Maps, Videos, and Structures: Visualizing Structural Concepts through Media-Based Assignments

Marci Uihlein

University of Illinois at Urbana-Champaign, muihlein@illinois.edu

Follow this and additional works at: https://scholarworks.umass.edu/btes

Part of the Architecture Commons

Recommended Citation

DOI: https://doi.org/10.7275/48xp-rf93
Available at: https://scholarworks.umass.edu/btes/vol2019/iss1/44

This Abstract is brought to you for free and open access by ScholarWorks@UMass Amherst. It has been accepted for inclusion in Building Technology Educator's Society by an authorized editor of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.
Maps, Videos, and Structures: Visualizing Structural Concepts through Media-Based Assignments

Marci Uihlein
University of Illinois at Urbana-Champaign

Abstract

Within building technology educators in architectural education, there is a frequent exploration of structural pedagogy. How best can the theory of structural design be taught? Are calculations necessary, for example? What participatory learning assignments can guide architectural students to haptic and intuitive understandings of structure? This paper adds to this discussion by presenting two exercises designed to capture the imagination of students whose environment is saturated with Snapchat, data visualization, and Instagram.

The first assignment is a digital “term paper” for graduate students that examines earthquake design through an analysis with GIS and presenting a “Story Map” of an historic seismic event. Learning objectives for the class included:

- to understand how a building structure behaves in a seismic event,
- to gain the ability to determine and apply seismic loads,
- and, to understand the role of the built environment and design in seismic events.

The visualization of a seismic event encourages spatial thinking and understanding of scale as well as the impact of the selection of construction type on the local communities after an earthquake.

The second project is a version of “teaching the teacher” with undergraduate students authoring two-minute videos explaining one of the primary loads on a building — live, dead, snow, wind, or seismic. Learning objectives for the assignment are:

- to understand the types of loads on a building,
- and to increase students’ ability to visualize, problem-solve, and understand these demands.

Storyboarding, defining and redefining the load, filming, and editing allowed for students to use their creativity, narrative voice, and graphic skills in learning and conveying the subject material.

In both cases, students moved beyond the calculation, though did not leave the numbers completely behind. This presentation will share the assignment development, outline the support from campus units, show examples of student work, present lessons learned, and share reflections by students on the projects.

Keywords: Structures, Pedagogy, Participatory Learning, Visualization

Acknowledgements

Special thanks must be given to those who supported this work at the University of Illinois at Urbana-Champaign: James V. Whitacre, GIS Specialist, Library Commons and Robert Baird, Associate Director, Instructional Spaces & Technologies at the Center for Innovation in Teaching and Learning. Without their help, knowledge, and insights, none of this work could have happened.