

Reading a Graph Versus an Essay

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Abstract:

Graphs and essays are usually not thought of as being related to each other. Graphs are based off numbers, while essays are a collection of words that form an argument. However, this piece uses the structure and context of both mediums to explore the similarities between their respective reading processes. Both medium's structures seem to follow a similar path and both mediums use context as a prerequisite to understanding the information. There are significant aspects that differentiate the reading process, but the collected data of other studies and two interviews of students seem to lead to a conclusion. While further research is certainly required, this brief exploration leads to the conclusion that the reading process of graphs and essays are more similar than they seem.

Introduction:

The idea of reading is conventionally directed towards books, essays or other works of writing. On the other hand, the concepts of graphs are generally thought of as statistics and data that are based off numbers. There are many types of graphs that can be created for different purposes, but at its core every graph presents information to the reader. These seemingly opposite mediums of presenting information may have more connections than they seem at first glance. They even share the same verb when you look at the information presented: 'read this essay' and 'read this graph'. Even though graphs present their information through numbers and figures, is the reading process similar to an essay?

How to Read an Essay:

There are countless strategies that can be used to read an essay, but Mike Bunn specifically explains the process of reading like a writer. Bunn (2011) expresses that, “you are trying to figure out how the text you are reading was constructed so that you learn how to “build” one for yourself... examining the details in order to see how it was made” (p. 74). Through his explanation we understand that an essay is a constructed concept that can be understood by breaking down the parts. The basic parts of an essay are the introduction, body and conclusion. There are intricacies that change the format and structure within the individual basic parts, but an essay is generally constructed with this build up that leads to a concluding point.

Additionally, Bunn (2011) expresses the importance of understanding context before even beginning to read a text. The context, whether it be an academic paper or an advice article, determines how you read a text. It’s necessary to consider the factors that influence the creation of the text as you delve into the content. If the text is a political critique you can expect opinions that reflect the author’s point of view, instead of an unbiased reporting of a situation.

Most importantly, Bunn (2011) describes that reading like a writer helps the reader assimilate writing techniques into their own repertoire. As a reader examines a text they analyze which elements were effective in portraying the author’s thoughts. When the reader writes his own essay, they can use the same aspects to improve their writing. Essentially, reading is a process where the reader observe writing techniques, and copy the ones they believe to be most effective.

How to Read a Graph:

A graph is a visual model that is constructed to show data, trends, and effects. Currently, there is relatively little information on how people view graphs. Huang and Eades (2005) explain that the drawing aspects of graphs, such as placements of axes, are important to how they are understood. However, a constant within the process is that readers tend to follow a similar path when deciphering the data. Huang and Eades (2005) used eye motion tracking equipment to observe how volunteers looked at graphs and found “They did not notice other paths” (p. 6). This means that a majority of the volunteers followed the same progression of aspects, otherwise known as following a straight path. The readers initially focused on the title of the graph, moved to the axes, and finally looked at the data from left to right. From Huang and Eades research we discover that the volunteers broke down the graph into specific sections and looked at the sections in a specific order when reading a graph.

Another crucial aspect of reading a graph is context. Roth and Bowen (2001) explain that reading a graph is a contextual process that is best performed with prior experience. During their study they asked professional scientists to analyze unfamiliar graphs of an undergraduate ecology course. The scientists, who were given no background information, often interpreted the data incorrectly. Scientists are considered experts at reading graphs, relative to the public, but they ran into the same problems that an 8th grade class experienced in another study. In their discussion portion, Roth and Bowen (2001) note that “signs and their signification are an integral part of the context and they can be a sign only for those who dwell in this context” (p. 23). Thus, we can determine that having the context of a graph is necessary to interpret it. When one does not have the context the presented information has no significance.

An Analysis of Structure:

According to Bunn (2011), a crucial aspect of reading lies with breaking down the text. Similarly, Huang and Eades (2005) discovered when people read graphs they follow a specific reading format based off sections of the graph. Thus, we can compare the importance of structure in the reading process of both a graph and an essay.

At a basic level, the portions that make up both mediums are similar. The beginning of both a graph and an essay can be used to tell the reader what to expect in the upcoming presentation. As shown by Huang and Eades' (2005) research, people begin reading a graph by looking at the title. A graph's title must concisely tell the reader what information the graph is showing, thus it acts as general context for the shown data. The axes on a graph label the variables being compared, which also acts as context for the data. Thus, since the axes and title of a graph introduce the content of the graph, they can be compared to an essay's introduction. According to Wyldeck (2008) an essay's introduction provides context by introducing the topic that will be written about. During the reading process for these mediums, you start with either the introduction or title and axes. Since they both provide context for the remainder of the reading, they share the same function during the reading process.

The next portion of an essay is the body where the information is presented. Wyldeck (2008) explains this is where an author discusses their claims and provides supporting evidence. On a graph, this translates to the data figuration that is presented. The figure presents information through bars, lines, or any other type of graph and can be analyzed to provide evidence for an argument. Thus, again, the figure within the graph is similar to the body of an essay. The function, within the reading process, of the essay body and the graph figure are similar.

Lastly, Wyldeck (2008) confirms that an essay will generally have a clear conclusion or ending to complete the line of thought and bring up unanswered questions. A graph never has a clear conclusion on display. The conclusion originates within the reader depending on what he can gather from the data presented. For example, take a bar graph that shows how many cities are in each state. From this graph you can determine which state has the least cities by finding the shortest bar, but this conclusion isn't strictly displayed in the figure. It is the reader's responsibility to find the conclusion through relevant observations. Thus, the essay's structure presents a section where an author can write a conclusion, however a graph is not given the same opportunity. The graph's conclusion is left open ended and entirely dependent on the reader. While other parts of a graph and essay have similar functions, the conclusion of the two mediums are distinctly different and are even determined by different parties (author vs. reader).

An Analysis of Context:

According to Bunn (2011) and Roth and Bowen (2001), both graphs and essays deal with context during the reading process. Bunn (2011) explains that it's important to understand the context before beginning reading an essay. The context allows the reader a general understanding of what to expect. In other words, it shapes how the reader views the information in the essay. This is similar to Roth and Bowen's (2001) research when they found that scientists were unable to decipher a decontextualized graph. Without the background information, even professionals struggled.

This shows that context has a similar function within the reading process of graphs and essays. The context acts a prerequisite to understanding the information that is being presented. In terms of a graph, the majority of the context can be found within the axes labels and title. In terms of an essay, while some of the context may be

revealed in the introduction, a majority of the context is found outside of the text. The author's political affiliation or place of birth can affect how an essay is written. There are an incredible amount of outside factors that can affect the author's writing style, which will be reflected in the essay.

Therefore, we can see that context plays a similar role in the reading process of graphs and essays as a necessity for understanding the presented information. However, there are aspects of presentation and level of necessity that differentiate the mediums. Reading a graph seems to require the context more than an essay, as professionals weren't even able to decipher the information without. On the other hand, the context of an essay can be presented in broader view outside of the text. Graphs require context more, but there is a broader range of context to understand for an essay.

Survey Results:

A subject that consistently deals with both graphs and essays is Economics. The graphs of Economics are usually paired with essays that explain shifts in the graph or data that the graph supports. I interviewed an undergraduate at UC Davis majoring in Managerial Economics about his thoughts on the relationship between graphs and essays on May 10, 2016. In the interview, the student Eric Luu said, "(Essays and graphs) both explain the same thing just in different ways; you're looking at the same thing but through a different perspective... when I start looking at a graph I begin with the titles and labels, and then move the data points."

According to his answer, it seems that the student follows a straight path when reading a graph. This agrees with the research presented by Huang and Eades (2005) where the volunteers also followed a straight path. The evidence seemingly shows that a majority of people follow the same structure, moving from title to data,

whenever they read the graph. When asked about essays during the interview, Eric Luu also mentioned the introduction, body and conclusion structure discussed in Wyldeck's (2011) book. The interview's results seem to reaffirm the previous section's discussion that the structure of both a graph and essay are similarly important in each respective reading process.

Interestingly, Eric also mentioned that he believes graphs and essays explain the same things through different perspectives. An essay can go into a greater amount of detail and a greater amount of back-story and theory due to the limitless length. A graph tends to be confined to an observable size by humans. However, since they can portray the same information, Eric eventually said that a graph can be thought of as a smaller essay. Whether this is true or not cannot be confirmed through this study, but it deserves more research in a future point of time.

On May 10, 2016 I also interviewed a mechanical engineer major about his thoughts on graphs and essays. In his interview, he had an opposing belief to the managerial economics student, he said, "I don't think there are any significant similarities in pointing out. They both present information in distinctly ways that are beneficial in different respects... In a graph, you can choose where to start and work your way around and get all of the information, but text is streamline. The order that information is presented and importance is stressed is entirely up to the author... I would not emphasize these slight similarities that are coupled with more striking differences."

He points out that reading a graph is far freer than a streamline essay, which disagrees with the data presented by Huang and Eades (2005). However, he may not have focused on the order that he read the graph, which means he may not have realized how structured the reading process of a graph is. Regardless, this still leads to a conflict of information that cannot be easily resolved. His belief cannot be

invalidated, and thus highlights that the structure of a graph has the potential to invite different orders of reading. If this proves to be the case, then the reading process of graphs and essays may still be entirely different. A majority of the data does not lead to this conclusion, but the possibility always remains.

Conclusion:

Through an analysis of the interview and secondary sources, the collected data seems to express that the reading process for graphs and essays are similar. The structure of both graphs (title, axis, and data) and the essays (introduction, body, conclusion) can be metaphorically linked through function. Additionally, the necessity of context as a prerequisite seems to be prevalent in both mediums. That being said, there are still aspects that clearly differentiate the reading process of graphs and essays. The presentation of the context and conclusion are two of the aspects discussed in the paper, yet there are certainly many more aspects that weren't explored.

This study had limited pooling and sampling due to there being only two interviews; each being a different major. Additionally, while all the secondary sources related to either graphs or essays, none of them compared the two mediums directly. This leads to unanswered questions in. Does a difference in major heavily affect how you view graphs versus essays? How varying can the structures of graphs or essays be? With relatively little study on the process of reading graphs, another question comes about: Is there a clear and effective way to support what I am claiming, is my topic too opinionated? Have I conducted research that only reflects my own beliefs? With so many unanswered questions, I believe this study warrants more research that will lead to a solid conclusion.

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