

Teaching Design Science by Incorporating Eye-Tracking Data into Undergraduate Visual Communication Design Studios

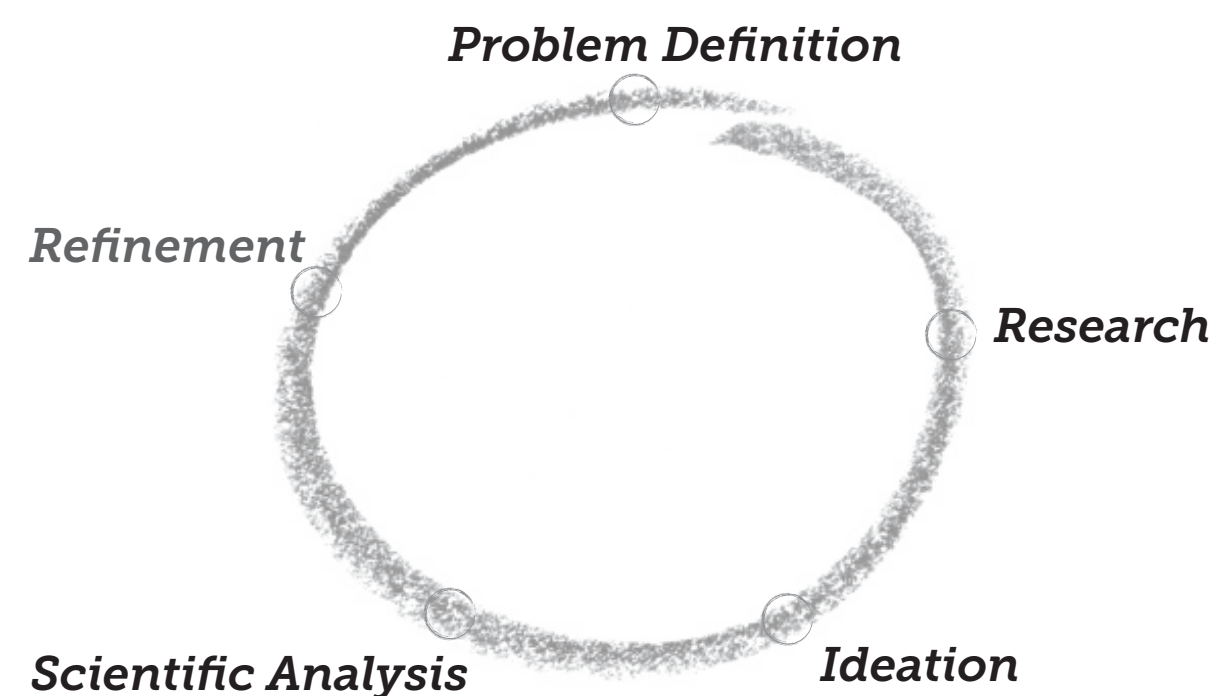
ABSTRACT

Design education, by broad definition, is the instruction of theory and application in the creation of products, services, and communications. Integral to design education is the process of studio critiques that incorporate educator comments and reactions to student work, in an attempt to educate future designers on making powerful design decisions. Studio critiques date back to the Master / Apprentice model, and remain remnants of the Bauhaus style in today's design education. While valuable, critiques often lack tangible substance that students can capture, process, and apply to future design problems. Design Education is subjective in nature; however, as educators we can look to the concept of Design "as" Science for direction in validating design decisions via the analysis of quantitative data. In validating design decisions and allowing scientific data to influence the iterative process, students gain a better understanding of design and ultimately execute more human-centric results.

This poster presents an applied Design Education Methodology via the case study model. This method is currently incorporated into the undergraduate Visual Communication Design education curriculum at Virginia Tech. The author incorporates both the SMI Red, and SMI ETGs (Eye-Tracking Glasses) into a range of studio based problems including web design and symbology.

METHODOLOGY

The presented educational methodology includes 5 phases: problem definition, research, ideation, scientific analysis, and refinement.



"How can I do this without freaking them out?"

Stereotype: designers + math = yuk!

1. PROBLEM DEFINITION

Shrouded Symbols Project



The hidden arrow in the FedEx logo.

This project asked students to create a corporate brand for the company Key Lime Interactive, while shrouding one of several items within the symbol:

1. A 'K' and 'L' letter form
2. Smiley face
3. Shape of a lime
4. Thought / talk bubble

2. RESEARCH

Keylime Interactive is a usability research and analysis corporation whose clients include large airlines, car insurance companies, health care, and the mobile banking industry.

Key Lime concentrates on technology, design, UI, Mobile UxD, and affiliated disciplines.

Students were asked to research the current forward facing ephemeral, competitors, cross discipline cognates, and symbology in general.

Additionally, students were asked to create a cache of design principles and adjectives associated with Key Lime.



3. IDEATION

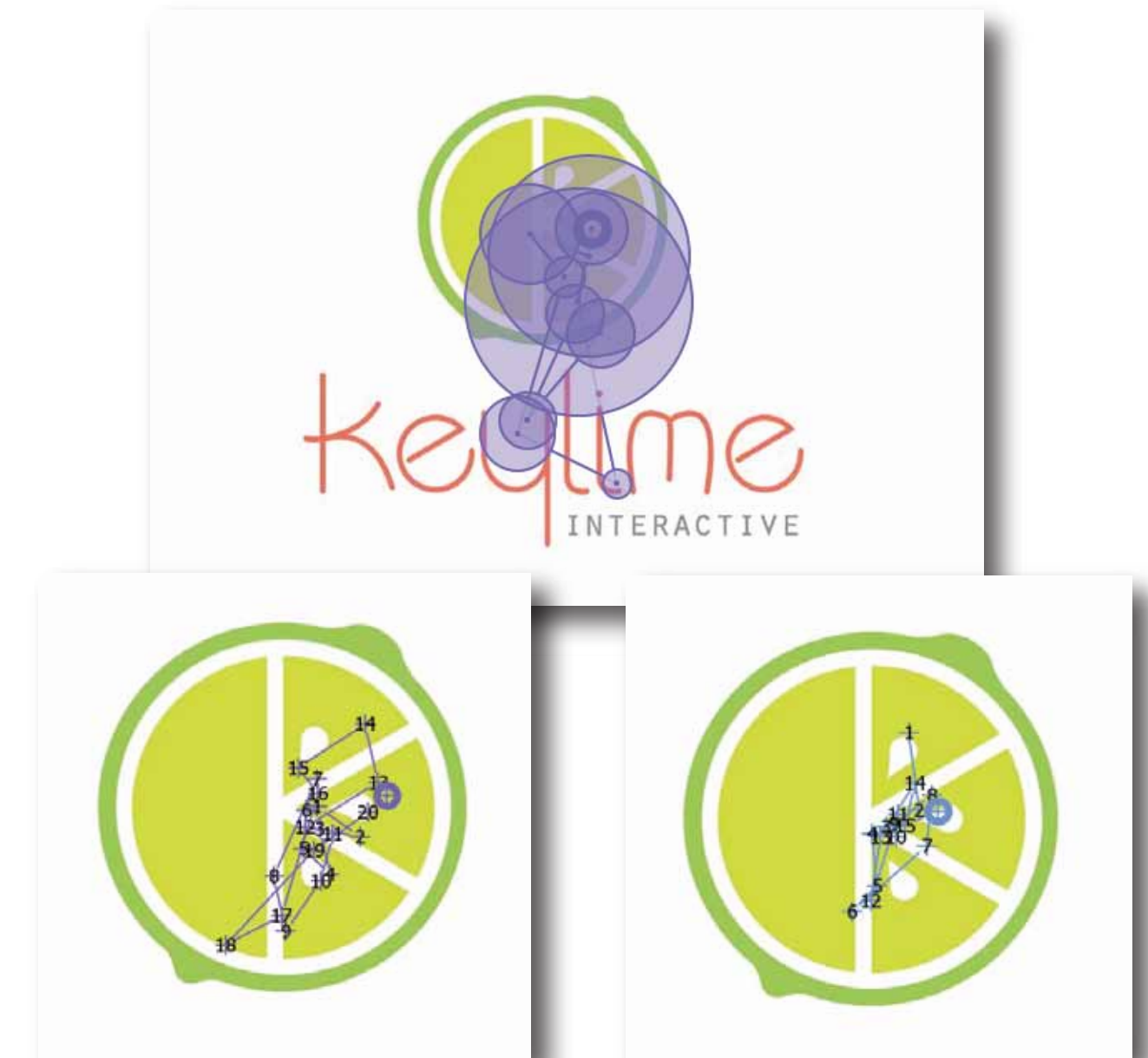


4. SCIENTIFIC ANALYSIS



Students were asked to complete a mathematical proportional analysis. This student chose the golden spiral to complete her analysis.

EYE-TRACKING DATA



Once students execute their initial solution, they proceed to the fourth phase of the educational methodology: scientific analysis and collect eye-tracking data from a medium sized usability sample (n <= 10). Students are then lead through a series of analytical exercises to extract actionable data, which in turn drive the final phase: refinement.

Eye-tracking data indicates participants were able to identify the hidden 'K' and abstracted 'L' glyphs inside the symbol and therefore indicate a successful design.

CONCLUSION

Out of a total studio course of 20 students, n=14 successfully shrouded one of the given elements in a symbol and validated this using eye-tracking data and usability testing.

Although students were initially apprehensive about the use of such technology in a design studio, they quickly became comfortable with the technology and procedures and were excited when analyzing the results.

Overall, I would say this design education methodology was successful given the number of individual successes as well as the implementation of mathematics evaluation and data analysis.