Transformative Games Initiative

- Serve students by providing opportunities for game-based learning
- Promote learning by engaging students in design
- Provide instructors with tools for the classroom
- Facilitate research in pedagogy and game-based learning
Goals

1. Learn the rationale for infusing research, creative scholarship, and research-like practices into the classroom.

2. Learn about national models for undergraduate research and discuss best practices.

3. Discuss how GBL and UR research can be implemented in every classroom starting in the freshmen year.
UNDERGRADUATE RESEARCH DEFINED
Definitions

• **Undergraduate research** – “an inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline.”

• **Creative scholarship** - While UR traditionally refers to STEM disciplines, these practices also apply to creative scholarship in the arts and humanities.

• Other relevant methods include *problem-based learning* & *inquiry-based learning*
Characteristics

1. **Mentorship** – Collaborative, clear goals, focus on the student, disciplinary socialization.

2. **Originality** – Novel contribution to the discipline, meaningful and significant contribution by student.

3. **Acceptability** – Uses accepted practices for the discipline.

4. **Dissemination** – Must produce a final product to be reviewed or judged.
Origins

• Council on Undergraduate Research (founded 1978)
  – Focused on STEM research in PUls
  – Started with “problem-based” learning in medical schools
  – Particularly McMaster University (Barrows & Tamblyn, 1980)

• Boyer Commission (1998)
  – Urged universities to engage undergraduates more effectively
  – Advocated research-based learning as the standard

• Kuh (2008): High-impact educational practices
  – National Survey of Student Engagement (NSSE)
  – Undergraduate research has a huge positive impact on students
BEST Design Principles

1. Institutional leadership
2. Targeted recruitment
3. Engaged faculty
4. Personal attention
5. Peer support
6. Enriched research experience
7. Bridging to the next level
8. Continuous evaluation
9. Comprehensive financial assistance
10. Evidence-based practices

RATIONALE
Neural Circuits for Learning
Optimal Conditions for Learning

• Perception for action
• Attention
• Motivation
• Emotional engagement
• Information must be novel and biologically relevant
• Behavioral consequences for action
Additional Motivations

• To better prepare learners as practitioners of their discipline (cognitive and intellectual growth)
• To communicate the excitement of discovery
• Socialization to the discipline
• Engaged learning practices are more effective
  – National Survey of Student Engagement (NSSE)
  – Student Success in College: Creating Conditions that Matter (2005, Jossey-Bass & AAHE)
  – College learning for the new global century (2007, AAC&U)
MODELS AND PRACTICES
National Model

- Early exposure
- Search and evaluate the primary literature (e.g., C.R.E.A.T.E.).
- Articulating precise research questions
- Designing experimental approaches to problem solving using accepted practices
- Dissemination via local and national conferences, undergrad journals, & peer-reviewed journals
CUR and NCUR
CUNY and CURC
Your College Office of Undergraduate Research

5th Annual Undergraduate Research Day

Research Day is a celebration of undergraduate research and creative scholarship in all disciplines at York College.

When: Apr 24, 2014 from 09:00 AM to 05:00 PM

Research Day Abstract Submission

Other Upcoming events...
INFUSING RESEARCH INTO THE CURRICULUM
Institutional Mechanisms

- First year experience
- Communities of research
- Honor’s programs
- Discipline-specific affinity groups
- Research Day
- Summer research programs
- Student abroad
- Undergraduate research journals
- Support for faculty scholarship
Discipline-Specific Mechanisms

- Independent Study
- Capstone courses
- Lab courses
- Flipping the classroom
- Federal Work-study
- Communities of learning
- Lecture series
Classroom Mechanisms

• Searching the primary literature (e.g., www.teachCREATE.org)
• Stimulating attitudes of inquiry with problem-based learning (e.g., www.sigmaxi.org)
• Cooperative learning and lab-based projects (e.g., www.merlot.org)
• Field work, field trips, student abroad
• Debate
• Composition, performance, creative writing, media production
• Posters, presentations, peer-review
• Peer-mentoring
• Responsible conduct, philosophy of science, research methods, safety, IRB
Methods of Assessment

- Testing process knowledge rather than content knowledge (fluid vs. crystalized intelligence)
- In-class
  - Originality
  - Topical
  - Acceptable methods
  - Experimental design, statistical analysis, and interpretation
- Out-of class
  - Classroom presentations
  - Local conferences
  - National conferences
  - Undergraduate research journals
  - Peer-reviewed journals
Classroom Project

- Flipped classroom with just-in-time instruction
- Start with low-stakes lab assignments to build design skills and problem solving.
- 9-week group project, and 9-week individual project.
- Replace your classroom paper with a game-based learning project, where students design a game, collect data, analyze data, and report outcomes in class.
- Encourage the best students to present work at local and national conferences.
Laboratory Research

- Adopt SCRUM
- Small teams are generally stronger than individuals
- Use a syllabus with production milestones
- Ideally, project management falls in the hands of the student (use Blackboard)
- Allow them to carry the ball as far as they can, but provide instruction and support as needed
- User guided tutorials (e.g., Unity3d or Lynda.com)
- Open-source software or freeware
Our Process

• Iterative Design
  – Brainstorming
  – Paper prototypes
  – Digital prototypes

• Machinations

• UML

• OOP in Flash or Unity3d
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• OOP in Flash or Unity3d (using C# so students learn a real language).
FUNCTION
Olfactory

STRUCTURE
Cranial Nerve 1
PTSD

Disabling anxiety, nightmares, or flashbacks after a traumatic event.

+1 Card
+2 Actions

$2

Exposure

Facing your phobia by desensitizing yourself to the situation.

+2 Copper  +1 Buy Helps Specific Phobia, Social Anxiety, Agoraphobia, and Panic Attacks

$1
Beach
We're actually interested in learning more about affective disorders. Any objections?
I disliked their behavior, but I went there during the busiest day of the semester.
Resources


References


