

Chapter 9

I See What You Mean: Using Data Visualization to Inspire Action Across Diverse Curricula

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ABSTRACT

The infographic represents a combination of visual imagery and big data, and it can be implemented successfully as a teaching tool across multiple educational settings. The infographic is also, by definition, a multimodal genre. It incorporates visual and textual elements, statistical evidence, research, graphic design, and digital literacy for both the creation and distribution of an effective data visualization through 21st century mechanisms of social action and interaction. In the following chapter, the authors, two instructors at a small, private, liberal arts university in the suburban South, will present examples of infographic curricula from undergraduate courses in first-year writing and professional writing in the medical humanities and analyze the effectiveness of this approach on student learning, particularly in relation to the impact of infographic instruction on the skills of synthesis, public resonance, transfer and social action.

INTRODUCTION

The infographic represents a combination of visual imagery and big data, and it can be implemented successfully as a teaching tool across multiple educational settings. The infographic is also, by definition, a multimodal genre. It incorporates visual and textual elements, statistical evidence, research, graphic design, and digital literacy for both the creation and distribution of an effective data visualization through 21st century mechanisms of social action and interaction. In the following chapter, the authors, two instructors at a small, private, liberal arts university in the suburban Southern U. S., will present examples of infographic curricula from undergraduate courses in first-year writing and professional writing in

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the medical humanities and analyze the effectiveness of this approach on student learning, particularly in relation to the impact of infographic instruction on the skills of synthesis, public resonance, transfer, and social action.

BACKGROUND

Let's begin with a closer look at the term "big data." What is big data? It seems self-explanatory, but the reality of big data may be far more complex than it might initially appear. The term big data was first coined by analyst Doug Laney in the early 2000s, and it refers to the overwhelming amount of data generated from daily digital user activity, data that can be computationally analyzed to reveal human behavior patterns and interactions. Every status update, tweet, email, Google search, streaming video, or download creates a digital trail that tells a story about the increasingly digital lives of the world's population. Since these activities can be tracked, businesses analyze this data and use it to tailor online experiences to the wants and needs of its consumers.

In order to understand the sheer size of this big data, one must first grasp its basic unit of measurement: the byte. Today, the average computer hard drive holds about 590GB, or gigabytes, of information. One gigabyte is equivalent to more than 1,000 megabytes, or over 1 billion bytes. When personal computers first became available to consumers, a hard drive housed only about 5MB, or five million bytes, of storage space. In the 1990s, that increased to about 1GB, and now the largest capacity hard drives can hold 8TB, or terabytes, of information. A terabyte is over 10 billion bytes, and it isn't even the largest data measurement term used today. The world's digital data capacity has been on an exponential increase since the 1980s, and our capacity to store this information has roughly doubled every three years. An exabyte is a term used to describe 1 billion gigabytes, and 2.5 exabytes of digital data are created worldwide every single day.

According to Alleyne (2011), the average 2011 consumer was exposed to five times as much information in 2011 as in 1986, and the 2012 consumer viewed 100,500 words of information outside of work on an average day (Bohn & Short, 2012). It is likely that those numbers have increased exponentially since then, but big data is so, well, big, that researchers struggle to measure it. By the time they finish measuring it, it has changed again. The data comes at breakneck speed, in what Laney (2001) describes as a "volume, velocity, and variety" that boggles the minds of anyone outside the bubble of Silicon Valley. It never sleeps or stops. For example, according to James (2014), consumers in 2014 sent 204,000,000 emails, shared 2,460,000 pieces of information on Facebook, sent 277,000 tweets, and posted 216,000 images on Instagram every minute. That's every minute of every day. James even created a handy infographic to demonstrate these startling statistics.

The authors of this chapter recognize how utterly overwhelming and dehumanizing this big data can be. Data is, as scientist-turned-filmmaker Randy Olson (2009) describes it, too cold, complex, and informational, and it needs to be partnered with a more humanized element. Whether a data set qualifies as "big" or not, one must acknowledge that the sheer amount of data available to consumers at every moment of every day is truly staggering. For educators and consumers, humanizing that data is a must if one wishes to harness its power for social change. In the classroom, this becomes possible through the use of infographics.

Infographics tell a complete story in picture form. With the help of free user-friendly digital design platforms, an amateur infographics designer can create scrolling interactive infographics with a few

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