Impact of Design Challenges Upon the Development of Critical Thinking Skills Within an Undergraduate Image Manipulation Course: A Mixed Method Action Research Study

ABSTRACT

The overarching purpose of this study was to improve upon critical thinking through the use of scenario-based design challenge interventions. The study was conducted within an introductory graphic arts course in higher education that focused upon Adobe Photoshop and image manipulation tools, techniques, and terminology. Twelve introductory level graphic arts students participated in the study. In addition to scenario-based design challenge interventions, a reflective practice framework that used scaffolded questioning was developed to guide students in their use of critical thinking about image manipulations.

Through a mixed-methods action research design, the study explored the concepts of design challenge interventions and reflective practice in two ways. First, how do design challenge interventions impact achievement scores within an introductory image manipulation course. Second, how do design challenge interventions impact the development of critical thinking in introductory students.

One overarching research question and four supporting questions guided this study. Each question was developed to examine how these interventions improve upon a students’ transferrable knowledge and further connect and apply course objectives and goals with future careers. Qualitative and quantitative data collection techniques such as pre- and post-assessments, design challenge interventions, image manipulation projects, and semi-structured interviews were used.
The study revealed that knowledge was transferred throughout the study, yet a correlation between the design challenge interventions and image manipulation projects was not significantly detected. Analysis and evaluation of reflective statements produced during the design challenge interventions revealed that the students were applying prior knowledge and learned skills to their image manipulations. The semi-structured interviews also revealed that students were making connections between thinking critically about design and the basic image manipulation design processes.

The variability in findings and supporting themes suggest implications for a course improvement action plan, and future research and practice. To improve upon the course design, an action plan that updates the overarching course goals, inserts active learning strategies, and uses classroom assessment techniques to improve upon critical thinking and reflection is proposed. Further research supported by educators in graphic arts in the development of critical thinking and additional 21st century skill sets in graphic arts degree programs is suggested.

*Keywords:* Adobe Photoshop, critical thinking, design application, design challenge, graphic arts, image manipulation, reflective practice, 21st century skill sets