

Mapping Emotions

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The COVID-19 pandemic brought unexpected changes across the globe to nearly all aspects of life. Activities such as shopping, traveling, and school, all considered routine aspects of life, suddenly took on a new level of risk. Approximately 1.6 billion students across the world had their schooling experiences interrupted during this global event.¹ Matthew Stroup, a high school AP Psychology teacher, was dealing with these unexpected changes, but he also decided to use this disruption as a teaching moment.

Mr. Stroup understood that sheltering in place and the resulting social isolation increased stress and anxiety among many families.² During the 2020-21 school year, approximately 71% of all students were receiving either all or some of their schooling virtually.³ Mr. Stroup observed the effect of this unpredictable learning environment on his students' learning and the toll it was taking on their relationships with peers, teachers, and family. According to the American Psychological Association, 81% of teens experienced a degradation in their mental health between Spring of 2020 and into the end of the year.⁴ The idea for the activity described in this article sprang from a class discussion on the effect of social isolation and travel hesitancy on mental health.

The Activity

Mr. Stroup developed a learning activity using GIS (geographic information systems) technology in which students would place a waypoint (a digital "pin" marking a specific location on a map) on their "happy place." He immediately observed common themes among the locations: many places represented nature, beautiful landscapes, relaxation, and time spent with friends or family.

The activity corresponded to psychogeography, attending to the impacts of the geographic environment to one's emotional state.⁵

Psychogeography is the intersection of psychology and geography. It focuses on our psychological experiences in a physical location and reveals or illuminates the emotions we associate with different environments.⁶ This concept is closely associated with topophilia, the affective bond between people and place or setting.⁷ According to Ogunseitan, individual preferences toward physical spaces are highly correlated with the quality of life people associate with them, such as social relationships, ecodiversity (the variety of unique geographic and biological features), and the extent to which the place provides physical and emotional restoration.⁸

This learning activity aligns with standards in the College, Career, and Civic (C3) Framework for Social Studies State Standards.⁹ The Mapping Emotions activity lies at the intersection of geography, psychology, and geographic information system (GIS) technology, which is addressed in Dimension 2 of the C3 Framework: Applying disciplinary concepts and tools. Specifically, the lesson aligns with standard D2.Geo.3.9-12, "Use geographic data to analyze variations in the spatial patterns of cultural and environmental characteristics at multiple scales," and standard D2.Geo.4.9-12, "Analyze relationships and interactions within and between human and physical systems to explain reciprocal influences that occur among them."

The overarching goal of the activity was for students to identify geographic locations that produce different kinds of emotional responses.

Students were challenged to reflect on places that caused them to feel happy, sad, relaxed, anxious, bored, and melancholy. Through the process of considering the geographic locations they associated with distinct emotional responses, they were able to focus on the factors that spur those emotions. During a year when most students were unable to travel or spend time with distant friends and family, they were able to vicariously travel to those places that held special meaning and memories. In essence, the activity took the concepts of psychogeography and topophilia and adapted them for the highly virtual environment in which students were living.¹⁰

Pedagogy and Technology

An important part of this activity was to allow students to share

their “happy places.” Mr. Stroup chose Survey123, a web-based input tool which collects data and integrates seamlessly with ArcGIS Online enabling all responses to be synced to the same map. Esri offers free organizational ArcGIS accounts for all K-12 schools, which gave him access to the ArcGIS-integrated version of Survey123, and students could create their own maps.

Mr. Stroup created a short web-based survey for his students to use (see Figure 1). One of the fields in the survey was able to capture geolocation, either by recording the coordinates using the phone’s GPS chip, or by navigating to a geolocation where students were not physically present (e.g., another state or country). This feature proved to be useful because of the short timeframe

of the activity, students’ inability to travel, and the wide variety of locations the students wanted to include for their “happy places.”

Mr. Stroup required students to complete a minimum of three entries in Survey123 and gave students bonus points for additional entries. This was just the motivation his AP Psychology students needed, many of whom wanted to raise their grade at the end of the year. In a span of two weeks, the survey had over 500 entries! Student responses represented locations all over the United States and world; and there were multiple entries for each emotion (see Figure 2). Mr. Stroup was not surprised by this finding, considering he has had students from over 30 countries over the years.

Mr. Stroup created two versions of the data set containing student responses. The first file was hidden from students and contained student names with each response. Mr. Stroup used that file to keep track of how many entries each student submitted. He needed to track student entries in order to assign points and give feedback in a timely manner. The second file was created as a copy of the first data set, but without student names. This data set, called a “layer” in ArcGIS Online, was added to the map students would access for the analysis phase of this activity without knowing who submitted each entry. A version of this layer can be accessed at: <https://arcg.is/1ubDuy>.

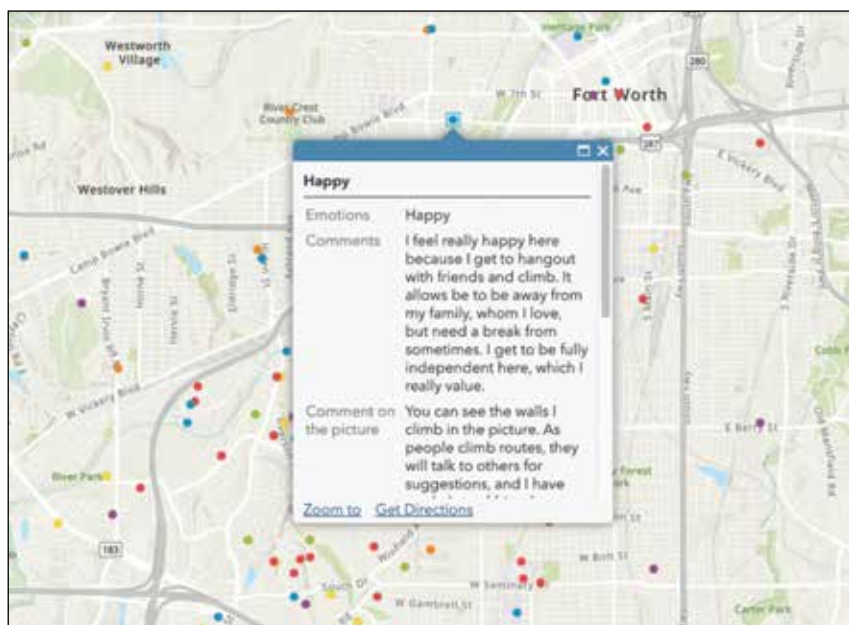


Figure 1. Screenshot of the Survey123 form students used. This survey tool allows users to include geographic location (GPS coordinates) as a response item, allowing responses to be plotted on a map.



Figure 2. Student responses from the Survey123 results. Even though Mr. Stroup expected responses to be clustered in the same geographic area where students lived, they plotted results from all over the world.

The map consisted of a base layer, which for this activity was a topographical map. ArcGIS Online offers 28 different options for the base map, such as streets, satellite imagery, terrain, or charted territory. Particular base maps may be well suited for certain instructional activities. For example, the satellite imagery base map may be useful if students need to refer to landmarks such as trees, bodies of water, and other physical structures that may not show up on a topographical map. For Mr. Stroup's activity, the base map was not as important as the data layer containing student responses.

The data in this layer were color-coded based on the emotion category associated with each geocoded location, which created a mosaic of colorful dots all over the map (e.g., blue represented "happy," red represented "relaxed," yellow represented "sad," and so on). When students clicked on the dots on the map, they saw the descriptions written by their classmates (see Figure 3 for an example entry).

The final phase of Mr. Stroup's activity required students to read the responses from their classmates and analyze the content of the entries for themes and patterns. Students analyzed several geolocations associated with each emotion for themes. For example, students analyzed common themes among responses where their classmates

Figure 3. Example of a student entry for the learning activity.

reported feeling “happy” and observed that many “happy” spots were outside Fort Worth, involved relaxation or recreational activities, and included friends and family. Students also observed that some students had a positive response to activities their classmates may have viewed more negatively, such as camping or road trips to visit family. Through their analysis, students were able to uncover similarities and differences in the emotional connections to places and activities among their classmates.

Instructional Implications

This activity was successful in several ways. First, the level of participation was quite high when compared to other activities Mr. Stroup had given his classes during that challenging year. The Mapping Emotions activity generated 511 entries, which is an average of about seven entries per student enrolled in AP Psychology. This includes students who did not complete the assignment and others who submitted multiple entries for bonus points. Some students entered a geolocation without adding any explanation about why certain places evoked different emotions. In all, 433 students wrote at least one sentence (i.e., 20 words or more) explaining their emotional connection to each place, and about 240 even included a digital image with their description. This means about 85% of the students were moderately to heavily engaged with the activity.

Some of the entries had more writing than others. On average, students wrote about 52 words per entry, but that included the 78 students who did not write a description at all. Students were writing between two and three sentences each time they submitted an entry. There wasn't a word limit requirement to get credit. Students seemed more likely to write about pleasant emotions than negative emotions. Perhaps this was due to the fact that students knew their classmates would be able to read the entries—and even while their names would not be visible, students may not have wanted to risk being identified. This could have also been a result of students choosing to focus on enjoyable emotions over unpleasant ones. Students may be reluctant to share vulnerable information with their peers, and they seemed more willing to talk about their pleasant places and memories.

This activity also helped students better

understand their emotional connections to geolocations. In addition to submitting entries to the class dataset, students also wrote reflections about their learning from the activity. They were able to use the filter feature on the data layer to isolate certain emotions and identify geospatial patterns among the data. For example, “happy” places tended to cluster near beaches, mountains, people's homes, and international destinations, and “sad” or “anxious” entries contained descriptions about missing family, moving, and people who had passed away. Mr. Stroup noticed, half chuckling, an abnormally high number of “bored” entries at the school's location. This may have been partly due to the fact that school activities were severely curtailed during the pandemic.

Finally, this activity created a pathway for students to become more emotionally literate. An important aspect of social and emotional learning is the ability to recognize and interpret one's emotions and those of others.¹¹ Social and emotional learning is critical as students develop self-awareness, cultivate empathy, and embrace diversity and cooperation.¹² The learners recognized and acknowledged the complexity of emotions and the difficulty of isolating just one emotion to a particular geolocation. For example, students only had the option of choosing one emotion from the dropdown menu, but they would elaborate on how they felt more than one emotion at the same time (e.g., “Anxious feeling when I first learned how to ski. I was scared of falling or breaking bones. But it's also really fun”). Students also observed that emotion is not only connected to place but also to time (e.g., “In _____ Airport, I would feel sad because it means that I would be leaving _____ again. I'll feel sad that I will leave my family and probably won't see them for a long time in person again”). This activity prompted discussion about the intricacy of emotions, and it helped students understand that it is natural to feel conflicted about a place or a memory. Even more importantly, students gained insight into how emotional responses can vary between people, even when they are talking about the same place. For some, the airport may be a happy place, representing travel and adventure, while it may evoke sadness for others who associate it with leaving loved ones or being unable to travel. When presented and framed in a thoughtful way, an activity such as this can promote empathy and viewing

similar places or events from a new perspective.

Conclusion

During a school year filled with fear, anxiety, anger, and loneliness for many students, Mr. Stroup knew this was an ideal time to think deeply about emotions with his AP Psychology students. ArcGIS Online and Survey123 provided a unique way to help students discuss their emotional connections to geographic locations. Specific features of these tools allowed students to visualize patterns, clusters, and frequencies of emotional connections among a large group of their peers. This activity was in no way intended to be therapeutic or a substitute for students

who may benefit from meeting with trained counselors or psychologists. The purpose of the activity was for students to make connections between geographic locations in their lives and their emotional responses to those places, then to draw broader conclusions from the large dataset. The technology tools provided a unique way for students to meet these learning goals; and they were highly engaged because of the opportunity to talk about their own experiences and possibly improve their course grade. In sum, this learning activity highlights geospatial patterns that students can analyze which make apparent the locations where students have emotional connections. ■

Notes

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