How People Evaluate Believability in Visualization of Data

Research-in-Progress

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Abstract

Believability is one of the major information quality dimensions that play a role in the operational fitness and sound decision making. This paper presents an empirical evaluation of how people perceive believability of data shown through visual and textual representations. Integration of text and images is also studied with respect to believability. The subjective assessment exhibits variation for different types of data sources: textual, image, and both. The manner in which believability varies appears to be heavily dependent on task. Some tasks are more believable when text is integrated with images, others do not benefit from the combination. Scientific data collected in the process of incubation of the bone cells with gold nanoparticles is selected for the study because it alleviates the effect of the accuracy dimension on the assessment of believability. The implication of these results is that, for subjective measures of believability, traditional statistical methods of assessing quality may need to be extended with additional methods to account for the non-linearity and the behavior of data integration. This study is a complement of two other studies related research on the human perception of Information Quality, and how the Information Quality dimensions are estimated for data shown through visual representations.

Keywords: Believability, Subjective Information Quality, Data Quality, Information Quality.