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THE BALLAD OF THE LIBRARIAN & THE INFOGRAPHIC: A TALE OF DATA VISUALIZATION

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INTRODUCTION

Data visualization is the practice of taking unique data sets and putting the numbers into graphics to interpret them. In the spring of 2012, I was teaching a three-credit information literacy course at Murray State University, a mid-size university with around 10,000 FTE. The course was graded on a weighted point scale. Students had access to the course management system, Blackboard 9.0, and quizzes and assignments were submitted through it.

In place of a midterm exam, I gave my 21 students a project based on data visualization. The concept was relatively simple: students were given three sets of data from government and business resources such as the U.S. Census, American FactFinder, Standard and Poor's NetAdvantage, and Business Source Complete. All information was presented in the flat formats as distributed by the original source. The task before the students was to take the basic raw data and transform it into compelling visual infographics that still managed to convey the information within the original data sources. Students were given two weeks to complete the assigned project, and were encouraged to create their infographics using either physical print material, such as markers and poster board, or to turn the assignment in digitally through any program they deemed fit to make their graphic. The project would need to be able to be defended and the students would need to prepare notes to discuss the information during short presentations.

TEACHING THE CONCEPT

Of the 21 students, only a handful were initially aware of the concept of infographics. However, once examples were shown to them, many more realized that they had known what an infographic was all along, they had just not known the correct term. The introduction for the assignment involved viewing a brief video on YouTube which demonstrated how data visualization could change perception of information. Then the class was given infographics that had already been created by two biased news sources on similar information. The students were then asked to analyze the infographics to see what the primary differences between the two graphics were. Most students were able to immediately see the similarities between the two graphics. This brought about a lively class discussion about which information could be trusted and how to identify bias. Although students did not fall cleanly along typical political lines, this was an area on which to tread lightly, as many students felt strongly about the topic (gun control). Were I to do it again, I would most likely try to choose a topic that was less controversial. Students tended to veer away from identifying problems in the data. Instead, they presented their personal opinions about gun control. After the basic concept was explained to the students, many were still confused on how to actually create one of their own infographics and were looking for inspiration. The students were provided with a list of websites so that they could spend time researching the ideas that other people had used to create infographics, such as Information Is Beautiful, Visual.ly, and others.

RUBRIC

The assignment was based on a relatively small amount of points and broken into four main criteria for grading: creativity, timeliness, data accuracy, and citation (Table 1). Students were given three datasets culled from public resources to turn into visually unique infographics. Students had the option to source their own data and use that, but it had to be approved by the instructor beforehand. Most students chose the third pre-approved dataset, which dealt with electronics pricing from various vendors. Only one student came up with an independent dataset, but it was ultimately rejected for being too complex for the given timeframe.

Table 1: Infographic Rubric

Components	Total Points = 10 points	5 Points	0 Points
Creativity	Infographic is colorful and visually interesting. Displays understanding of the concept. 4 Points	Infographic displays information, but does not have visual appeal. 2 Points	Infographic displayed no creativity or was not completed. 0 Points
Timeliness	Assignment is turned in before the start of class on due date. 2 Points	Assignment is one week late. 1 point	Assignment is more than one week late or uncompleted. 0 Points
Data Accuracy	Data represented is presented correctly and without error. 2 Points	Data is mostly correctly represented but contains some errors. 1 Points	Data is incorrectly represented and/or not factual. 0 Points
Citation	All data is correctly cited in APA format. 2 points	Data citation contains some errors. 1 point.	No citations or citations completely incorrect. 0 points

As noted, the assignment was only worth 10 points. The primary reason for this was based on the fact that the idea for the assignment was conceived after the syllabus was created, and a need to maintain point value structure was already in place. However, future assignments will make the grading scale much higher due to the amount of time and work each student had to put into the project. Suggested grading scales should probably put it at the equivalent of a test or paper in terms of time and difficulty for the students.

Students were asked to create their own infographics in any visual media form they wanted. Most were drawn on posters, but a significant portion of them were done through a digital format either through PowerPoint or digital images that they placed up on their own blogs. Each student was asked to give a brief presentation to the class on their dataset and infographic, no longer than 5-10 minutes, explaining why and how they chose to depict their information as such.

RESULTS

On presentation day, all but two students presented infographics. It was an unusually rainy day and many students commented that they were afraid their posters would be ruined. With the exception of the two students who failed to turn in their assignments on the due date, all students received full marks for timeliness. The two biggest problems for students in terms of grading were in marks for creativity and data accuracy. Creativity proved to be a very tricky thing to judge, as these students were not taking an art class, and could not be judged solely by their artistic output. The other surprising thing to discover was the issue of data accuracy. Several students didn't have an issue with depicting the information, but they did have an issue with providing accurate keys and guides to understand how they were displaying their information. One student gave a presentation with several circles of varying sizes within each other to depict pricing, but failed to offer a measurable way to see what numbers these circles represented. Although it was clear that he had put work into the assignment, the ultimate result was that the infographic was unable to be interpreted because of the lack of a key. It was something that I had not considered when I was explaining the concept, as not all infographics require a key. This is something that will need to be better addressed in future classes.

Another major problem that led to leniency with grading was in the presentations. Many students lacked the vocabulary and in-depth knowledge to speak at length about their subject. This led to many fumbling speeches, and a heavy reliance on questioning from the instructor. I had tried to prevent this by giving them an overview beforehand on major topics of infographics, but although I succeeded in teaching the concepts and in teaching how to make infographics, many students could have benefitted from a basic statistics lesson at the bare minimum. Unfortunately, this was outside my range as an instructor, and it caused me to be lenient in grading such things, trying to keep in mind that this was a first attempt and not something done by a professional graphic designer. Presentations tended to be brief, and in the future, I would like to add a point scale to the rubric reflecting presentation skills.

On a surprising note, it was interesting to see that only a handful of students chose to present their projects in a digital format. Of the 18 final assignments actually received, only 3 of them were received electronically, and each was created in a different format. One student chose to create a PowerPoint presentation: using only a small set of slides, they managed to convey growth and trends of what they projected would happen to their dataset. A second student created a Wordle using words they had found from the general report, and then he overlaid his information from it. Wordle is a program which creates word clouds, and can be used to figure out the most prominent topic in a conversation. The last student was a graphic design student, and made an impressive tree structure to depict ranking and relation to products. Without a doubt the assignments submitted digitally were of a higher quality than those that were

handmade, displaying a better understanding of the project. However, the question as to why there were so few digital projects remains in my mind, because the print-based projects ranged in quality from very good to very bad, much like any other typical grade spread. There could have been miscommunication with many students feeling their only options were paper-based.

CONCLUSION

This assignment could greatly benefit from an extended timeframe for students to complete it, as well as a larger point scale so as to make the assignment less easily swayed by one missed section. In general, students put in the effort, but if they messed up even one part of the assignment, it factored heavily. That said, the infographics project received good reviews from students in the course evaluation at the end of the semester, with several students saying that it was one of their favorite projects in the class. Additionally, most students put a good deal of time and investment into their projects, reflecting that it had allowed them to look at information displays in a different light. Since it was a small class of only 21 students, this lesson needs to be repeated in order to determine the ideal methods for delivering this information. However, it increasingly seems clear that understanding numbers and datasets is just another part of information literacy which needs as much attention as other aspects. There is a real need for this type of lesson.

In the future, I would like to partner with a business school professor, either in economics or a related field, to create a semester-long project that could broaden the project and add more guidance for using statistics. Time constraints seemed to be the most common problem that students reported, so if the project had been stretched out over a semester, then students would have more of an opportunity to gather more from the class. One of the major benefits to the project was that students spoke of enjoying being able to create their own projects, and said that it let them think about the information in different ways than they otherwise would have. I suspect that this project would work particularly well for embedded librarians and those librarians who work closely with their faculty members, and know the needs of their students ahead of time. Students gained the ability to analyze, interpret, and read the data visualizations that surround them every day, and that is certainly a valuable life skill.