a few.

For many students, a *sense of place* may appear to be an intangible topic to be mapped much less using a GIS to help visualize where "The South" is located. Some of the students have had some experience using GIS through previous coursework or thesis research. If the student has had exposure to GIS, the exposure has been focused on mapping attributes like soil, tree, hydrologic, or other more easily quantifiable properties about the landscape. This exercise provides an opportunity for students to map the landscape using a different type of data than they are ordinarily used to using. In addition, the exercise provided a good classroom discussion about mapping qualitative data in a GIS. The course enrollment is capped at 28 students.

Hardware and Software

The exercise described in this paper was completed using ArcGIS v. 9, Spatial Analyst, and Microsoft Excel. The geographic data required are the locations of cities in the United States as well as the state borders. The base geographic data used in this exercise was ESRI Data & Maps 2004 and is bundled with the ArcGIS Desktop. A blackboard and chalk is used for the students to record the data.

Methods

This exercise occurs during each class period throughout the semester. The course period is approximately 2 hours long and meets three times a week. This includes a lecture, demonstration, and laboratory segments of the class period. The lecture and demonstration typically occur in the first half of the period. At the end of the first half, the students are given a break to allow for processing and reflection on what has been taught. The break is about 10 minutes long. What also occurs during this 10-minute break is an opportunity to participate in what has become known as the "The Southern Cities Project."

At the beginning of the course, the students are given a very brief introduction to the "The Southern Cities Project." The introduction focuses on the mechanics of how to participate in the project rather than the definition of a Southern City. The class instructions are that they are going to map the south. No specific instructions are given of what is meant by the south. At this point, the students could view this as purely a geographic south or as something involving attitude, cultural norms, etc. Many of the questions students have are answered during the final class meeting time about the scope of the project during a class discussion. The students are encouraged to think about and develop his/her own conception of the south.

During each class meeting, the students are posed a statement about a city and are asked to respond to the statement on a 5-point Likert scale (strongly disagree to strongly agree). For example, ___(City, State)____ is a "Southern City." The students then mark one of the five, equally spaced, and sized, boxes on the blackboard in the front of the classroom (Figure 1). The extremes of the boxes are labeled. Strongly disagree to the far left and strongly agree to the far right as the student faces the blackboard. No intermediate labels are used.

Figure 1. The classroom blackboard used to collect the opinions of the students on a 5-point Liker scale. On the left is “strongly disagree” and on the right is “strongly agree.”

The time required to conduct the data collection is about 2 minutes. Typically, about 40 cities are used over the course of the semester. A different city is presented each class period. The cities are believed to be generally recognizable by the students. In some cases, students have previously visited the cities under consideration.

The instructor records the student responses in a Microsoft Excel worksheet (Figure 2). The worksheet is setup to calculate several statistics describing the responses given by the students. The statistics include mode, median, and arithmetic mean. The workbook also has the ability to

rank the cities based on the median and the arithmetic mean. It takes about 10 minutes after the class for the instructor to enter the data of the student responses about the city.

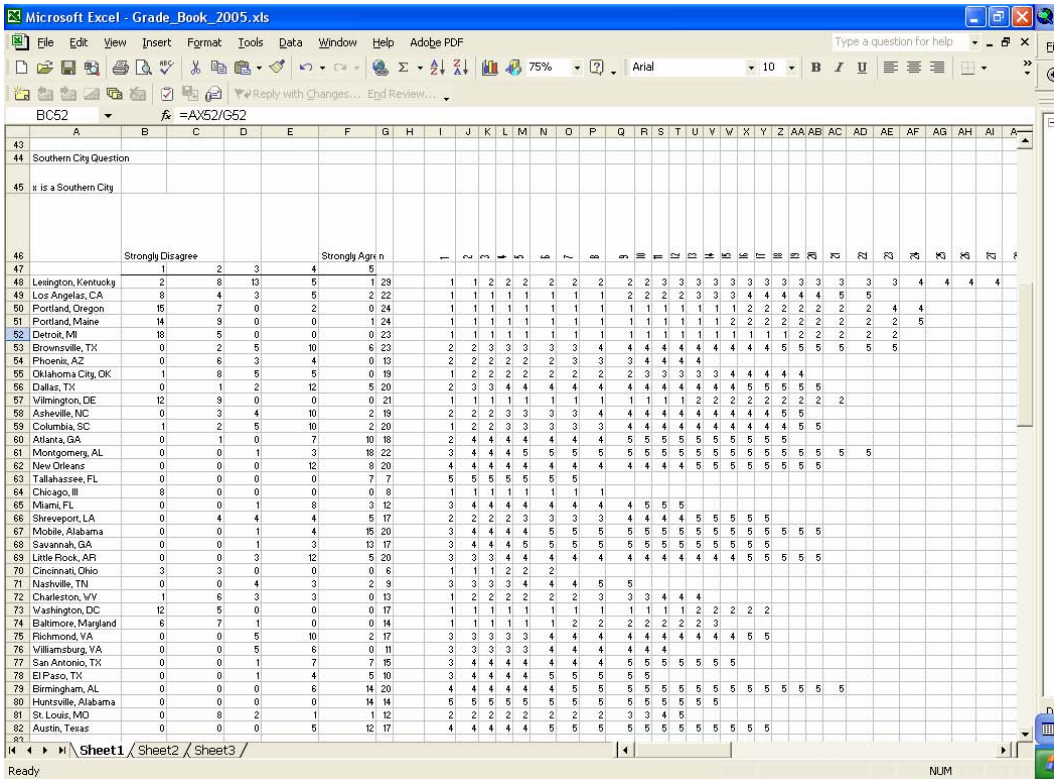

Figure 2. The Microsoft Excel workbook used to record data and calculate the descriptive statistics. The table is joined based on a unique identifier after the workbook is saved to a dBase IV formatted file.

Once all of the cities are presented to the students, the students are then asked to rate all of the cities again on a single day on the same 5-point Likert scale. These data are used to test for statistically significant differences between the data collected over the previous 40 class periods and what the students responded with on the 41st class period.

At this point, the Microsoft Excel workbook is saved as a dBase IV formatted file. Included in the workbook is a unique identifier that matched a field in the cities point shapefile. This allows for the one-to-one joining of the tables. The students are capable of joining the tables since each student had been taught and had joined tables in previous classroom and homework exercises.

Once the tables are joined, the students are ready to perform the Inverse Distance Weighting procedure available in Spatial Analyst (Interpolate to Raster → Inverse Distance Weighting). This provides an opportunity to teach the students the theory and application of using a GIS for interpolation. Using the standard class format of lecturing about the theory and demonstrating the application, the students then have the opportunity to perform interpolations using the class data during the second half of the class period. At the conclusion of this class period, the students are given a few readings to learn more about how others have mapped "The South." The students are expected to have read and be ready to discuss the reading at the next class period. The reading is a piece from Reed (1993b). This would be the 42nd class meeting.

The instructor leads a discussion about "The Southern Cities Project." Typically, the discussion starts out with the background of the project and why the students were asked to participate in the project. The next set of questions probe at how and why the students rated the cities the way they did. This typically involves the varied conceptions of "The South." This generally leads into a discussion about data collection methods and reliability of the data. These topics are addressed in general terms during the course. Therefore, it requires the students to recall what they have learned and apply in a different context.

Results

The discussion about the project has provided interesting perspective on the approach each student took to rating each city. Reasons cited vary from student to student but, typically center around several key ideas. The first typically brought up in the discussion is the Mason-Dixon Line. Most people think of the Mason-Dixon Line as the boundary between North and South; freedom and slavery. However, the line's origins have nothing to do with slavery and predates

the U. S. The line is the result of a land dispute between proprietors of Pennsylvania and Maryland when the country was a collection of British colonies (Trivedi, 2002). The original line does not travel further west than the present day southwest corner of Pennsylvania.

A second is where restaurants severe a beverage known as sweet tea. According to Stradley (2004), there are two traditional iced teas in the U. S. The difference between the types is sugar. In the South, iced tea is not just a summertime drink; it is served year round with most meals. When people order tea in a Southern restaurant, chances are they will get sweet iced tea. Outside of the southern states, iced tea is served unsweetened or "black," and many people have never heard of sweet tea.

A third reason students used is how the state was aligned during the Civil War. A fourth involves whether or not the houses have porches. A fifth involves how people answer the question as to if they are Southerners. If they answer, "Hell, yes!" the area is considered Southern.

Figure 3 depicts how the south can be represented in 2-dimentional map form from data collected during class. It should be noted that the selection of cities does favor areas toward southern latitudes. However, the potential to ask the opinion for a few more mid-western cities could help make a clearer map.

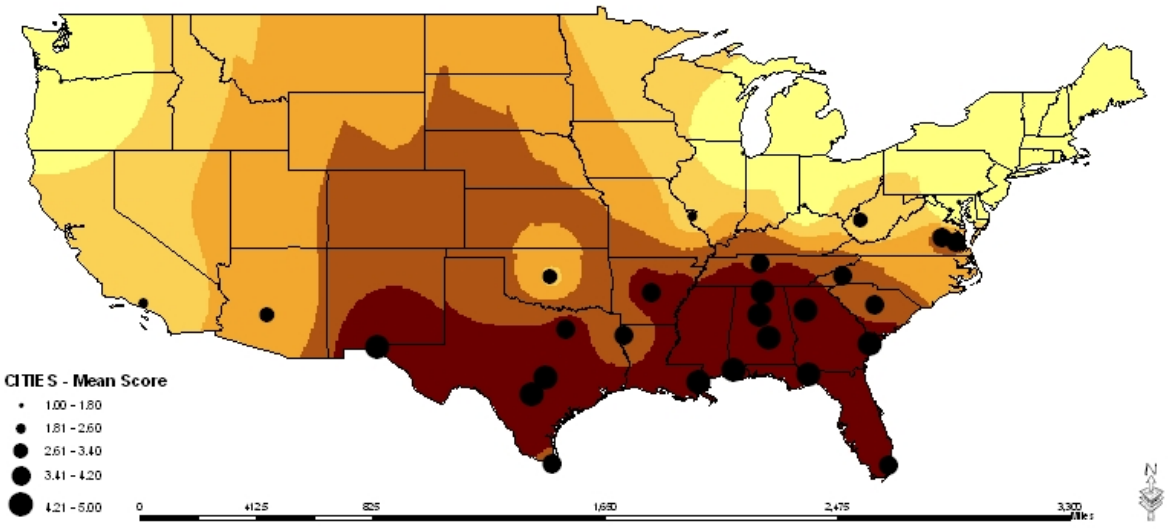

Figure 3. Map of "The South" based on the mean score from an introductory GIS and landscape analysis class (Spring 2005). The darker areas are considered more "Southern." The clorapleth map has five categories with a Jenks classification and displayed in decimal degrees.

Conclusion

Through the discussion session with the students about the project, it has become apparent that the students enjoy this simple classroom exercise. It is a relatively easy exercise to address a different form of mapping that otherwise might not be addressed in an introductory GIS course. The exercise also reinforces the notion that a GIS can be used to map more than physical environment properties. The exercise involves the students in the collection, encoding, analysis, and interpretation of geospatial data. The exercise provides a segway from a direct instruction portion of the class to a laboratory portion of the class period.

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