Essential Employability Skill #3: Quantitative Reasoning

Jamie-Marie Miller, Eastern Kentucky University

Quantitative reasoning helps individuals analyze and solve numerical problems, provide solutions guided by data, and select the best methodologies for arriving at informed conclusions. Data literacy is the foundation for quantitative reasoning; it requires two approaches. First, individuals must possess the ability to examine data in a variety of representations (e.g., tables, various graphs, written explanations) and determine if the information is reasonable and the means of obtaining the data is reliable. Secondly, individuals should be able to analyze the meaning of the data and use it to create support for their recommendations or understand the position of others.

Why is *quantitative reasoning* important?

While the Internet has provided a great opportunity to share information, it has also opened the door for a proliferation of questionable data. Whether on the Internet to work or to enjoy some time on social media, individuals see results from polls and other data sources daily. Often employers note that individuals do not know how to read or critically reason with or about data. Many careers use data collection and analysis to determine productivity and next steps to increase it. It is vitally important that individuals have a mindset to examine and use data appropriately.

What does attainment of *quantitative reasoning* skill look like?

Data Mindset

Belief that data can provide a picture of the productivity (or lack thereof). Individuals need to be comfortable with how reliable data is collected and reason with it. They must also be on the lookout for data that is not reliable or is improbable.

Data Know-How

Individuals understand the process of collecting reliable data and read various representations of data. Additionally, individuals must be able to create various reliable data representations and make decisions based on data to support or refute a claim they are making.
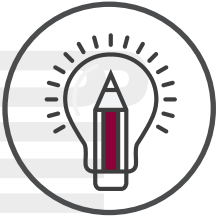
What are classroom practices for building the *quantitative reasoning* skill?

Courses need a variety of data representations for students to analyze and practice making data-informed decisions, and instructors should address what constitutes sound research methods and how they can lead to more reliable data. Instructors may also support students in their Internet research to help them understand where to find reliable sources of data and always have a mindful eye to data that is accurate or sound.

Reference

Data Literacy Project. (2022). The Seven Principles of Data Literacy.
https://thedataliteracyproject.org/wp-content/uploads/2022/06/ar-the-seven-principles-of-data-literacy-en.pdf