

Research question: Do traditional undergraduate (UG) students ($N = 129$) across the curriculum use 21st Century Skills when playing games as a part of coursework?

Disciplinary Focus	Place in the Curriculum	Game(s)	<i>N</i>
Composition	Gen Ed	Self-designed grammar game	20
Student Teacher Seminar	Major	<i>Dixit, Once Upon a Time</i>	7
Leadership / Management	Major	<i>Forbidden Island</i>	23
Information Literacy	Gen Ed	<i>Balderdash</i>	5
History	Major	<i>Roll Through the Ages</i>	18
Classroom Management	Major	<i>TeachLive</i> (live, digital simulation)	4
Theology	Major	<i>Clue, Tobago</i>	19
Physical Science	Gen Ed	Self-designed chemistry game	8
Economics	Gen Ed	<i>For \$ale</i>	25

Grant directors gathered data through quantitative and qualitative surveys, and audio/video recording of three gameplay phases in the classroom: instruction, facilitation, and debriefing.

Professors voluntarily participated in the study (\$500.00 stipend):

- **Incorporating gameplay** as a part of the traditional undergraduate classroom curriculum
- **Discussing** anticipatory concerns and emerging results in bi-weekly cohort meetings
- **Completing a quantitative/qualitative survey** about their recent gameplay histories

Participating **UG students** voluntarily agreed to join the study (no compensation):

- **Completing a quantitative survey** about their recent gameplay histories (sports, role-playing, digital, non-digital, mobile, tabletop, etc.)
- **Playing** the game (8 of 9 cases used non-digital games, such as tabletop or social games)
- **Debriefing** the gameplay experience

Initial observations and emerging conclusions:

- **97% of UG students played games** (typically, multiple types each) in 4 weeks prior to the study.
- All professors observed that **students used multiple 21st Century Skills** in gameplay: problem-solving (8 of 9), communication (6 of 9), collaboration (6 of 9), and critical thinking (5 of 9).
- Approximately three quarters of professors perceived that most or all UG students **enjoyed gameplay**, positively **connected it to course content**, and seemed “**engaged**” when playing.
- If professors incorporate games in the classroom, then they should **familiarize themselves** with the games (i.e. play the games beforehand) as they would with other forms of classroom media.
- UG students effectively learn gameplay through a **step-by-step**, professor-facilitated tutorial.
- The creation of UG student **teams** will increase their need to practice 21st Century Skills.
- Game-as-systems serve as **procedural models** that UG students may compare and contrast with conceptual models derived from academic content.
- Games do not replace the need for formal curriculum or **formal instruction**.
- Professors recognize that formal **debriefing protocols** enable strong **gameplay-content connections**.
- These findings echo Kumar & Lightner’s findings (2007) on “**games as an interactive classroom technique**” re: social learning, learner motivation and engagement, and the role of the classroom teacher.
- **Further research:**
 1. **best practices** for gameplay instruction, facilitation, and debriefing,
 2. 21st Century Skill differences between **digital/non-digital** gameplay,
 3. **alignment** of gameplay, curriculum, and standards, and
 4. utility of non-digital gameplay in non-profit settings **beyond education**.