Teaching Capstone Students to Reflect and Illustrate Design Skills and Experience through ePortfolios



Julie Ford and Destiny Crawford

Contact: Julie.ford@nmt.edu

To better prepare students to communicate preparedness to potential employers, we introduced ePortfolios within multiple design courses, asking students to create and submit annotated visual artifacts demonstrating engineering skills.

Annotated visual artifact submissions from 147 students were evaluated.

Scores	Intro to MENG (n = 51)	Junior Design (n = 47)	Senior Design (n = 49)
3	54.9%	61.7%	83.7%
2	29.4%	27.7%	16.3%
1	15.7%	10.6%	0%

We surveyed students and the majority considered ePortfolios a valuable tool.

"I decided to choose my capstone project since it showcases the most engineering design work and applied learning, which should hopefully be attractive to employers"

"It is incredibly important to document and catalogue the additions that you personally have made to your team projects."

"I chose two artifacts that I felt were my most significant contributions to my design team last year. They also displayed multiple engineering skills which I thought would be best."

Submissions were reviewed/scored based on a 3-point scale:

- 3 Effectively communicates engineering concepts or skills
- 2 Shows engineering concepts or skills somewhat, but lacking in clarity, and/or professionalism, and/or relevance
- 1 Deficient (incomplete—:didn't include annotation, or severely lacking in clarity, and/or professionalism, and/or relevance)

"This helped me put a past summer internship project into concise words, which I found was very difficult... my main takeaway was being able to concisely recollect my past work."

Based on our analysis of students' annotated artifacts, next year we will pilot a portfolio studio course as an extension to Capstone Design.

Lessons learned

from capstone

students' ePortfolio

submissions

Emphasis on effective style will include exercises focusing on sentence length and structure, verb choice, individual word choice.

Capstone students need additional instruction on writing style

Capstone students need more instruction on how to establish context and cater content to specific audiences

the personal narrative

focus on accommodating information to different audiences.

Class exercises will

Industry professionals will serve as reviewers of students' ePortfolio drafts.

students' ePortfolio drafts.

Self-reflection and goal-setting activities

Capstone students need in-depth instruction on writing

goal-setting activitie
will help students
craft a personal
narrative that
presents a clear
argument of their
skills and interests
evidenced by their
ePortfolio artifacts.

Students will be taught to write a preparedness statement as an argument. By choosing annotated artifacts that support this argument, students can learn to focus on their individual contributions within collaborative projects.

Capstone students need to be explicitly taught to communicate individual contributions to collaborative design projects

Acknowledgements This material is based upon work supported by NASA's Education Enhancement Grant program awarded through the New Mexico Space Grant Consortium, grant GR0006474. Opinions, findings, conclusions or recommendations expressed in this material are the authors' and do not necessarily reflect the views of NASA or the New Mexico Space Grant Consortium.