



A Multi-Pronged Approach to Embedded Assessment: Research and Evaluation in the GRADUATE Project

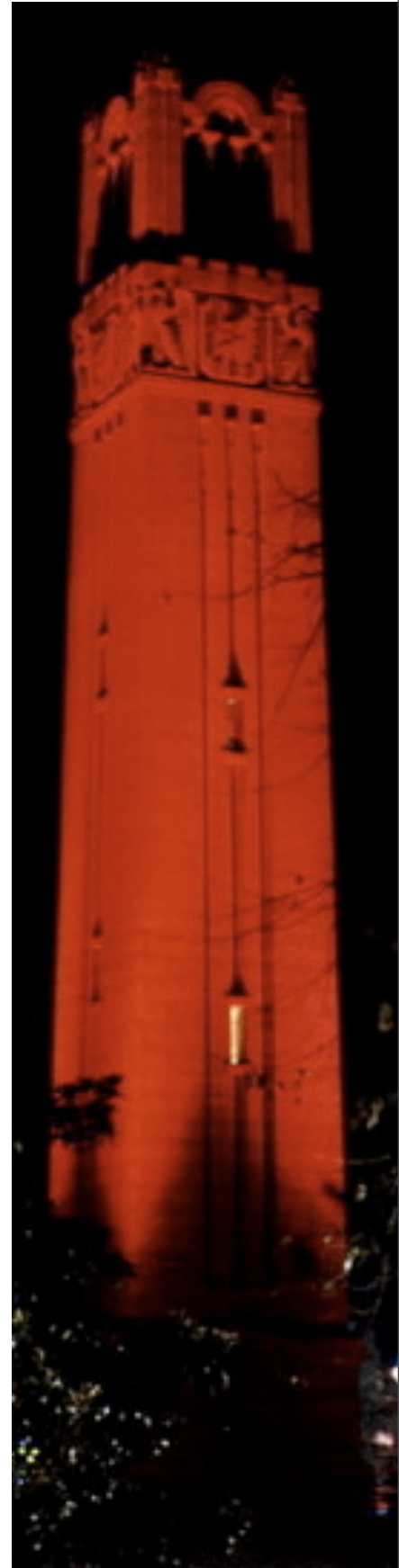
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GRADUATE

- Impact NC graduation requirement
- 4 P's
- Game based learning through construction
- Adventure Lab





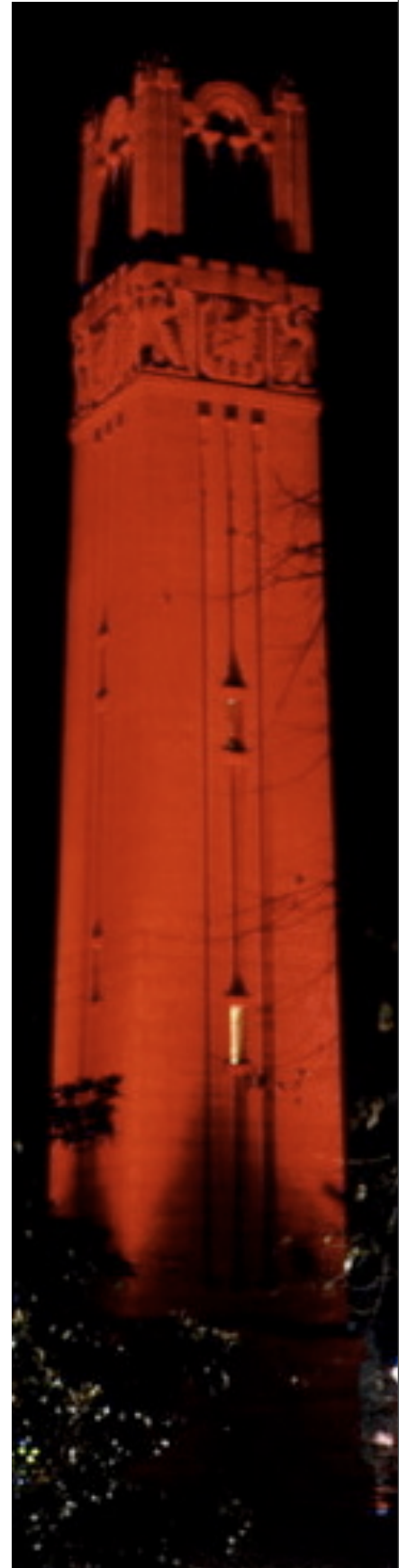
SUMMARY OF GRADUATE EVALUATION GOALS

★ Determine the extent to which the program:

- Prepares teachers to lead students in project-based learning
- Improves students' knowledge, skills, attitudes and interest in relevant careers

★ Document:

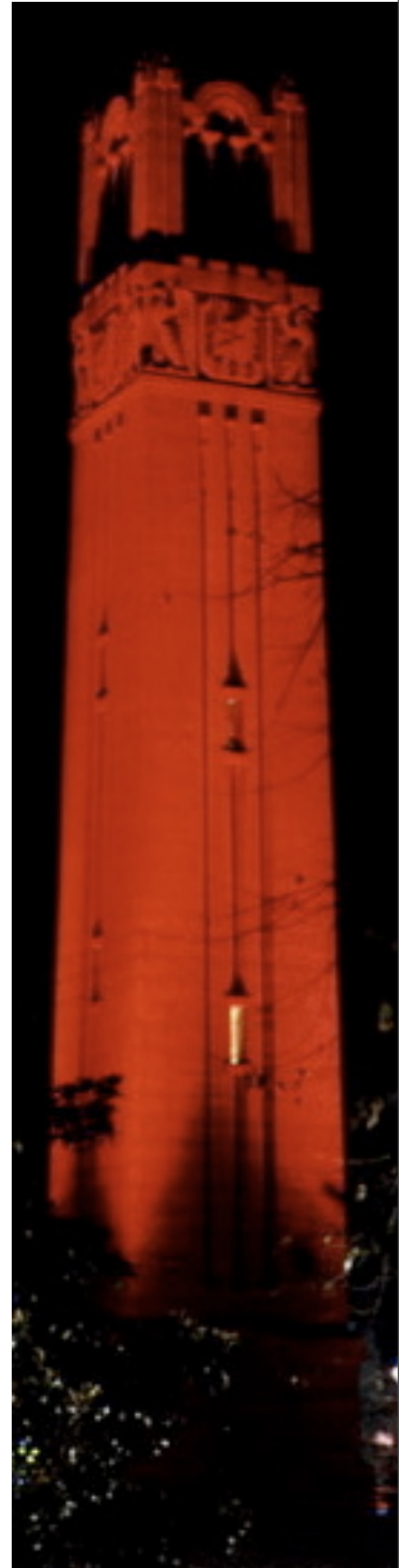
- Characteristics of student participants
- Students' differential success with graduation projects
- Ways in which student characteristics are related to student outcomes





SNAPSHOT OF GRADUATE METHODOLOGY

- Pre-post comparison group design
- Survey, assessment, observation, and embedded assessment measures
- Teachers and students
- Data will be used for both research and evaluation purposes

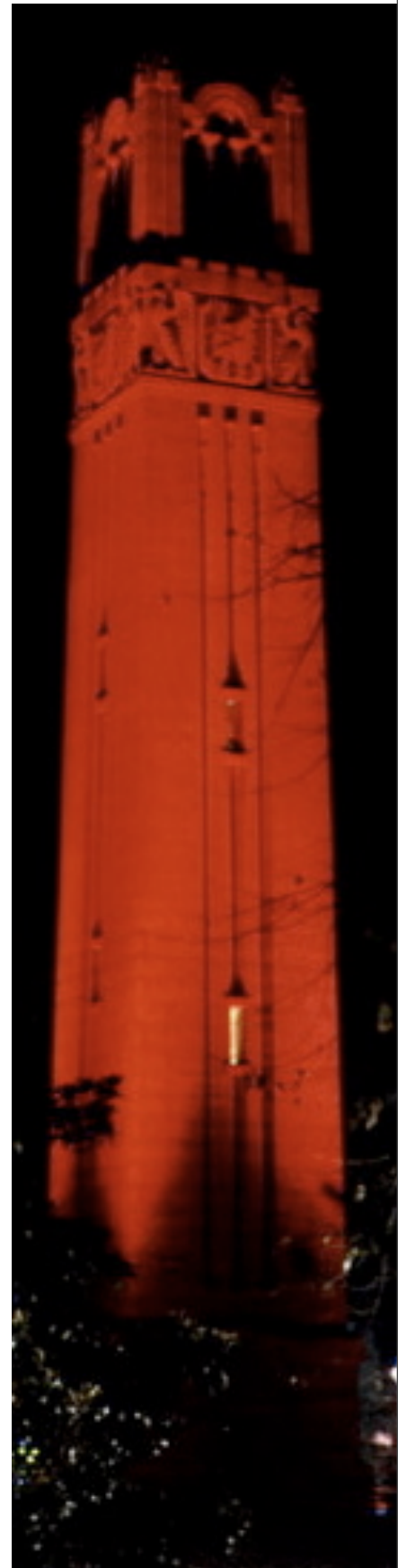




DOCUMENTING STUDENT CHARACTERISTICS

- Basic demographic characteristics
- Science attitudes and experiences
- Science and technology self-efficacy
- Use of technology and games
- Computer skills
- Mental rotation and visualization abilities
- Self-perceived strengths and weaknesses with 21st Century Skills
- Career Interests

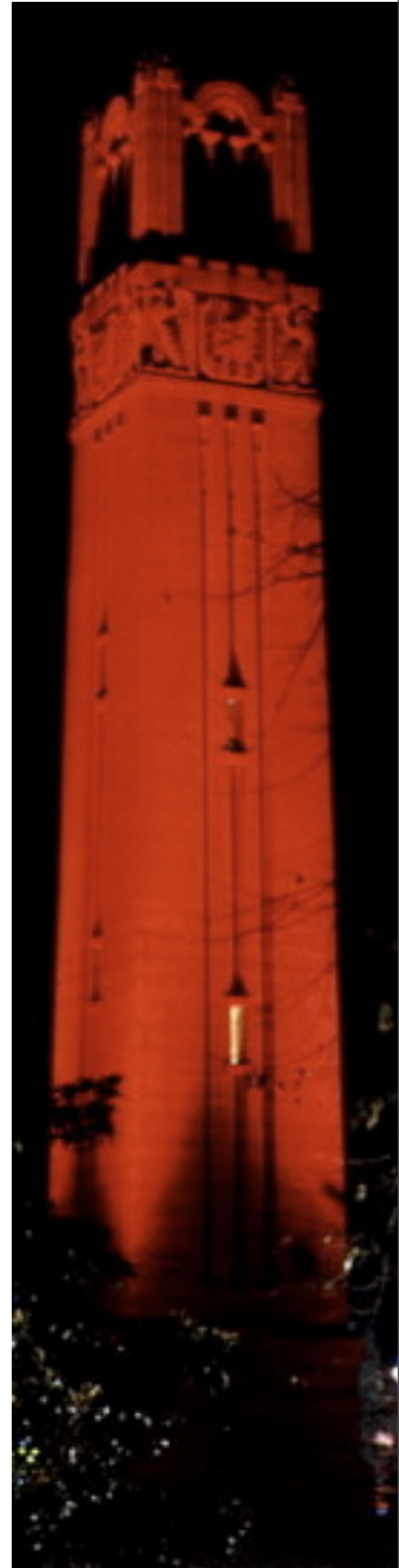
N=69 treatment and N=58 comparison group students





EXAMPLE OF RESEARCH WITHIN THE EVALUATION

- Research Question: How do spatial reasoning and mental rotation skills influence the quality of student Serious Game creation?
- Shepard & Paper Folding
- Correlate results to game rubric results

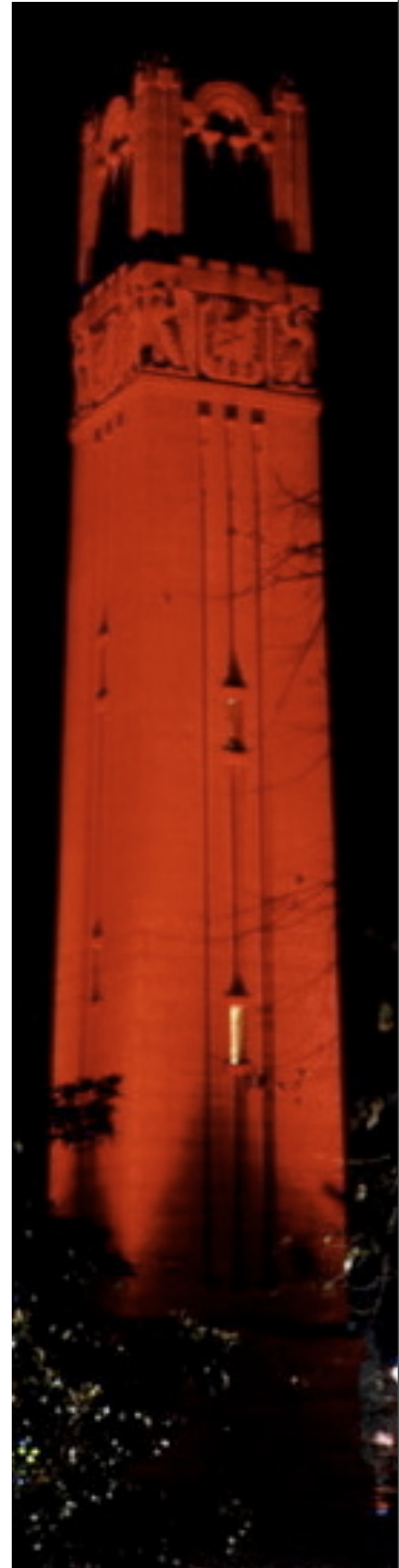




STUDENT PRODUCTS AS EMBEDDED ASSESSMENTS



- NC Graduation Project rubrics: research paper, product, portfolio, and presentation
- Collaborate with teachers to create portfolio components that can serve needs of both students and the evaluation





USING TECHNOLOGY TO RECORD EMBEDDED ASSESSMENT DATA



Developers:

- Decision points in game
- Time spent editing
- # transitions between edit and play mode



Players:

- Science content in the game
- Use of science skill in the game to advance play

