What is the approach to ethical literacy and data visualization suggested by the readings in this module?

Discuss how the approach would play out in the area of expertise you chose for this master in analytics program by answering the following questions.

* How to be proactive and notice the inappropriate patterns.
* Could the unethical behaviors have been avoided? If yes, how?
* Do unethical behaviors impact decisions or presentations of data?

﻿﻿﻿﻿﻿﻿﻿﻿Visualizations are tools to ﻿﻿﻿﻿﻿engineer data that could tell stories with clarity and efficiency. ﻿﻿﻿﻿﻿﻿﻿﻿﻿With superior power, ethical literacy becomes a discipline, known as Learning Analytics and Knowledge (LAK) (Swenson, 2014). In the first reading material (Esteban, 2015) of this module, there are 5 kinds of cheating charts listed to help us notice the inappropriate patterns, such as breaking the Y scale to begin at a higher point rather than 0 to generate a dramatic view or an unfair comparison. Or to combine two lines of a similar trend in one chart that actually have no correlation in between. to be familiar with these tricks would help us to spot the unethical.

When we become an author of visualizations, there are two points that we could be aware of avoiding unethical behaviors. First, choose data diligently. When citing data from other articles, or paper, or website, make sure to proactively check the data source. There is an example from the third article, 'Ethical Infographics' (Cairo, 2014). Reporting kidnapping in Nigeria, the author used the data of news stories rather than police reports. No matter how they design the graphs later, they would be able to communicate the real information with their audience. Second, find out the best graphs. Again, this is a matter of clarity and efficiency. There are 12 different types of visual listed in 'Storytelling with Data' (Knaflic, 2015). Or find out similar topics on the internet. We would need to build up our experience by reading reports to improve ourselves.

Unethical behaviors may or may not be intentional. We always need to make moral choices, be careful of the data source and graphic method. Visualizations have the power to mislead, confuse, and obfuscate audience. One example would be global warming. Refer to the chart set blow. On the left-hand side, we could see that the global air temperature has declined from 1998 to 2012. This is misleading. Because the temperature was highly affected by El Nino in 1998. When we extend the rage of observing years from 1980 to 2012, as we see from the middle chart, there is an inclining trend. Then we extend further from 1900, we get the chart on the right-hand side.

Reference:

Esteban, C. (June 19, 2015). *A quick guide to Spotting Graphics That lie*. Retrieved from <https://www.nationalgeographic.com/news/2015/06/150619-data-points-five-ways-to-lie-with-charts/>

Swenson, J. (March, 2014). *Establishing an Ethical Literacy for Learning Analytics*. Retrieved from <https://dl-acm-org.ezproxy.neu.edu/doi/pdf/10.1145/2567574.2567613>

Cairo, A. (Spring 2014). *Ethical Infographics*. Retrieved from <http://www.thefunctionalart.com/2014/06/infographics-data-and-visualization.html>

Lebied, M. (Aug 08, 2018). *Misleading Statistics Examples*. Retrieved from <https://www.datapine.com/blog/misleading-statistics-and-data/>