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

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• 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
• 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

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**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
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