

## Fun and Games in Higher Education

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### Abstract

*Sweeney (2007) called them the Net generation, with “wires running through their veins, kids who grew up on video games and the Web” (p. 1). They are impatient and goal-oriented; they hate busywork, learn by doing, and are used to instant feedback. Westman and Bouman (2006) referred to them as Generation G, for gaming. Many college professors think of simulation when they think of games, such as the “Darfur is Dying” website (Brown, 2007) or a business environment simulation (Cheung, 2005; Drake, Goldsmith, and Strachan, 2006). Simulation has also been used for teacher education to prepare teacher candidates for situations they may face in their roles. If traditional age and older college students use games for leisure, there are more options than simulation for a professor who wants to use games for learning. Perhaps the “pedagogy of gaming” goes too far, but modified versions of Trivial Pursuit, Jeopardy, and Monopoly, among others, have a place in the service of learning, review, or even assessment.*

## Introduction

Teachers spend considerable amount of time trying to engage students in the topics of the course in which the students are enrolled. “Games provide a natural motivation, are part of good teaching strategies, and, fortunately, there are many that can be used to help build concepts” (Brendzel, 2004, p. 32). This may be particularly true with current college students of traditional age.

Sweeney (2007) called them the Net generation, with “wires running through their veins, kids who grew up on video games and the Web” (p. B10). He identified this Net generation as being born between 1980 and 1994; they are now 16-30 years of age. Further, they are “impatient and goal-oriented. They hate busywork, learn by doing, and are used to instant feedback” (p. B10). Westman and Bouman (2006) referred to them as Generation G, for gaming.

Many college professors consider the intellectual work at the college level to be antithetical to having fun or playing games. Among college professors who would or do use games at the postsecondary level, most think of simulation when they think of games. These might include simulations such as the “Darfur is Dying” website (Brown, 2007), a business environment simulation (Cheung, 2005; Drake, Goldsmith, & Strachan, 2006), or a computer driven virtual experience (Barak & Nater, 2005; Clark & Smith, 2004). Simulation has also been used in teacher preparation programs for allowing teacher candidates to work toward understanding and solving complex social situations, such as a dysfunctional family crisis, in which there are roles from parents and advocates for the children to the children’s teachers and psychologists, and even judges (Sotille & Brozik, 2004).

What about the use of real games, not just sophisticated role playing and technology-based simulation? There is a place for games in higher education classrooms. Modified versions of well known game formats, using game boards and commercial games, as well as original games add to the potential variety in a college professor’s pedagogical arsenal.

Hudson and Bristow (2006) reported on the successful use of the “Who Wants to Be a Millionaire” televised game format with first-year undergraduate medical students. The game served as a formative assessment, which has been associated with learning gains, for students to understand and apply concepts about human growth, development, and physiology. Medical students reported relief that they could admit a lack of knowledge and lean on peers for collaboration to generate answers. They also noticed that the level of interaction was related to the level of enjoyment and that immediate feedback, rather than waiting for days or even weeks for test scores, was helpful to their learning.

Low level activities in the game genre have reportedly been successful. These activities include the use of word searches for generic code practice (Helser, 2003) and using playing cards to demonstrate organic chemistry principles (Welsh, 2003). The use of games has a place in nearly every discipline. Thomas and Austin (2005) detailed the use of games to stimulate grammar practice in English, while Franklin, Peat, & Lewis (2003) described games as a means of getting students to participate in discussion in biology classes. Ching and Lee (2005) devised a

game in which students walk on a circular path , directed by randomly chosen number cards, in order to show that there is a mathematical relationship determined by probability to the course of the path.

### Games with Widespread Application

#### True/False

Take a page from Olympic scoring judges. Put two cards in the hands of each student. Prepare hot pink 3” by 5” cards by printing a 150 Times New Roman font F on them; use electric green 3” by 5” cards for T. In this way, you are using a convention with which students are already familiar, that of red for stop and green for go. If the lack of true colors is of concern, print the letters on card stock (65 pound) on actual red and green, with four to a page. The only drawback is the need for a paper cutter to separate the individual cards. The professor or other designated game host then reads statements to which each participant indicates agreement or disagreement through the use of holding up the intended card (see Figure 1 for sample questions from a variety of disciplines). If students forget and turn the letters towards themselves, the color is still readable. What if some students do not know the answer and merely observe what others are showing and join the crowd? This may not be of any import if the activity is for review, as the students who imitate may be learning the material as the activity ensues. The game host may call upon individual players to articulate why a statement is false and what would be needed to make the statement true.

Figure 1

#### Sample True or False Items

1. One of the systems of government in ancient Greece was the oligarchy.
2. In a concerto, one solo instrument is accompanied by an orchestra.
3. Theology, a reasoned discourse about God or the gods, is focused exclusively on Catholic teachings at Catholic colleges.
4. Professors who have high standards for student performance do not use variety in instructional methods.
5. Using game formats to provide review is an inappropriate use of college class time.
6. I frequently use methods other than lecture in my classes.
7. The Pythagorean theorem relates the length of the sides of a rectangle to one another.

The professor can easily observe if there are any students who are not participating at all. This type of activity provides the opportunity for every student to participate simultaneously. Imagine a typical college classroom. One voice is speaking. It might be the professor giving a lecture or a student giving a presentation. Even in a debate or panel format, only one person speaks at a time. Invariably, some members of the class do not speak at all in any given session. Some speak only rarely in an entire semester. Professors often encourage participation by giving credit towards the course grade for engaging in class participation. However, the format and the formality as well as the size of most classes prohibit full participation. Further, for students with certain learning styles or personal characteristics, the likelihood of participation is low. Introverts, for example, are more likely to listen, planning in their heads what they might say because they have trouble

thinking while speaking (Laney, 2002). Some even write their potential comments but, by the time they are ready, the moment for such a comment in the discussion has passed. The true/false game has the advantage of full participation for all types of learners.

### Trivial Pursuit

Use the game board that comes with the commercial game. Determine categories specific to the course. Display those categories on a white board, black board, or tented index cards. Write questions in the categories or, perhaps more effectively, have students create questions in the course categories (See Figure 2 for sample categories and questions by discipline). If teams of students write questions for a single category, ensure that during the playing of the game, writing terms are redistributed to playing teams. At least one person from each team should be seated close enough to the game board to move the game pieces and collect the pieces of “pie.” It may be necessary to allow only three questions per group before allowing the next team to take a turn if the game is for review and the students are well prepared. Research suggests that both writing questions and playing the game serve to reinforce learning.

Figure 2

Sample Items in the Field of Special Education

<b>Vocabulary</b>	<b>Theorists</b>	<b>Language Arts Deficits</b>	<b>Mathematics Deficits</b>	<b>Social Skills Deficits</b>
<p><u>10 points</u>  <b>Q</b> Meaning to cut with scissors, hand write, or sew by hand  <b>A</b> Fine motor skill</p>	<p><u>10 points</u>  <b>Q</b> Coined the term learning disabilities in 1963  <b>A</b> Sam Kirk</p>	<p><u>10 points</u>  <b>Q</b> Failure to gain consistent meaning from print  <b>A</b> Dyslexia</p>	<p><u>10 points</u>  <b>Q</b> Persistent difficulties in math function  <b>A</b> Dyscalculia</p>	<p><u>10 points</u>  <b>Q</b> One deficit that contributes to social misinterpretation  <b>A</b> Inability to read tone of voice</p>
<p><u>20 points</u>  <b>Q</b> Meaning rote repetition of what has been heard  <b>A</b> Echolalia</p>	<p><u>20 points</u>  <b>Q</b> Developed the first formal intelligence test  <b>A</b> Alfred Binet</p>	<p><u>20 points</u>  <b>Q</b> Technique in which student and teacher read aloud simultaneously  <b>A</b> Choral reading</p>	<p><u>20 points</u>  <b>Q</b> Technique that emphasizes practice in specific time segments  <b>A</b> Constant time delay</p>	<p><u>20 points</u>  <b>Q</b> Technique by which student practices social skills in a protected setting  <b>A</b> Role play</p>
<p><u>30 points</u>  <b>Q</b> Involving more than one sense  <b>A</b> Multimodal or multisensory</p>	<p><u>30 points</u>  <b>Q</b> Developed raised bump system for people without sight  <b>A</b> Louis Braille</p>	<p><u>30 points</u>  <b>Q</b> Technique in which student reads the same passage more than once  <b>A</b> Repeated reading</p>	<p><u>30 points</u>  <b>Q</b> Learning problem that may result in inversions and reversals of numerals  <b>A</b> Perception difficulties</p>	<p><u>30 points</u>  <b>Q</b> Uses schoolwide teaching of behavioral expectations  <b>A</b> Positive behavioral support</p>

## Monopoly

Without modification, Monopoly might serve the purposes of an economics, real estate, or finance professor. Consider the many alterable aspects of the game, however, and it is clear that adaptation to a variety of disciplines is possible. Community Chest and Chance cards can be created that are specific to a course's content, from social work issue to genetic mutations. The game board can be used simply as a trip, such as in the game of life, or it can be abandoned. Money has a potential in almost every discipline and may be used in a variety of ways to simulate expenditures and payments. Greenman (2003) reported on art students remaking classic games like Monopoly with realistic photographs and artwork.

## Jeopardy

A professor can use the main elements from Jeopardy (points, categories, levels of difficulty), which is in many ways the most versatile of the games described here, to teach or review almost any subject area. The teacher may or may not employ/enforce the traditional stipulation that the participant's answer must be in the question format and that the information on the board must be the answer. The professor determines how answerers are selected. Divide the class in half but arrange students so that all can view the central point in the middle. Provide a desk top or a flat-topped stool and set a thick marker in the middle. Call a contestant from each team forward. Both contestants place their hands behind their backs. The professor or game host reads the question. The contestant who both believes that he or she knows the answer and grabs the marker first answers the question. If the answer is correct, that contestant's team gets the points. These should be recorded publicly near the central location of play. If the contestant is not correct, the other contestant attempts to answer the question, without the question being repeated. If the second contestant does not provide the correct answer, the game host sends both contestants back to their teams, repeating the question one time. The contestant who had the marker first now consults with his or her team (it is clear now why all contestants are listening, even though only two are actually participating in the beginning) and provides an answer. It is a good strategy for the team to consult quietly to avoid providing information to the other team. If the first team is unsuccessful in obtaining the points, the second team, as a group effort, has the opportunity to provide the correct answer. If incorrect, the game host provides the answer. The next two contestants, one from each team, come forward to play. In this way, each student has an opportunity to act as an individual, as well as several opportunities to consult with team members; this set-up contributes to knowing, learning, and acquiring information about the content of the course. The team that receives points on the last question chooses the category and difficulty (number of points) for the next question. The game is over when all categories and levels of play are exhausted or when each "round" of students has had a chance to compete.

Jeopardy has been used successfully for sign language review. The contestant from the team with the last earned points selects a category and a point value (difficulty level), the teacher signs a word or a phrase from the category and the contestant who grabs the marker first and says in English what the signed phrase means gets the points. The category titles may be obscure or clever as in the televised game ("You Filthy Animal" for animal words and phrases or "Food Fight" for meal words and phrases) or they may be straightforward ("Days of the Week," "Sports," etc.). Jeopardy has also been used for review of theorists, vocabulary, historical

periods, mathematical symbols (where the question is a flash card of a symbol), plot elements, and countless other categories that uniquely conform to the intent of a class or its professor.

Schmidt (2004) even provided a Power Point “Jeopardy” template (at <http://www.jmu.edu/madison/teacher/jeopardy/jeopardy.htm>). The template allows a professor to generate a self-directed version of the game that can be broadcast on the screen in the classroom. Another advantage of this version is the capacity to use it in conjunction with a Smart Board, this freeing the professor or the game host from a podium and permitting participants to simply touch the Smart Board to select a category and a level of play. There are downsides; creating hyperlinks to the homepage of the Power Point requires a good deal of work, and items are static. If a professor merely wrote on a whiteboard or chalkboard the titles of the categories and erased them as selected, the game would be less labor-intensive. Items could be generated and stored in simple Word documents that could be easily edited for another semester or section of a course. Alternatively, items can be recorded by hand on a sheet of paper and devised at intervals as the professor grades papers, sips coffee, or muses in the office.

### Games for Dual Use

#### Teaching Teachers and Potential Teacher Use in Elementary and Secondary Classrooms

For professors in teacher education, games may also serve as models for use by preservice teachers with their classrooms of elementary and secondary students. The games herein described may lay the foundation for the teacher’s repertory. Rotter (2004) noted the wonderful versatility of “Jeopardy!” for effective use with students with disabilities, both for motivation and for palatable repetition. Watson (2003) also reported on the successful use of games with students with disabilities, specifically using what Watson described as the “versatile” Magic Square (a mathematical grid such that the  $n$  numbers in all rows, all columns, and both diagonals add up to the same constant). Naylor (2005) advocated for the use of games in mathematics to increase motivation and participation by students of all levels of skill. Additional games may be added for variety. Teachers and students may create a game board specific to an area of study, for example, regarding ancient Egypt (Selvidge, 2006).

Learning vocabulary requires active involvement as any student who has copied the words for the week, rewritten their dictionary respelling, copied a definition (likely truncated), used them in sentences, passed the quiz (or maybe not), and then promptly forgotten the words will attest. Games, due to the active nature of playing, provide an antidote to the problem. Smith (2003) recommended a variety of games, including the well known “Charades” for teaching vocabulary. Another game is a Scavenger Hunt in which students roam the classroom, trying to make matches among index cards, some with the vocabulary words and others with the definitions, and free to use dictionaries, glossaries, and any other support. Then, students face one another in a large circle and each student who has made a successful match “teaches” the rest of the group about the word. Every student sees the word, sees the definition, and hears a classmate read and define each word, making this learning multisensory. Adding a social component (classmates are doing the talking, not the teacher) is appealing to many students and results in better understanding and longer retention of the vocabulary. Smith (2003) also suggested the use of storytelling, employing the vocabulary under study; cooperative learning

techniques, by which students work in small groups to teach one another vocabulary and use it meaningfully; and story development, where students each use a vocabulary word to advance a story told in a chain fashion, with each student adding another piece to the story until all of the vocabulary words have been used and the story has reached closure.

While advocating for the use of simply constructed games, simulation should still remain a choice. Okula (2003) wrote about the many positive outcomes of the “stock market game,” that has been used by middle school, high school, and college teachers to engage their students in understanding the stock market at various levels of sophistication with only simulated risk. Marek and Howell (2006) reviewed a number of games, including simulation and board games, as well as discovery games, in the subject of science. Professors in teacher education can create games to teach or review teacher education content while their teacher candidate students are scheming ways to adapt the games to elementary and secondary curriculum content for later use in the classrooms.

Caution must also be exercised with competition. Competition is only reasonable among reasonably matched players, each of whom has the legitimate potential for winning. When one player is significantly better prepared or more skilled than the other, the game is no longer fun to play or even to watch. Professors can overcome a poor match by placing students in teams of mixed ability, or through thorough preparation of all of the students. Another idea is to have students engage in a game with no winner or actual conclusion, for instance, with a game board that has no clear beginning or end in a game with no points. Once all students have learned or reviewed a particular area of study with this no-risk game, students are regrouped by the ability or mastery of the area of study (determined by the professor). The players now engage in a competitive tournament, with the most able students competing with one another to be the first to answer correctly when the professor poses a question. For the tournament, the professor may employ touch lamps, available at department stores, hardware stores, home improvement stores, or drug stores. A person in the group who first hits the lamp may answer the question. If correct, points are awarded to the original mixed ability team on which that player served. If incorrect, the question is repeated and another player in the same group may hit the lamp and answer the question. The next question, less sophisticated or complex, is posed to the next group of students, who are of middling ability or skill on the subject. The next question, even less complex, is posed to the next group of less skilled students. In this way, students are only competing against others of like ability or skill, where presumably each has a reasonable chance to be successful with the difficulty level of the question posed.

However, in order to generate accountability and active participation in the first round with the noncompetitive game, each player takes points won in the tournament back to the mixed ability practice team. The high ability student on the mixed team now has a motivation for ensuring that the others on the team also learn the information, rather than just doing the work to “get it over with” and ensuring the best quality for a grade. There is an incentive for each member of the original team to be the one who answers correctly at the tournament level. Students may report their original team membership as they are awarded points during the tournament or each may carry a tented index card with the number or name of the original team recorded on it for ease of scoring. Scores should be recorded at a public location, central to playing the tournament.

Games alone would not provide sufficient introduction of new information to learners. The ideas here are not intended to replace instruction. A professor or teacher seeks to have games as part of a pedagogical repertory, along with other components. Features such as game design, content format, team membership, competition or cooperation, and time required are areas of consideration for the teacher or professor. Board games, card games, and computer games and simulations may serve an instructional purpose. Students at all levels of education complain about school being boring. Especially for Generation G (for gaming) and their successors, adding games to a rich instructional plan may add fun and success for both teachers and students. Perhaps the “pedagogy of gaming” goes too far, but modified versions of Trivial Pursuit, Jeopardy, and Monopoly, among others, have a place in the service of learning, review, or even assessment.

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