

"The Big Picture" by Geoff West depicts how data science can be used as a tool to benefit our understanding of human development and behavior. Early in the reading, West shows a graph of the average number of patents in cities with different population totals. This graph produced a positive and linear relationship, which shows that as population increases, the number of patents increases as well. He also uses a graph of the average number of heartbeats per lifetime for different mammals, which had a linear relationship with no slope. This helped to show West that most mammals have about the same average number of heartbeats in their lifetime. West depicts that "Scaling plays a critical role in the design of increasingly large human-engineered artifacts and machines" (16). When people are designing their building, they need to take into account that their model is not the same size as the actual building. By using scaling, we are able to determine any changes that need to be made when we enlarge the area or population, helping us understand the actions that are necessary to become successful. By using scaling, West is able to determine whether or not the data has a relationship. If the data is linear, then we can determine that there is a correlation between the two data sets. If it is nonlinear or seemingly random, then there is no correlation. West also mentions that the use of big data can also have a huge impact on our knowledge of human development. "The number of networked devices in the world is now more than double that of the entire global population and the total screen area of all such

devices is now larger than one square foot per person" (440). As the amount of networked devices increases, the amount of data they provide increases as well. This means that big data has more importance now than in the past, and it will continue to grow in the future. Even though big data is important, West warns that it can only prove theories correct if used correctly. West uses the example of medicine to show that even though the data shows a correlation, it doesn't always mean that there is a causation. For example, raising the levels of HDL in the body did not improve cardiovascular health because "other factors such as genes, diet, and exercise simultaneously affect both HDL levels and the incidence of heart attacks" (441). This shows that even though there was a strong relationship between HDL levels and cardiovascular health, there were actually other actions that had positive impacts on our health. While big data can be very useful, West warns that it is important that we use it correctly and understand the data, otherwise it will not have any impact on our studies.