An Evolution of An Infographic

An Honors Thesis (HONR 499)

by

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ABSTRACT

Visual communication is a fundamental part of how today's culture receives information in alternative formats. Information graphics allow news consumers to view more visual, less written content for a higher degree of retention and usability. I was able to actively participate in data visualization and visual communication through my work with BSU at the Games and the Chicago Tribune for both the London 2012 and Sochi 2014 Olympics. The work I produced during both experiences allowed me to expand on my knowledge of information layering, visual communication and the design principles that allow information graphics to be successfully accepted by their viewers. BSU at the Games transformed my journalistic career and provided me with the skills I need to further dedicate my future to being a visual journalist.

ACKNOWLEDGMENTS

I would like to thank Professor Ryan Sparrow for advising me not only through my thesis, but through multiple projects during my time at Ball State. Without him, it would have been impossible for BSU at the Games to become the successful program it is today and I would not have had the life-changing opportunities I've had during my four years at this wonderful school.

I would like to thank the graphics staff at the Chicago Tribune, who truly taught me more about infographics and design in two weeks than I could have ever imagined possible. I'll always appreciate the mentorship our team received through their staff and be thankful because that experience transformed me into a better designer, illustrator, and most importantly, a better journalist.

I would also like to thank anyone else who was involved in BSU at the Games, especially the Chicago team that was made up of myself, Ellen Collier, Dylan Stone, Adam Baumgartner, Ross May, Stephanie Redding and Jessica Thompson. Working at the Tribune and living with such talented individuals for two weeks was a highlight of my time at Ball State and I'm so thankful for all the experiences we were able to share.
AN EVOLUTION OF AN INFOGRAPHIC

Information graphics have become an integral part of the journalistic world. Visual communication allows journalists to explain stories to their audience with a higher degree of comprehension and it’s become a necessity for journalistic outlets of all mediums to invest in graphics reporting. In today’s fast-paced culture, people react strongly to tightly-worded information laid out in a highly visual format. With the ever-increasing technological advances, information graphics can be viewed on all different forms of media platforms, including print, Web, tablets and television. However, whatever the platform, all information graphics should focus on the same thing: relating information that may not have been able to be perceived through traditional forms of journalistic storytelling.

HOW IS VISUAL COMMUNICATION PERCEIVED?

To create a successful information graphic, one must remember that it’s necessary for the information to be understandable and accessible. The difference between a piece of art and visual communication within a journalistic field is the ability for the audience to clearly grasp what the journalist is conveying. In Jorge Frascara’s essay, “Graphic Design: Fine Art or Social Science,” he writes “This is the real measure of the performance of any and every piece of graphic design and the proof that graphic design cannot be understood in isolation but only within a communication context (Frascara, 28).” It’s important to remember that information graphics are a language: although the concept may not be communicated through words, the visual aspects of a piece needs to tell an accurate story that the audience can comprehend.

Information graphics are a successful form of communication because they have the ability to use the audience’s visual and literal regions of the brain. According to Connie Malamed, author of “Visual Language for Designers,” cognitive science explains how people perceive information graphics. Cognitive science, the study of how people think and learn, depends on a model known as the human information-processing system to show how people’s surroundings and visual cues are stored into meaningful information.

A human being’s information-processing system has three main memory structures: sensory memory, working memory and long-term memory. Raw sensory data is registered in the sensory memory whenever visual cues are perceived by the eye. When a brain becomes aware of the data, it transfers to the working memory and, if relevant enough to the viewer, that information is stored in the long-term memory as a new thing the person has learned.

Because people perceive information as active participants, their visual awareness is driven by two different processes: bottom-up processing and top-down processing. Bottom-up visual processing
is considered to be visual awareness that is driven by an external stimulus whereas top-down processing is awareness that’s influenced by memories, expectations and intentions. It’s important for information graphics to be able to tap into these processes to create a learning environment and recognition within their audience. In order for content to be stored within the long-term memory of the brain and go into permanent storage, it’s necessary for the visual communication to be easily accessed by the audience’s brain. According to Malamed, the combination of a visual element with text helps the audience remember information better. She states, “Associating graphics with text can improve information recall. Placing pictures together with words also allows information to form connections, creating a larger network of schemas (Malamed, 36).” It is because of this success that information graphics have been around for so long.

HISTORY OF INFORMATION GRAPHICS

Cognitive science factually shows the success of humans reactions to information graphics and history reiterates those facts through examples of visual communication from earlier times. In Jennifer George-Palilonis’ book “A Practical Guide to Graphics Reporting,” she notes that visual imagery has been a strong form on communication for centuries. Dating back to 3800 B.C., Assyrian maps etched into clay tablets provided basic communication and comprehension skills. In places of ancient culture, like China, Egypt and Mesopotamia, a very basic form of iconic imaging systems were formed to further serve as communication tools. Later, these systems evolved into alphabets and language systems.

While George-Palilonis states that information graphics have always been a part of civilized culture, she notes the Renaissance and ages of Enlightenment and Reason as factors in the more complex forms of visual communication. She writes that “as human knowledge evolved, so did the use of maps, charts and diagrams as a method for recording important scientific, economic and social data, and later, as a method for communicating important information related to news and current events to the masses (George-Palilonis, 4).” An example of this transformation of factual data to visual representation was shown by William Playfair in 1786. Playfair published The Commercial Political Atlas, a publication consisting of 44 statistical charts, including what could be considered among the first of bar charts to represent imports and exports. Although simple, this beginning of data visualization provided a starting point to the complex information graphics in the world today.

With the technological advances of today’s culture, the visual impact of information graphics have vastly improved since the first bar chart. George-Palilonis notes that visual reporting became most relevant in the journalism industry in the early 1980s with the development of Mac computers.
Although publishing companies had been using automated typesetting since the invention of the linotype machine in 1886, the age of computers allowed designers and visual journalists to exist more functionally and effectively through the technological advancements. With computers, visual communicators were able to focus on their work with quicker results and the programs developed allowed them to create more complex information graphics on tighter deadlines (George-Palilonis, 4-6). While these new programs and technologies helped visual journalists complete more work, it also challenged them to stay true to the principles of design that had been in place since the beginning of visual communication.

THE SEVEN BASIC DESIGN PRINCIPLES

There are specific elements that make visual communication more appealing and easier for the audience to comprehend. Known as the seven basic design principles, most visual journalists follow them to create strong visual pieces. The seven basic design principles apply to design on all platforms and help information be shown in a clearer format. According to George-Palilonis, the following are the seven principles all designers should consider conceptualizing so that their work is fundamentally sound:

**BALANCE**

Ultimately, balance is focused on a graphics equilibrium levels. Every element in a design has visual weight and each specific item needs to be set up so that they’re in an accurate relation with each other. The weight of each item in the graphic should make sense both visually and informationally.

There are two different types of balance: symmetrical and asymmetrical. Symmetrical balance is best explained as if someone metaphorically folded the design in half. If both sides of the design appear to be identical in weight, that design should be considered symmetrical. Alternatively, asymmetrical balance would be if the information graphic is folded in half, yet the sides are not identical. Despite their difference, asymmetrical designs should still have a somewhat equal weight to effectively appeal visually to the audience. According to George-Palilonis, “Asymmetrical balance is commonly used in the composition of information graphics, because it generates a sense of movement and helps guide the eye through the information in an extremely rhythmic manner (George-Palilonis, 85).”

**PROPORTION**

Information graphics use proportion in their design to effectively show the audience what items are the most important through hierarchy. Each element of a design relatively relies on the other
ones: if an element is large, it is considered large because of what other elements surround it. To communicate effectively, items that are larger and therefore, have more emphasis will attract the audience faster than a smaller item, allowing it to establish its dominance in the visual hierarchy. Proportion can be accomplished effectively in a multitude of ways, including size, shape and tone.

**CONTRAST**

By using contrast, an information graphic has the ability to create hierarchy, emphasize what information is the most important and control the audience’s eye movements across the graphic. This is achieved because the eye distinctly notices changes in visual contrast. In “Visual Language for Designers,” Malamed states that “Our eyes must repeatedly move to keep the object of most interest imaged... These rapid eye movements allow us to select what we attend to in the visual world (Malamed, 23).” It’s easier for the audience’s eyes to get caught up in contrasting elements, making the information more likely to be remembered.

Contrast can be performed by varying the size and shape of elements, changing weights in typography or using different colors. All options allow the communication of the graphic to stay away from too much repetitiveness and obtain a higher visual appeal.

**HARMONY**

As important as contrast is, it’s also important that an information graphic practices harmony. Harmony makes sure that all the individual elements on the design are cohesive. This can be shown through type faces working well together, color schemes matching and using a similar layout for shapes throughout the piece.

**RHYTHM**

George-Palilonis refers to rhythm as the principle that is “the combination and arrangement of elements that moves your eyes through a graphic presentation (George-Palilonis, 88).” The importance of this principle should not be overlooked: by repeating patterns, alternative contrasting elements and placing items in a progression, visual journalists make sure that all elements of the graphic are visible and effectively placed. Rhythm is generally modeled after the audience’s natural eye movement from left-to-right and top-to-bottom. When information graphics follow this pattern, it usually creates a visual z-pattern that allows the audience to view the information in a comfortable and familiar way.

**FOCUS**

Every information graphic must have a dominant element: it should be the most important element on the page and the item that grabs the audience’s attention immediately upon viewing. By having a
dominant element, the visual journalist is showing the audience what the most important information is as well as giving them a focal starting point. Instead of using words, the designer is using graphical elements to speak the language of what is important and that focus is a necessity within visual communication.

**UNITY**

While unity can sound very similar to harmony, it actually refers to the cohesiveness of an entire publication. Whereas harmony makes sure that elements of a specific graphic work well together, unity follows that a step further and makes sure that the entire publication is using cohesive colors, fonts, grid systems and a general style.

All of the basic design principles can be enacted on an information graphic to support the audience’s visual cues for what they are meant to comprehend. In an interview with Design Consultant Ron Reason, he states the importance of using design principles when he says “The more complex a graphic becomes... The more important good design becomes. The arrangement and sizing of elements becomes critical to the understanding of information. Perhaps even more so than good page design in general, information graphics absolutely rely on cleanliness (George-Pallionis, 96).” Ball State’s Journalism program does a great job at relaying the importance of utilizing the design principles and I believe the final culmination of those skills for me were shown through my work with BSU at the Games.

**BSU AT THE GAMES**

BSU at the Games is part of Ball State’s immersive learning initiative and a program that I consider to be among my greatest professional accomplishments. In 2012, I traveled to London with a team of 40 student journalists and created on-site data analysis information graphics for the Chicago Tribune. During the three weeks we were there working, I was able to develop more confidence in my work as well as a stronger journalistic skill-set, so when I heard news that BSU at the Games was sending a graphics team to Chicago for the Sochi Olympics, I jumped at the opportunity. I once again was able to gain valuable career experience and immerse myself within a visual communications culture.

For me, BSU at the Games was a culmination of all the skills I’ve learned through Ball State’s journalism graphics program. I wasn’t only focused on the design principles and visual hierarchy: I became a better communicator and strengthened my reporting, interviewing and graphical comprehension skills.

While I was lucky enough to have multiple pieces run in the Chicago Tribune for both the London
2012 Olympics and Sochi 2014, the piece I’d like to explain for my thesis is the “Evolution of Figure Skating.” Along with another Ball State student, Ellen Collier, I was responsible for the research, interviewing, reporting and content decisions as well as all design aspects. In a step-by-step process of the evolution of our graphic, I can show how we made specific choices throughout the piece that allowed the final product to accurately and efficiently visually communicate our information.

**EVOLUTION OF FIGURE SKATING**

When the seven of us from the graphics team for BSU at the Games traveled to Chicago for those two weeks during the Sochi Olympics, we were assigned specific graphics as well as a mentor from the Tribune's graphics staff. For “The Evolution of Figure Skating,” Ellen and I were assigned Kori Rudmore, who was absolutely wonderful in letting us take charge of the graphic. We were able to do all of the research, interviewing, transcribing, reporting, writing and laying out the information graphic by ourselves. Kori was very good about giving us direction when it came to all the elements of the information graphic, especially data visualization and visual appeal. The following are early drafts of our work, which I’ll go through in detail to show how they didn’t necessarily follow the seven basic design principles and why our final product was so much more visually successful in both design and comprehension.
DRAFT ONE:

Going into the graphic, we knew that we wanted to play up the visual elements of the figure skater's costumes as well as show information in a multitude of ways. The Chicago Tribune is known for including a lot of information layering, so that's what Ellen and I were trying to do by including facts about fashion, technique and the medal winners for each decade. Although our graphic is essentially a timeline, early drafts of it do not show that well. In this first draft, we were trying to hard to focus visually on the photos rather than the information. This approach led the actual content of the graphic to be overlooked. Whereas the photos in the middle are large and attract attention, the art around the actual content are all similar sizes, showing that the proportion and focus of the page was off. While there was a dominant element in the page, it was not visually communicating effectively or making the information graphic comprehensible.
Olympic figure skating through the years

Olympic figure skating adds to the Winter Olympics competition in the 2014 Sochi Games, one of many significant changes made over the years in the Winter Olympic sport. What was once an outdoor competition judged mostly by live spectators is now an indoor spectacle of light and athletic jumps.

2019s: The year 2019 is added to the 2014 Olympic Games.

Fashion: The gold medalist skaters are dressed in an Olympic-style suit with different patterns and shapes. The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

MEDAL WINNERS
- Gold: Sonja Henie, NOR
- Silver: Gail United States
- Bronze: Gail United States

Women's medals by country

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2018s: The year 2018 is added to the 2014 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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2017s: The year 2017 is added to the 2014 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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2016s: The year 2016 is added to the 2014 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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2015s: The year 2015 is added to the 2014 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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2014s: The year 2014 is added to the 2014 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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1970s: The year 1970 is added to the 1966 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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1960s: The year 1960 is added to the 1955 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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1950s: The year 1950 is added to the 1945 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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1940s: The year 1940 is added to the 1935 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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1930s: The year 1930 is added to the 1925 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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1920s: The year 1920 is added to the 1915 Olympic Games.

Fashion: The gold medalist skaters are dressed in a gold suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit. The silver medalist skaters are dressed in a silver suit. The bronze medalist skaters are dressed in a bronze suit.

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An interesting thing to note in this draft is the graph at the top. Essentially, we wanted to show which country had won the most gold medals in figure skating. While the graphic technically does its' job in relating that fact, the style is not unified and looks out of place within the information graphic, causing it to lose any pull with the audience.
Olympic figure skating through the years

1920s

Nina Devka, USSR
Medals: Silver, Bronze

Historical Context: The first Winter Games were held without a Winter Olympics label, and figure skating was one of the few sports that could be performed on ice rinks.

1930s

1936 Lake Placid 1980 Winter Olympics
Medals: Silver, Bronze

The 1936 Winter Games were held in Lake Placid, US, and the event featured athletes from various countries, including the United States, Canada, and Britain.

1940s

1948 Garmisch
Medals: Bronze, Silver

The 1948 Winter Games were held in Garmisch-Partenkirchen, Germany, and this event marked the first time that women's figure skating was included in the Olympic program.

1950s

1959 St. Moritz
Medals: Silver, Bronze

The 1959 Winter Games were held in St. Moritz, Switzerland, and this event saw the introduction of new rule changes for figure skating.

1960s

1970 Grenoble
Medals: Bronze, Silver

The 1970 Winter Games were held in Grenoble, France, and this event featured a new format for figure skating competitions.

1976 Innsbruck
Medals: Gold, Silver

The 1976 Winter Games were held in Innsbruck, Austria, and this event saw a new category for women's figure skating.

1980s

1988 Calgary
Medals: Silver, Bronze

The 1988 Winter Games were held in Calgary, Canada, and this event featured a new format for figure skating competitions.

1990s

1994 Lillehammer
Medals: Gold, Silver

The 1994 Winter Games were held in Lillehammer, Norway, and this event featured a new category for women's figure skating.

2000s

2006 Turin
Medals: Gold, Bronze

The 2006 Winter Games were held in Turin, Italy, and this event featured a new competition format for figure skating.

2010s

2014 Sochi
Medals: Silver, Bronze

The 2014 Winter Games were held in Sochi, Russia, and this event featured a new category for women's figure skating.

2020s

2022 Beijing
Medals: Gold, Bronze

The 2022 Winter Games were held in Beijing, China, and this event featured a new competition format for figure skating.

Because of the issue of having too much of a dominant element in the last draft, we attempted to scale down the size of the middle focal point while simultaneously enlarging the photos next to the decades. Unfortunately, this caused us to once again run into the same issue of proportionality, though perhaps on the opposite side of the spectrum. The basic theory of proportion is design that is that the elements work off of each other. If they’re all the same size, then nothing can be considered big and nothing can be considered small. With all of these photos being the same size, it’s impossible for their to be any contrast within the information graphic and once again, causes the actual content to be lost among the distracting photos. The eye is so confused as to which photo to look at that focusing on the actual text seems almost impossible.

We also got rid of the chart, which added information layering, so it took away that additional element.
Olympic figure skating through the years

This is the draft where we really tried to formulate how we wanted our information to be visually communicated. Previously, the graphic did not look like a timeline, so we attempted that approach, subdividing the sections into fashion, icons and techniques throughout each decade. Instead of having the flags directly underneath the headlines for the decade, we placed them vertically along the right side of the page to add some sort of structure to the timeline. The new structure allowed the page to have more rhythm than the previous and confusion juxtapositions in the last drafts. However, even though the page seems more structured, we were still struggling with proportionality and contrasting of sizes.

While still very rough in consideration of the Chicago Tribune's alternative story form standards, I think that this was more visually appealing and easily communicable version that we'd had thus far.

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<thead>
<tr>
<th>FASHION</th>
<th>ICONS</th>
<th>TECHNIQUES</th>
</tr>
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<tr>
<td>Athletes competed in light and flowing garments.</td>
<td>Gold figures were awarded more often than in any other winter sport.</td>
<td>Jumping originally didn't rotate, and instead the Skaters moved up and down the same spot.</td>
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<td>Skirts became more elaborate and were paired with elaborate headpieces.</td>
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**Olympic figure skating through the years**

A weakness of the last draft was that the lines going from each of the decades weren't uniform: instead of being straight across or holding the same angle, they were stair-step, making the eye work harder to get to the information. Because the main goal of information graphics is to communicate visually and effectively, we opted for straight lines instead to give the graphic a cleaner look.

It's important to note here that the most drastic change we made from this draft to the previous was within the flags and the addition of a medals chart. In the previous draft, the page lacked balance: there was so much type in the flags, which was ultimately taking away from the important content about fashion, icons and techniques of figure skating. Instead, we made the graphic more visual by deleting the names of the winners and highlighting their flags as well as remaking the chart that was previously shown in the form of a bar graph.
DRAFT SIX:
Whereas previous drafts lacked balance, this draft has perhaps too much balance. By moving the decade titles to the left, yet keeping them approximately the same size as the flags and medals chart, the page looks too symmetrical and very gridlike. At the same time, the lack of white space is overwhelming: the flags are cluttered to the point that they are almost unrecognizable and the medals chart is difficult to comprehend. At the same time, we transferred from the straight line approach from the flags to the numbers back to the stair-step method, which I think makes the eye work more and isn’t as appealing or clean.

I think that the biggest thing we realized we needed to change in this draft was the medals chart. We’d already transferred from a bar chart to this method, but we discovered that this wasn’t the best way to communicate the information due to the vast medals the U.S. had won in comparison to the rest of the countries.

### Olympic figure skating through the years

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DRAFT SEVEN:
In order to break up the balance of the page, we tried putting tinted boxes around the decades. However, this effected the graphic’s unity: the color scheme of tan and blue really didn’t match the rest of the piece and looked out of place. However, we were able to start fixing the line situation: by having the lines angle upwards from the flags, then all go straight across, the rhythm of the page was easier to follow and led to all the information we wanted to audience to consume.

The reason we were able to switch to those straight lines is because we decided to change up the flags. By changing the shape of them, it added to the harmony of the piece and allowed the graphic to become more synchronized. While a lot of the photos are still the same size, the contrast within the different elements allow the eye to be directed more smoothly to the information and achieves the accurate communication we were searching for.
FINAL:

All of our drafts culminated into this final product, the information graphic I worked on that I am most proud of during my time at Ball State. Through all the drafts, we discovered what worked successfully in ways to communicate and what actually made the content suffer. The medals chart on the top is a good example of how the same information can be shown in different ways, but one is more visually effective. From the first bar chart to the medal representations, we tried presenting the information both horizontally and vertically, but found that it was easier communicated through a horizontal layout. Interestingly, the flags basically show the same information, but in a different way. We decided to highlight anytime the U.S. flag was represented in the winners and although the two graphs show the same information, they are presented and visually communicated to adhere to different perceptions of the audience’s understanding of the information graphic.
REFLECTION

My work with BSU at the Games and the Chicago Tribune completely changed the way I look at information graphics and how to visually present information. I think that the most interesting part of the experience was being able to see how much my work had progressed from the London Olympics my sophomore year of college to my final semester for Sochi 2014. Not only were my design skill sets stronger, but I also felt more confident in collecting information, conducting research and interviews and developing relationships with professionals in the industry whom were able to better my visual communication skills and strengthen my knowledge about design principles.

The experience I had with BSU at the Games allowed me to feel comfortable and confident in my abilities as a journalist. I’ve been able to talk about my work in multiple job interviews and am happy to say that after graduation, I will be completely a six-month design residency with the Boston Globe. I believe that I was chosen for the position because BSU at the Games has proven to be a professional program that allows Ball State students to expand on their journalistic talents and I’m thankful that I’m able to further develop my knowledge of design principles and information graphics after college. BSU at the Games made me a better designer and journalist and I know that it has impacted my future for the better.
WORKS CITED

Collier, Ellen; Prandato, Jennifer; Rudimore, Kori. Evolution of Women's Figure Skating. Chicago Tribune, 2014. Print.

