Usability Framework of Performance Dashboard: A Case Study

Researcher: Sean Howell
Advisor: Bih-Ru Lea (leabi@mst.edu)
Department of Business and Information Technology
Missouri University of Science and Technology, Rolla, Mo, 65409

Abstract

The purpose of this research is to determine the influential factors that impacts a user’s perceived effectiveness and usability of a performance dashboard. A dashboard is a multilayered application built on a Business Intelligence and Data Integration infrastructure that allows an entity to measure, monitor, and manage business processes more effectively. An effective dashboard utilizes visualization techniques to engage the user in data processing. The data used was collected from two surveys conducted on dashboard implementations. The first data set was from the COER Salary Dashboard and the second from the AASCB Accreditation Dashboard. User’s perceived effectiveness and usability was testing using several demographic variables (Gender, Student Status, and Dashboard Type). The analysis of the data supports that there are influential factors that impact a user’s perceived effectiveness and usability of a performance dashboard. These results give a better insight of how to provide a performance dashboard framework that is perceived as effective and easy to use by its users.

Reflections on the Learning Experience

Research in the field of Information Technology is done by reviewing the current research in the field. A topic chosen is based on current or emerging technologies. The goal of this research topic is to evolve on current research findings or to add new research to the field. After selecting a topic, literature review is conducted. The literature review process will provide you with information on your topic of research (history, components, resources, etc.) and current research findings on your topic. The next step is to collect data and then define research questions. Statistical analysis is to be performed on the data sets to test the research questions. The next step is to form hypotheses from the statistical analyses. Finally, you will test your hypotheses with more statistical analyses to see if they can be proven.

This research project has given me insight into all of the available resources on our campus. The library databases allowed me to gather the bulk of my sources. ABI/Inform, ACM, and Business Source Premier were the ones that I found the best resources in. Scopus was also a very valuable tool that allowed me to find the most reliable sources to cite. These library resources provided me with excellent journals, but I also used industry publications like Gartner and MIS Quarterly.

The experimental design process takes place after the literature review is complete. This process involves testing your research questions to form hypotheses. Once you have formed hypotheses, you do more iterations of statistical analysis to see if each hypothesis can be proven.

Proving the hypotheses involves statistical knowledge and interpretation. I have yet to take a statistics course in college, so I had very limited knowledge on how to interpret the results. I relied on my research advisor (Dr. Lea) to help me interpret the results. I was able to gain knowledge in different statistical methods and models. These included reliability statistics, multivariate tests (MANOVA & ANOVA), and descriptive statistics.