

## Chapter 9

### Visual Research Methods: Integrating Images in the Study of Social Problems

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#### Abstract

This chapter explains how visuals enhance the study of social problems through four examples of data collection and research dissemination. The first example studies meaning differentiation by examining photographs that represent the concept of community. The second studies social isolation via network graphs of social media connectivity. In the third example, the problem of racial segregation is critically analyzed through maps that serve as visual tools for disseminating information about this social problem. The fourth example also considers visuals in the context of data dissemination, studying how the use of data visualization (“DataViz”) to teach undergraduates about income inequality impacts their behavior.

#### Introduction

Social problems can be depicted in visually powerful ways, and images can be useful in better understanding abstract concepts in social science. However, we have yet to fully integrate methods of visual sociology in researching social problems. There are numerous opportunities for researchers to innovate visual methods, and the study of social problems can benefit greatly from recent advances in visual methods (see for example, Harper 2005 and 2016; Rose 2001; Vannini 2012).

Visual approaches have had an intermittent influence on sociology since its origins (Harper 1988). Douglas Harper (2016) notes that visual material have been used by sociologists

for decades, from documentary-style black-and-white images of reality to the use of photos to solicit interviews and collaborate with respondents. Douglas lists Erving Goffman (1979) and Howard S. Becker (1979), in particular, among sociologists who embraced the use of visual images for researching and representing social issues. In recent years there have been efforts to create an “integrated framework” to provide coherence in the use of visual methods (e.g., Pauwels 2010).

Visual methods have received the most attention in ethnography and other forms of qualitative fieldwork. For example, Sarah Pink (2013) describes how visuals can be employed to represent meaning constructs as a form of cultural analysis (Wagner 2011). Likewise, Jon Prosser (1998) describes the use of image-based research in studies of child abuse, health education, and education. Along these lines, I will describe how photographs can be used as a form of qualitative data in cultural analysis. This type of visual method is particularly useful for studying abstract social concepts such as community (Mitchell et al. 2014; Day 2014; O’Connor and Goodwin 2012; Morrow 2001) and religion (Milne 2016; Williams and Whitehouse 2015; Dunlop and Ward 2015; Williams 2014; Day 2014; Kreinath 2012; Ammerman and Williams 2012; 2012; Dunlop 2008).

Because visual sociology needs to include approaches that are not solely qualitative, I also offer examples from quantitative and mixed methods designs. Taken together, these examples support the use of visuals in multiple phases of the research process. Visuals can be integrated into data collection techniques, as the primary or a secondary source of information about the subject of interest. Additionally, visuals can be incorporated into research dissemination, as a way of reporting data that is more readily understandable than written text.

## Examples of Visual Methods

A primary goal of this chapter is to offer four examples of how to conceptualize social problems using visual research methods. These examples address four social problems that can be analyzed through an integration of visual approaches: (1) differentiated meaning, (2) social isolation, (3) racial segregation, and (4) social stratification.

First, *differentiated meaning* refers to how people socially construct multiple, sometimes conflicting, understandings of shared concepts, such as the notion of community. Differentiation is a problem of modernity (Durkheim 1933). In comparison to simpler, agrarian communities that had common comprehensions of ideas, contemporary society is characterized by multiple ways of perceiving the same idea (Tönnies 1957). While modernity provides greater flexibility for diverse groups to co-exist, one troubling result is a decline in the accepted significance and confusion over the meaning of community. Visual data can address differentiated meaning by allowing respondents to represent visually their understandings of community. The first study to be discussed below demonstrates how photographs aid meaning differentiation, in particular the many ways in which people understand the concept of community.

Second, *social isolation* refers to the concern that rising complexity in societal relationships may be undermining a general sense of belonging. Here the social problem is the result of social media lessening the degree to which social interaction provides an authentic sense of interconnection among people (Turkle 2012). The concern is that connecting with others on social media may not provide people with as much meaningful belonging as does connecting in person (Boyd 2014). Traditional quantitative and qualitative methods contribute useful information to this burgeoning social problem, yet utilizing visual data can offer insight into social isolation. In particular, innovative social network techniques provide a visual source of

connectivity data. The second study investigates social isolation through the use of visual social network graphs of social media connectivity. I will describe this visual approach alongside data garnered through traditional quantitative and qualitative approaches to show the utility of visual and non-self-reported data.

Third, *racial segregation* is pervasive in the United States and influences various social issues involving residential location, such as crime and public education. One solution to racial profiling is to increase awareness of the prevalence and distribution of racial and ethnic segregation. Maps in particular represent residential segregation in visually powerful ways, but they are not inherently neutral. Depending on the techniques used to produce them, maps can either mask or reveal the incidence and prevalence of racial segregation. Thus, it is imperative that segregation maps are critically reviewed and explained to policymakers and other stakeholders who rely upon these data. In the third example, I describe how maps can be used in reporting research findings. Advances in data visualization and new forms of cartography are challenging typical quantitative approaches to studying social problems. Specifically, these new techniques raise questions about how and why multiple entities or data points can be combined or separated on a map.

Fourth, *social stratification* contributes to limited access to socioeconomic goods that are associated with one's race, ethnicity, and gender (Rose 2015). Family status and educational level are also factors in social stratification in the U.S. Social inequality is an important social problem in need of analysis. Yet, understanding of social stratification is limited by the abstract and complex quality of the data produced by social scientists and government agencies. Visuals can present complex data in an appealing and interpretable form, thereby aiding the dissemination of social science research. The final example combines data collection and

dissemination through a direct test of the ways that visual representations of data, or “DataViz,” impact consumers of social science data. In particular, my associates and I test whether and how specific forms of visual data representation affect college students’ decision to contribute to charitable causes. Through an experimental design, we offer an approach that integrates data through the entire research process, both informing research participants about relevant data on social problems and also studying the effect of sharing this information.

In short, I use these four research examples (the social problems of meaning differentiation, social isolation, racial segregation, and social stratification) to explain how visuals can aid data collection and dissemination of research results separately or in tandem. The first two examples describe methods for integrating visuals into *data collection*; the third describes the challenges and opportunities of integrating visuals into *data dissemination* (communicating research results); the fourth example describes an approach that integrates data visuals into *dissemination and data collection simultaneously*.

#### *Example 1: Photographs as Visual Data Representing Community*

The first study involves “photo elicitation” (Collier 1967, cited in Harper 2016), the use of photographs as a form of data collection. The goal is for research participants to convey their perceptions of photos (see also Steger 2013). Along with communicating through words as in interviewing, photographs are employed in this study as an additional source of meaning expression.

The study dealt with the different meanings of community. Community has been viewed as a form of social organization that is fundamental to human experience (Campbell 2000; Erikson 1978). Sociologists have long been interested in community and its changing role in

society (Tönnies 1957; Durkheim 1933; Bellah et al. 1996). Some say community is one of the most ubiquitous aspects of social life (Blackshaw 2010). Yet, after numerous community studies (Park 1950; Burgess and Park 1921; Burgess 1984), the concept remains abstruse (Lyon and Driskell 2012). Consequently, contradictory claims are frequently made about the state of community in contemporary U.S. society.

One of the long-standing issues in the study of community is how to define it. Especially problematic is the potential that rather than community declining, the meaning of community may have changed over time. Thus, the methodological challenge is to measure the concept in a way that is meaningful to the research participants and does not impose the researchers' preconceived notions on the topic. Most people believe they know what community is. Yet the moment we attempt to define community, we disagree on whether it refers to a mental state, a state of being, or a populated geographical location. Determining whether community has declined, requires first establishing what it is. Moreover, if the meaning of community has changed, estimating its increase or decrease depends on whether the definition refers to past or contemporary understandings of community.

This is the kind of conundrum that visual methods can resolve. Rather than ask research participants to verbalize what community is, they can take photographs of images that represent community to them. The photos are then analyzed to discern underlying themes or typologies. The process is similar to grounded theory analysis of textual data (Charmaz 2002), in which the researchers peruse and then code subjective interview data into "focused" themes. My colleagues and I did this in a study we conducted with teens taking pictures of images that represented community to them. The teens then described their "community-scapes," allowing for a

categorization of each image into visuals of community conceptualized as people, places, or nature. The teens were able to visualize which aspect symbolized community to them.

Figure 9.1 shows how photographs can be studied in a similar manner as text-based analysis. We categorized these photos based on whether they primarily depicted the social environment (people), the built environment (buildings), or the physical environment (landscape). Subcategories can be generated to represent religious communities, sports communities, and music communities, which can be analyzed with the three top-level categories.

### FIGURE 9.1 HERE

Photographic Representations and Descriptions of Community

*Source: Patricia Snell Herzog*

One benefit of this form of visual study is that it allows teens to express themselves similar to how they communicate on social media such as Instagram and Snapchat. Communicating in an everyday conversational style, with limited input from the researcher, is generally valued in ethnographic investigations. Visual communication allows the least amount of researcher reactivity. Additionally, visual research methods also enable a view into the abstract concept of community, without relying solely on participants' verbalization of what community means to them. Returning to the issue of meaning differentiation, collecting images such as these allow researchers to assess what represents community to respondents, thereby enhancing multiple views in the study of social problems.

*Example 2: Social Networks Graphs as Visual Data Representing Social Isolation*

Another issue of long-standing interest is whether social isolation is increasing as society becomes more technologically advanced. Though studies have long agreed on the rise of social isolation among younger Americans (Marsden 1987; Putnam 1995; McPherson et al. 2009; 2006), more recent investigations have challenged this finding (Cornwell et al. 2014; Paik and Sanchagrin 2013). The debate centers on the changing meanings of connectedness (Fischer 2011; 2009). There has undoubtedly been a rise in social connectivity via new social media. However, questions remain regarding the extent to which people feel integrated through this hyper-connectivity (Parigi and Henson 2014). While social networking technology facilitates establishing and maintaining numerous social ties (Haythornthwaite and Kendall 2010), young people's ability to form deep and meaningful connections with others has declined as the number of connections increases (Turkle 2012).

The visual research method of social network graphs can be employed to study this social problem. Social network graphs visually illustrate the number of people a research participant is connected with on social media. In a study that my colleagues and I conducted, the collection of data through network graphs was paired with a survey that asked youth about their sense of belonging and whether their social connectivity has changed over time. Combining these two methods of data collection allows for a direct analysis of connectivity and the social problem of social isolation.

These social network data had been missing from previous studies because there had not been a readily available way to assess the number of online social media connections a person has, other than to ask them. However, the research methods employed in our study triangulate survey data with visual social network data. This study utilized the computational analysis program, Wolfram|Alpha that maps social network structures using information on Facebook.



We also included in our analysis results of an online survey regarding community in a connected age, reflections on trends over time, and the role of social media. The sample for this study consisted of students from one high school and students from one college. To control for geographic context, the study was conducted in one city, with both campuses in close proximity to one another.

All research participants logged into the Wolfram|Alpha website with their Facebook credentials. This generated a visual graph of their social network that they subsequently attached to their online survey. Examples of these social network graphs are found in Figure 9.2.

Underneath these graphs the participants could see the number of their Facebook friends (these numbers are not reproduced in Figure 9.2), which represented social network size. Two other measures included in the online survey replicated the General Social Survey's items regarding discussion networks. Specifically, we asked respondents to: (1) list the number of people with whom they discuss important matters and (2) rank their sense of belonging on a Likert scale based on this statement: "There are people or groups with whom I feel a sense of belonging." These two measures assessed connectivity and social isolation. To demonstrate the value of visual analysis in our study, I will first describe some of the non-visual results obtained from traditional quantitative and qualitative methods and then present the visual analysis based on the social network graphs. The issue investigated throughout this section is social isolation.

## FIGURE 9.2 HERE

Examples of Wolfram|Alpha Generated Facebook Social Network Graphs

*Source:* Reprinted by permission of Wolfram|Alpha(c) [www.wolframalpha.com](http://www.wolframalpha.com) (2015).

Non-Visual Approach 1: Definition of Community

The first sets of results exemplify the kind of research obtainable from traditional survey data and focus on definitions and prevalence of community. I asked respondents whether they feel they are part of a community and if so, how they define this community. The majority (58 percent) answered “yes” to having a community, and 27 percent answered “maybe.” Only 15 percent indicated that they did not have a community. These findings were cross-tabulated against responses to the question regarding a sense of belonging. Surprisingly, nearly one-half of participants who indicated a low sense of belonging said “yes” to having a community, and more than one-third of those who had a high sense of belonging said “no” or “maybe” to having a community.

Answers to the question on how research participants define community were coded into six categories: friends, school, sport teams, family, neighborhood, and religious group. Sixty-five percent fell under the category of “friends” for the definition of community. Examples of such responses are, “My community is my close group of friends who I hang out with regularly,” and, “I have a community because I have a strong group of friends who I can trust.” Likewise, “I think I have a community because I have a friend group and stuff like that,” and “My community is my close friends.” This finding is striking when considering that the other two most common community categories—school and sport teams—are also likely referring to youth peers. Thus, for this group of young people, community predominantly denotes friendship groups.

#### Non-Visual Approach 2: Core Discussion Network

In this section I focus on determining the degree of social isolation, again through traditional survey measures. I replicated the core General Social Survey discussion network question and analyzed the results in conjunction with a sense of belonging. I found that the sampled high

school and college students reported discussing important matters with a median number of four friends. Those with a low sense of belonging reported having fewer friends, with all but three of low sense of belonging participants reporting three or fewer people with whom they discuss important matters, while half of those with high sense of belonging reported more than three. This provided initial support for the implicit relationship in the social isolation thesis: as the number of friends decreased, so did the level of belonging.

In addition, I included a question on the survey that inquired about the number of “close” friends. In comparing close friends with a sense of belonging, I discovered that three-quarters of participants with a high sense of belonging had more than three close friends. For those with a low sense of belonging, more than half had more than three friends. Combined, these results complicate the assumption that a simple inverse relationship exists between sense of belonging and number of friends.

#### Visual Approach 1: Network Size

This section introduces the first set of results that extend beyond the traditional quantitative and qualitative approaches described above. As stated earlier, the graphs produced through the Wolfram|Alpha website, included the size of the respondents’ network. This figure was not based on self-report but was generated from a visual analysis that computes number of nodes or connections in a participant’s Facebook network. The average size reported was considerably larger than the average discussion partner network size, or even the average close friend network size.

Moreover, I found an inverse relationship between Facebook social network size and sense of belonging. On average, the students in this study with *larger* social network

sizes report a *lower* sense of belonging. This is the case with both high school and college students but was more marked among the high school students. However, when controlling for gender and race, the patterns became more complicated. Specifically, for females and non-white participants, I found the reverse pattern: higher sense of belonging was associated with larger social network sizes. In summary, visual interpretations of social connectivity reveal that greater levels of connectivity do not consistently correlate with increased or decreased sense of belonging. Rather, the relationship between connectivity and belonging is mediated by demographic characteristics.

#### Visual Approach 2: Network Shapes

The most salient visual method in this study is a qualitative analysis of social network graphs that my colleagues and I organized into five categories: (1) small and dispersed, (2) large “gray cloud,” (3) clumped groupings, (4) enmeshed groupings, and (5) mixed. The first two are defined mostly by size. The clumped groupings and enmeshed grouping are defined by the extent of overlap among the different groups. The mixed category combines several of the other categories. Examples of these graphs are represented in Figure 9.2.

The large gray cloud networks were more likely among females and non-white students. Moreover, these networks were more common among students who had connections to people from a wider array of geographical locations (more cities and countries represented in their networks). In a final set of relationships, we found that dispersed networks were negatively related to organizational participation (participating in organization-based activities such as volunteering), such that dispersed networks were more common among students who have lower

organizational participation. Alternatively, clumped networks were related to greater levels of organizational participation, whereas enmeshed networks were not so related.

The aforementioned visual reveals the complications of investigating social isolation as a problem that seems to be of greater concern today than in the past. Moreover, previous social isolation studies may have missed important features of social life by treating all groups as homogeneous. Instead, the visual approach of this study reveals that connectivity can relate to belongingness in different ways for different people. The social network graphs employed in this study allowed for innovative approaches to studying social isolation that reveal a more detailed and nuanced configuration.

Rather than viewing people today as socially isolated or not, these network graphs depicted varying degrees of isolation that range from small and dispersed networks to large gray cloud networks. However, the high number of connections in the largest networks did not correlate with greater belongingness, thus revealing that the opposite may be true. The smallest and most dispersed networks also exhibited features of social isolation. In summary, this example describes how integrating visual data into the study of social isolation challenges preconceived notions of connectivity and belonging. Moreover, visual categorizations of social network graphs provide a means of studying structural inequalities. In the next two examples, I consider how visual data alter traditional research practices through the research reporting process referred to as dissemination.

### *Example 3: Maps as Research-Reporting Tools*

The third example demonstrates improvements in geographic mapping while also highlighting the challenges these advancements pose to traditional research methods. For instance, Figure 9.3

displays two maps of racial and ethnic population characteristics for the same area in Houston. The choropleth map on the left shows counties colored according to the majority race or ethnicity present in the area. The darker portion represents a high concentration of white residents and the lighter portions represent higher concentrations of non-white residents.

### FIGURE 9.3 HERE

Challenges and Opportunities of Data Analytics—From Choropleth to Dot Maps

*Sources:* Google Maps. 2010. “Harris County: Proportion White”; Fischer 2010. “Race and Ethnicity 2010: Houston,” Wikipedia.

Alternatively, the dot map on the right, displays the same data for the same location and time period, but employs color-coded dots, with each dot representing 25 people of the same race or ethnicity (Fischer 2010, inspired by Rankin 2010). When viewed in color (see link in references), this map reveals a pinwheel-shaped pattern to racial segregation that was not apparent before. These improvements in visual accuracy are enabled by advancements in data analytics and reveal patterns that were not as visible in older mapping forms, but they also pose new challenges.

For example, several major retail stores have been accused of discriminatory practices (e.g. Kang 2010; Fiegerman 2016), employing analytic techniques to target customers based on zip codes. In 2015 the college admission services company, The Princeton Review, charged higher prices for their testing services for Asians compared to non-Asians (Jacobs 2015). Female Facebook users received ads for lower income jobs compared to male users (Sloane 2015). The result of using demographics measures—gender, race, social class—to target marketing is that companies can be subject to litigation and fines when these practices come to light. Without clear ethical guidelines for producing and interpreting such data, visuals can be used to cause harm, to

society generally or to groups of people. Having a clear consensus on best practices is key to ensuring widespread knowledge of issues such as inadvertent discrimination based on race or ethnicity. As a whole, this example highlights the visual advancements in mapping techniques, and how these improvements can complement typical methods for researching social problems.

*Example 4: DataViz as a Research-Reporting Tool*

The final example examines visuals of social stratification and charitable giving. I highlight their strengths for disseminating research findings and for investigating the effects of “DataViz,” a technique for communicating data visually in the social sciences.

The original goal of American sociology was to improve society by lessening, even eradicating, social problems (Turner and Turner 1990). However, sociology’s quest to establish itself as a science led to its distancing from its ameliorative roots (Deegan 1988). The dominance of quantitative methods required sociology to report results in descriptive, unbiased, and factual terms. This has led some critics to charge sociology with being too abstracted from its subject matter and losing relevancy in explaining society (Vaughn et al. 1993).

The dominant approach in quantitative research is to report results about averages. Presumably, there is a benefit in reporting what the average person does, thinks, or feels. Yet, little is known about what impact data on average trends has on readers. Since undergraduate students are one of the primary publics who are assigned to read these studies, the logical first step in investigating the potential impact is to study a sample of college students.

To learn more about the impact of learning about the “average American,” my colleagues and I examined whether interacting with data about average trends appears to have any influence on undergraduates (Herzog et al. 2019). We thus conducted an experiment to test a behavioral

outcome: whether students chose to keep their monetary payment for participating in the study or to donate it to a charitable cause. Prior to making the choice, participants were randomly assigned to either a control group or to one of two DataViz groups. The control group engaged only with data about the weather through a weather website that allowed respondents to review the weather forecast for their area. Thus, this group participated in a visual website but did not engage with DataViz, aggregated social science data displayed visually.

In the first treatment group, we wanted to understand the impact of exposing college undergraduates to visual data about social inequalities. We showed students the visual profile created by Stephone Rose (2015, New Press) and entitled, *Social Stratification in the United States*, depicted in panel A of Figure 9.4, which allowed students to place their family within the U.S. social stratification structure by identifying their racial-ethnic background, marital status, educational attainment, and occupation, as depicted in panel B of Figure 9.4. They were then asked to find the income brackets that represent the annual earnings for their household, as depicted in panel C of Figure 9.4. The goal is to locate the icon in the poster that best represents the students' household, in response to the questions in panel D of Figure 9.4. Reflecting on the assignment, the students also assessed whether their social stratification placement in the poster is average, above average, or below average in income compared to most Americans. This represented the first DataViz interaction.

#### FIGURE 9.4

Studying the Impact of DataViz: Social Stratification and Charitable Giving



Sources: Panels A, B, and C reprinted by permission of New Press;<sup>1</sup> panel D, Patricia Snell Herzog; panels E and F reprinted by permission of Lilly Family School of Philanthropy and Polis Center, IUPUI

The second treatment group engaged with visual data on charitable giving, which are represented in panels E and F of Figure 9.4. Participants were shown charitable giving amounts for the average American with similar demographics as the respondents. In other words, participants in the second treatment group interacted with visual data about charitable giving (a social good), whereas the first group interacted with visual data about social inequalities (a social problem). We were interested in knowing if these visual data influenced the participants' choice to donate their incentive to charity or keep it.

This experiment revealed whether keeping or donating the payment was influenced by the particular data participants were shown. The weather control group provides a true baseline given that participants were not exposed to any social science data. The treatment group working with the visual data about charitable giving provides an enhanced comparison to the treatment group working with visual data about social inequality. We hypothesized that participants in the social inequality group would be more likely to donate their incentive to charity than participants in the control or other treatment groups.

The results of this study were that 58 percent of students in the charitable giving control group donated their incentive, but only about 42 percent of students in the stratification group did so. Exposure to the social inequality data did not evoke the charitable response that we expected it would. In any case, there is initial evidence in this study that data visualization may impact students in profound and interesting ways. These findings can contribute to greater reflexivity concerning the effects of presenting students with visual quantitative social science data, the

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<sup>1</sup> Excerpt from *Social Stratification in the United States: The American Profile Poster* - Copyright © 2014 by Stephen J. Rose and Carol Higgs. Reprinted by permission of The New Press. [www.thenewpress.com](http://www.thenewpress.com)

effects of understanding averages, and innovative ways of integrating visual data into teaching and research. This example represents one way to employ visual methods in both data collection and dissemination simultaneously. The results are potentially powerful in motivating (or demotivating) pro-social responses, such as charitable giving. As visuals become more present in new media enabled communications, more studies are needed on the effects of these visuals.

## **Conclusion**

Visual methods are important in researching social problems in three ways: (1) visuals call public attention to social problems; (2) visuals provide deeper understanding of aspects of social problems, such as abstract concepts that are difficult to verbalize or social problems that may be susceptible to self-reporting biases; and (3) visuals are powerful tools for interpreting social problems. The four studies discussed in this chapter used visuals in data collection and research reporting.

There are many advantages to using visual methods in researching social problems. One of the most obvious is the ability of visual imagery to capture aspects of culture that may be difficult to express verbally. The idea of community is one such aspect, and we have shown how the social problem of declining community can be evaluated through photography. Particularly important with students is to engage media with which they are conversant. Youth frequently communicate with each other through visual formats such as handheld smartphone cameras. Social media sites like Instagram and Snapchat are based primarily on visual communication. This has resulted in youth culture using visuals as a primary form of expression, often with little or no accompanied text. As Harper puts it, “Digital technologies not only revolutionized how we did research, but more fundamentally redefined how images operate in society” (2016: 246).

Communicating with research participants in ways that are meaningful to them is an advantage of visual methods, especially in qualitative research and among youth. This chapter showcased studies that engage quantitative and mixed methods approaches with visuals in researching social problems. From quantitative criminology to demographic cartography the possibilities to be informed by visual methods are vast and expanding. I have shown some examples of how visual methods can further the study of social problems, including investigations on meaning differentiation, social isolation, racial segregation, and social inequalities. There are many more examples, some that exist and some that are yet undiscovered.

Visual methods are not limited to photo-solicitation or to qualitative forms of data collection. Indeed, they can be an integral component of a wide range of research methods. Attending to the visual may be necessary for any research method to remain relevant in a society that is rapidly shifting toward visual representation as a primary form of communication.

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