Playing Jeopardy in the Classroom: An Empirical Study

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ABSTRACT

Playing TV game shows such as *Jeopardy* or *Survivor* in the classroom can be fun. But does it improve student understanding of course concepts? To find out, the author conducted eight experimental trials in five separate undergraduate information systems classes. Although he found limited improvement in student learning, the author's experiences with the game and the results of a student survey were positive.

Keywords: Pedagogy, Learning goals and outcomes, Outcomes-based learning, Student performance, Active learning

1. INTRODUCTION

With "active learning," students shed their role as passive observers in the classroom and actively participate in such educational tasks as group discussions or team projects. One application of active learning in business education is the use of game show simulations such as "Who Wants to be a Millionaire" (*Millionaire)*, "Wheel of Fortune," *(Wheel of Fortune)* or "Jeopardy" (*Jeopardy*) as part of classroom teaching venues (Boctor, 2013; Alfari, et al., 2012; Siko, et al., 2011; Azriel et al., 2005; McDonald and Hannafin, 2003; Holbrook, 1998). Other examples using familiar parlor games include *Bingo* (Peterson, 2007; Salies, 2002), *Scrabble* (Strong, 2007; Dabell, 2006), *Monopoly* (Pilon, 2006; Jessup, 2001), *Trivial Pursuit* (Abramson, et. al, 2009; Strupp, 1999), *Survivor* (Grady, et al., 2013), *Guitar Hero* (Hoffmann, 2009), and crossword puzzles (Lin and Dunphy, 2013; Lipscomb, 2010; Whisenand and Dunphy, 2010). Many of these games are available for use in traditional classroom settings (Revere, 2004), but (with modification) can also be employed in online classes (Buiu, 2009; Moreno-Ger, et al., 2009, Hoffman, 2009).

Some authors claim that playing educational games in the classroom is a superior method of delivering educational content to classroom learners—a belief generally supported by research on the subject (Boctor, 2013; Hromek and Roffey, 2009; Smith, 2004; Wilson, et al., 2009; Cavanaugh, 2008). Revere (2004), for example, suggests that playing *Jeopardy* in class improves student understanding and therefore course satisfaction, while Rotter (2004) suggests that such activities can benefit all students. Finally, both Tetteh (2009) and Murphy (2005) note that students become more engaged and therefore learn more when playing instructional games.

2. ACTIVE LEARNING IN THE CLASSROOM: ADVANTAGES AND DISADVANTAGES

Proponents of active learning provide a number of favorable arguments for it. In team assignments, for example, students learn to interact professionally with others, develop effective communication skills, and become familiar with the practical issues and problems of teamwork and (possibly) collaborative software (Page & Donelan, 2003; Hillburn & Humphrey, 2002; Kern, 2002). Proponents of active learning also suggest that such activities can improve a student's learning experience in general, inject familiar, pop cultural activities into the classroom, change student attitudes about a subject or about their fellow teammates, invigorate student interest in the content of "dull-but-required" classes, overcome student apathy, make learning more memorable, compensate for differences in age, race, ethnicity, or gender, and convert "passive listeners" into "active learners" (Azriel, 2005; Von Wangenheim & Shull, 2009; Hannan, 2009; Shanahan, et al., 2006; Harrington & Schibik, 2004; Hoyt, 2003).

In-class game simulations such as *Millionaire* or *Jeopardy* appear to promise several benefits beyond those cited for active learning. Perhaps the most consistently-reported one is the high level of student engagement in these activities (Grady, et al., 2013; Revere, 2004; Swan and Simpson, 2003). Grady, et al., (2013) believe that such games can also be effective for introducing students to new subjects or for challenging students to remember material from prerequisite classes. Revere (2004) also notes that such games provide students with immediate feedback, thereby allowing private

assessments of their understanding of course concepts. This assessment seems to occur in both an absolute sense (i.e., compared to course learning objectives) and in a relative sense (i.e., compared to the knowledge levels of peers). Finally, suggesting that game questions may reappear on student examinations can increase student preparedness for examinations and relieve tension during tests (Revere, 2004)

Sarason & Banbury (2004) argue that using such games as *Millionaire or Jeopardy* in the classroom is one of the few instances in the modern college classroom experience in which students are immediately penalized for wrong answers, forcing them to think before "haphazardly throwing out an answer." Similarly, Brokaw & Mertz (2004) suggest that such games can be played the first day of class, making them useful "attention getters" and productively using what is potentially an otherwise-limited class period. Finally, Sindre, et al. (2009), suggest that game playing may be more motivational and educational than traditional homework or readings.

Game simulations also provide useful feedback for instructors. Consistent, correct answers to game questions, for example, indicate that students understand specific concepts, while erroneous answers reveal the opposite. Such feedback enables instructors to correct student confusion, either immediately during the play of a game or in later classes. Hopefully, such activities increase both short-term student understanding and long-term instructional effectiveness.

Game simulations are not without their detractors (Drea, et. al, 2005; Salemi, 2002, Nemerow, 1996). One concern is that these activities are often reviews of concepts covered in earlier classes, not discussions of new material. Another problem is that they create an opportunity cost for instructors with limited class time. A further consideration is the potential for instructors to limit their questions to ones with simple answers—and therefore questions that do not encourage the critical thinking skills desired in advanced business classes. Finally, scholars note that game simulations naturally involve competitions, and that students can be self-conscious about answering game questions in class (Drea, 2005). While some students thrive on this, others resent forums that hold their knowledge (or lack of it) up to public scrutiny (Nemerow, 1996).

3. EXPERIMENTING WITH *JEOPARDY* IN THE CLASSROOM

Earlier classroom experiments with *Jeopardy* include trials with gifted students (Rotter, 2004), accounting (Hayes & Bee, 2004, Murphy, 2005), chemistry (Siko, et al., 2011; Roštejnská, et al., 2011; Grabowski & Price, 2003), statistics (Revere, 2004), health care (Kelly, 2002; Hannan, 2009), mathematics (Afari, et al., 2013), nursing (Boctor, 2013), pediatrics (Jirasevijinda & Brown, 2010), psychiatric pharmacy (Grady, et al., 2013) and strategic management (Azriel, et al., 2005). Commercial versions of this game, developed expressly for a classroom format, are available, but several instructors have also employed a Microsoft PowerPoint-based version of the game (e.g., Revere, 2005). Hayes & Bee (2004) used an alternate version of the game based on Microsoft Excel.

3.1 A Homegrown Version of *Jeopardy*

Unaware that commercial versions of *Jeopardy* were available, the author developed his own version in Visual Basic. Figure 1 illustrates an example of the game board, which replicates the television game but which only uses five (rather than six) question categories. Each category has five questions, with rewards (or penalties if a contestant answers incorrectly) ranging from $100 to $500. In smart classrooms, the console computer at the lectern enables the instructor to display an enlarged game board on screen as well as act as moderator, although this is not a requirement.

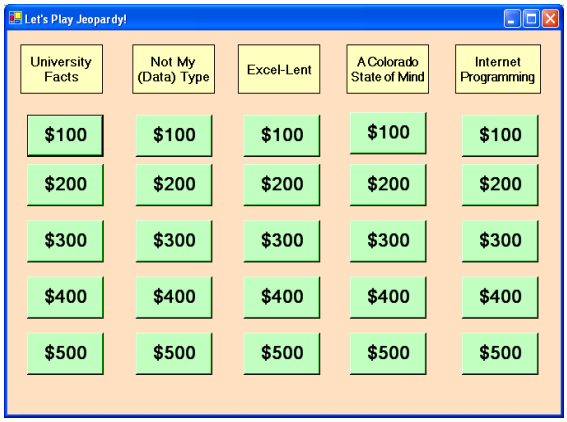

Figure 1: The author's version of *Jeopardy*, showing a practice game.

When playing the game in class, one task is to organize the contestants. At first, the author followed the TV version of *Jeopardy* and drafted three volunteers to serve as contestants. Other researchers suggest that several *teams* of students can compete (Hayes & Bee, 2004; Revere, 2004), an approach that increases direct student involvement and perhaps the appeal of the game itself. There are yet further variants—for example, dividing up the entire class by gender or by class rank.

The game begins when one player (or team of players), selects a question category and then a particular dollar amount (e.g., "Excel-Lent for $100"). In the author's version of the game, the instructor then mouse-clicks on this particular box, causing the associated question to appear (Figure 2). Like the TV show, a contestant only has ten seconds to answer and must frame his or her response in the form of a question (e.g., "What is a dollar sign?" for the question in Figure 2). The team or contestant wins the question's dollar amount for answering correctly and loses that amount for answering incorrectly.

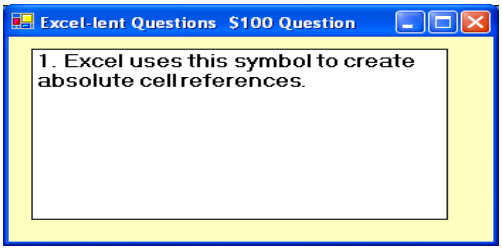

Figure 2. An example of a *Jeopardy* question.

In the TV version of *Jeopardy*, the show's host either confirms a contestant's answer, or (if no one answers correctly) verbally provides the correct answer. For obvious reasons, the author also wanted students to *see* correct answers. Accordingly, he devised a final onscreen "answer box" for this (Figure 3).

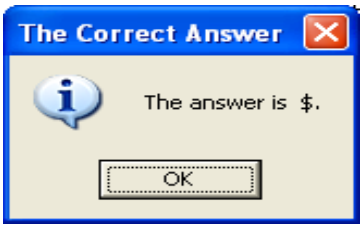

Figure 3: Onscreen answers to *Jeopardy* questions provide students with visual confirmation—and hopefully help students learn.

3.2 Two Mechanical Concerns

Two mechanical problems to solve when implementing team versions of the game in the classroom are: (1) identifying which contestant or team "rings in first" (and therefore wins the opportunity to respond and earn the dollar rewards), and (2) keeping score. The author solved the first problem by asking contestants to raise their hands when they wished to answer a question *and* appointing a student game referee. Like the TV version of the game, contestants can only answer *after* the instructor has finished reading the question. It is the referee's job to determine whose hand comes up first, and also to disqualify those who raise their hands prematurely. Student clickers would seem to solve this problem completely (Bergstrom, 2009).

The TV game solves the second problem—how to keep score—with a computerized scoring system that displays each contestant's current winnings in a screen on his or her podium. In classrooms, instructors must again improvise. Those instructors in classrooms with dual display screens can use one screen for questions and the other screen for scoring (Hayes & Bee, 2004). The author's solution was to appoint an official scorekeeper for this task, who performed this job manually.

Instructors may also wish to award token prizes to the winners—a dynamic that can increase student preparation for the game as well as motivate students to win. Hayes & Bee (2004), for example, awarded additional homework credit to the players on winning *Jeopardy* teams and found that this resulted in particularly competitive play.

4. ASSESSING TEACHING EFFECTIVENESS

For instructors with limited class time, an important question is "Is playing *Jeopardy* an effective use of class time?" To answer it, the author experimented with the game in eight separate trials. In the fall semester of the trial period, the author conducted trial applications in each of the three information systems classes he taught at his university—two introductory, Visual Basic programming classes and one Internet programming class. The fourth trial was a replication of the experiment in this latter course in the spring semester.

In each of these early trials, only three students played the game as contestants. In the spring semester, the author also played the game twice in each of two sections of the Visual Basic classes he taught that semester—a total of four additional trials. In the first round of these latter trials, the author divided the students in each class into three groups, allowing all the students in each class to participate as teams of contestants. In the second round of these trials, he reverted to the first approach of three contestants per game.

4.1 Student Test Performance

There are several ways that instructors can assess the learning effectiveness of in-class game simulations. Hayes & Bee (2004) used a pre-game and post game set of quizzes for this purpose, which enabled them to measure such learning. Similarly, Revere (2004) used an in-class examination to measure student learning.

To perform a similar investigation, the author first chose ten questions from the final exam of an earlier computer programming class. He then included *variations* of these questions in a classroom game of *Jeopardy* in the spring semester of this same class. The author conducted this game within two weeks of the final examination. He also alerted students to the fact that the *Jeopardy* questions would serve as a review of some of the concepts discussed in the class that students "might see again."

To assess the effectiveness of the game in helping students understand course concepts, the author followed Shanahan, et al. (2006), who used a "treatment group" and a "control" (non-*Jeopardy*-playing) group. In particular, therefore he compared student performances on the selected questions in the first (control-group) final with student performance on these same questions in the second final. As in the Shanahan et al. study, the students taking these examinations were different. However, in this study, the wording for each of the ten questions in the study was exactly the same on both tests. Thus, questions similar to the one in Figure 2 appeared on both tests in exactly the same way.

Figure 4 is a graph that compares student performances on the two tests, and Figure 5 presents a statistical analysis of these results. The values in Figure 5 suggest that there was almost no difference in student performance on these ten questions from semester to semester. The average percentage of students missing a question in the first semester was "16.4%" while this same value for the second semester was "16.8%"—a statistically-insignificant difference. Because the underlying questions for each semester were the same, the author also performed a matched-pairs test for differences in these sets of data. The t-statistic for this was "-0.12"—again, a value too small to reject the null hypothesis that the underlying data were drawn from different populations.

These findings contrast with Shiroma, et al., (2011), who used a *Jeopardy* game in their pharmacology classes and found statistically meaningful learning gains for their students. At the same time, this finding of *no statistical difference* mirrors similar ones reported by (1) Azriel, et al. (2005), who also used *Jeopardy* and the same metrics to measure learning effectiveness in a similar classroom experiment, (2) Sindre, et al. (2009), who used an "Age of Computers" game for this assessment task, and (3) Siko, et al.

(2011), who used a PowerPoint version of the game of *Jeopardy*.

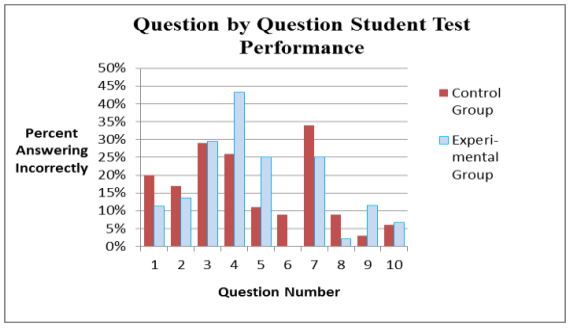

Figure 4. Graph showing student performance on a final examination (data from Figure 5).

Question #:	Control Group (Fall: n = 35)	Experiment Group (Spring: n = 36)	Difference
1	20.0%	11.3%	8.7%
2	17.0%	13.6%	3.4%
3	29.0%	29.5%	-0.5%
4	26.0%	43.2%	-17.2%
5	11.0%	25.0%	-14.0%
6	9.0%	0.0%	9.0%
7	34.0%	25.0%	9.0%
8	9.0%	2.2%	6.8%
9	3.0%	11.4%	-8.4%
10	6.0%	6.8%	-0.8%
Averages:	16.4%	16.8%	-0.4%
Std. Deviation:			9.8%
Correlation Coefficient:			69.9%
t-statistic for matched-pairs test (n=10)			-0.12

Figure 5. A matched-pairs test of student performance on a final examination. The percentages in the second and third columns represent the percent of students who *missed* each question.

The author expected to see clear improvements from one class to the next that could be attributed to playing the game. Although the students were different, the author taught both classes using the same lecture format, book, teaching notes, homework assignments, and projects. What made these results even more disappointing is that, in the second semester, *the author emailed the entire set of Jeopardy questions, along with their answers, to his students one week prior to the date on which the final exam was given.*

4.2 Student Perceptions

In addition to using the performance on objective tests to measure teaching effectiveness, the author also used a small, open-ended, anonymous survey in his (first-semester) Internet programming class. Admittedly, this approach is not as direct a measure of student learning as in-class exams, but has the alternate advantage of assessing *student perceptions of such gains*—to some instructors, a more important metric. Figure 6 summarizes the survey results.

The first few questions of the survey asked demographic questions. Because this particular class was offered at the junior level, it was not surprising that all the respondents were juniors or seniors. The survey also revealed that 13 of the students were males and 7 were females, and that about two-thirds of the respondents were Information Systems majors. Of the six "other" majors, most were majoring in subjects outside the college of business administration in which this course was offered—for example, "psychology."

Question 1: School Level:	Junior:	7	Senior:	13		
Question 2: Gender	Male:	13	Female:	7		
Question 4: Major	IS:	12	Acc/IS:	1	Other:	6
Question 5: Learn Anything?	Yes:	15	No:	2	Maybe:	3
Question 8: Play again?	Yes:	15	No:	2	Other:	3

Figure 6. Results of a small survey about the use of *Jeopardy* in class.

Question 5 of the survey asked "Do you feel that you learned anything when we played *Jeopardy*? If so, what did you learn?" The majority of students answered "yes" to this question. Those students answering affirmatively typically mentioned a skill or fact that they had not known previously. However, some students also indicated that the game reinforced some things they already knew—for example, "it helped familiarize [me] with HTML tags", or "[it] refreshed my memory about things I had forgotten." Azriel, et al. (2005) found similar student reactions.

Question 6 of the survey asked "what, if anything, do you like about playing *Jeopardy* in class?" Typical responses were (1) "it breaks up everyday lecture," (2) "if the questions also appear on the test, then it is a good study tool," (3) "it is an excellent way to review," and (4) "it is a fun way to learn."

Question 7 of the survey asked "what, if anything, do you dislike about playing *Jeopardy* in class?" Many of the students stated that there was "nothing" they disliked, or even wrote such positive things as "I think it's a fun thing to do during class." However, one person wrote "embarrassment" while another wrote "some questions are too easy."

Finally, Question 8 of the survey asked "Do you think we should play any more rounds of this game? If so, why? If not, why not?" Figure 6 indicates that a majority responded "yes" to this question. Typical responses were "the game tested my knowledge," "[it] helped us learn," "it's a change from the usual class lectures," or "it helps me to remember

some of things that were covered in class." One notable answer was "…if no one could answer, you knew it would be a good [test] question." Another notable answer was "yes, but maybe make it a team [game]. One person from each team answers for each question." This is exactly the system used by Revere (2004).

Finally, as illustrated in Figure 6, two students answered "no" to question 8 (indicating that they did not want to play *Jeopardy* again), and three students provided a response that the author classified as "other." For the two "no's," one student wrote "no, because I don't care for the game" while another student wrote "no, I think we should go around the class with questions and be awarded points for correct answers—sort of a verbal quiz." For the "other" responses to question 8, two students did not answer the question, while another student wrote "makes no never mind to me either way."

4.3 Author Perceptions

The author's personal experiences with *Jeopardy*, both as a passive observer (at a conference) and as a (mediocre) game show host in the classroom, were positive. He found, for example, that it was easy to complete an entire game of 25 questions in about 45 minutes, allowing him ample time to introduce the game and its rules, create teams, and (after completing the game) determine the winner in a single, 75-minute class period. Instructors can make things go even faster if they do not pause to discuss missed questions, as did the author, during play.

Like Azriel, et al. (2005), the author also noticed that most students became quite focused during play. Part of this may be due to the compelling nature of the game itself, but the fact that the game tests student knowledge may also stimulate attention. In all classes, most students wanted to play, and the author had more volunteers than contestant slots. Perhaps because the student "official positions" of "referee" and "scorekeeper" did not require displays of course knowledge but were nonetheless positions of authority, many students also volunteered for these tasks as well.

The survey results cited above indicate that students were mostly positive and enthusiastic. But the author found that one of the most important outcomes when playing *Jeopardy* was the feedback *he* received. In preparing to play the game, for example, he sequenced the questions in each category of the game in order of perceived difficulty—i.e., from "easiest" to "most difficult"—and assigned dollar values accordingly (from smallest to largest). In actual play, however, he found that some of the "easy questions" stumped all the contestants, while students answered some of the "difficult questions" with ease.

These discoveries were important for several reasons. First, this information suggested that the author could minimize future discussions of material that students had obviously mastered. Second, it enabled him to ask similar test questions on the "difficult-but-easy subjects" on tests without fear that they were unfair or beyond the comprehension level of the class. Third, this feedback gave the author an opportunity to (briefly) discuss the class material that resulted in a "difficult question"—for example, to discuss the correct answer, to provide reasons why the underlying subject matter was important, or to reinforce the underlying principle or concept on which the question was based. Finally, this feedback motivated the author to examine his own teaching—for example, to make mental notes to spend more or less time on certain subjects or to think of alternate ways of explaining concepts that obviously were not fully understood by the contestants.

Finally, it occurred to the author that students in IS programming classes can develop their own versions of *Jeopardy* as a homework exercise. The author has not tried this, but the skills involved are straightforward and likely to be acquired by mid-semester of a typical, entry-level programming class.

4.4 End-of-Semester Course Evaluations

A final measure of the teaching effectiveness of game simulations can be inferred from student course evaluations. At the author's school, these evaluations include a series of multiple-choice questions and three, open-ended questions that ask for "strong points," "weak points," and "suggested improvements" about the course or the instructor. Although playing "*Jeopardy*" had not taken a large amount of time in any of his classes, the author was curious whether students would mention this activity as either a "strong" or "weak" point on these evaluations.

In the fall semester and in three classes of over 60 students, *not one student mentioned the game of Jeopardy as either a positive or negative component of the class.* In the spring semester, the author taught two IS classes—a total of about 40 students. In that semester, each class played *Jeopardy* twice and the second round was a review of material that appeared on the final exam. But again, *not one student mentioned the game of Jeopardy as either a positive or negative component of the class.* These findings suggest that playing *Jeopardy* in the classroom may not be as important to students as some researchers might claim (or the author himself might like).

5. CAVEATS

Several considerations potentially limit the findings of this study. One concern is the fact that this study was conducted at one university, by one author, and in a limited number of classes. The author does not claim that the students or the environment of the IS classes at his university necessarily replicates that of other IS, or non-IS, classes, or that the small-sample results observed here will necessarily be found elsewhere. Just about all prior researchers, in fact, suggest that "venue" may be an important determinant of class success with such games, and that course subject matter, dominant class learning styles, and even instructor attitudes may play roles in this (Grady, et al., 2013).

Continued experiments with game-show contests in additional classes and, preferably, in alternate disciplines but also in different classes within the IS discipline, are needed to gain experience and confidence (or dissatisfaction) with these games. At this point, for example, it is also not known whether *Jeopardy* (with its fill-in-the-blank type format) is a better game to play in classrooms than, say *Millionaire*, or whether either game is better played in IS classes rather than non-IS classes.

Another concern is the large number of factors that can vary during the play of Jeopardy from experiment to experiment, and the potential effects such variations might have on researcher tests of the game's efficacy. Examples include the size of the class, the type of software used to play, the amount of time each contestant is allowed to answer (e.g., 10 seconds in the author's version but up to several minutes elsewhere), the actual number of students on each team (e.g., one, three, one-third of the class), the types of questions asked (e.g., factual versus computational) or the ability of alternate teams to answer a question if the first team misses it. As noted earlier, some instructors have also given awards to winning teams—for example, candy or bonus points of some kind—variants that may also affect student perceptions of the game's desirability or the amount of measurable learning that takes place during play. Even how, or how well, "learning" is measured can vary—e.g., testing, formal surveys of student perceptions, or anecdotal feedback. Such variables have the potential to affect measures of learning gains from study to study, as the influences of such alternate policies are unclear.

One measure of the success or failure of any pedagogical tool is whether or not it improves teaching effectiveness. The author used three metrics here: (1) student performance on a standard, multiple-choice test, (2) student satisfaction, as measured by both a survey and student feedback on end-of-semester class-evaluation forms, and (3) his own perceptions, drawn from his experiences with the game. A concern is that none of these measures is without potential problems. For example, alternate test questions might have demonstrated greater learning gains than the ones used in this study, and surveying students long after they had played the game (and therefore had more time to reflect on the educational value of it) might also have been better. Again, more research is needed to address these issues.

Another caveat relates to the type of questions asked *in* the games used in this study. Bloom's cognitive taxonomy suggests a hierarchy of learning, beginning with *simple knowledge* (rote memory), and continuing through *comprehension* (assimilation), *application* (ability to predict consequences), *analysis* (ability to identify unstated assumptions), *syntheses* (ability to create new knowledge), and *evaluation* (ability to judge knowledge acquisition) (Bloom, et al., 1956). An important question to ask is "where do the questions asked in *Jeopardy* games usually fall?" The author does not claim that university instructors teaching business classes necessarily limit themselves to simple factual questions (relating to the lowest level in the taxonomy). He does suggest that the types of questions asked in *Jeopardy* may make a big difference in what kinds of learning takes place, and how such learning is subsequently measured. More study is needed here.

A further concern is the possibility that a larger, or at least different, sample with perhaps a different type or number of test questions might have produced different statistical results here. As one reviewer noted, the lack of a statistical difference in the test performance of Jeopardy versus the non-Jeopardy players does not mean there weren't any differences, but rather that the present study found no statistical evidence for it. Differences in the experimental design as well as the test venues themselves may account for the fact that some researchers have found learning gains for classroom play while others, such as this author, have not.

Finally, a common application of *Jeopardy* in the classroom has been to prepare students for examinations (Revere, 2004; Hayes and Bee, 2004). To the extent that such applications focus student attention on important course concepts and encourage them to become active learners, this is no small advantage. An important caveat is the fear that these games focus attention on factual memorization and recall—not on critical-thinking skills. As noted earlier, this caveat suggests that the use of game simulations may not be the most effective teaching tools for such cognitive tasks. Again, more research is needed to determine where game simulations are best applied and also where their usefulness is likely to be limited (see Wilson, et al., 2009).

6. SUMMARY AND CONCLUSIONS

This paper reported the use of a customized *Jeopardy* game by the author and the results of eight trials using it in the classroom. The paper also described how he solved such mechanical problems as determining which contestant wins the right to answer and how to keep score without an automated system.

One way to measure the game's teaching effectiveness is via repetitive testing. For this, the author used ten questions from an earlier final examination, modified them for use in a game of *Jeopardy*, and then asked the *same questions* again on the second final examination the following semester. A matched-pairs test found no statistical difference in average student performance on these two tests.

Another way to measure teaching effectiveness is to assess student perceptions of the game. An in-class survey constructed for this purpose indicated that most students felt they (1) learned or reinforced their knowledge about course subjects, (2) liked a number of things about the game, and (3) were enthusiastic about playing *Jeopardy* again in later classes. These mixed findings point to the need for more empirical work to identify what factors lead to better learning gains in some settings but not in others.

For the author, perhaps the most useful advantage of playing *Jeopardy* was the indirect feedback he received during the game. In particular, he was surprised that some of his easy questions were challenging to students, and vice versa—an observation that changed his ideas about both what to ask on forthcoming examinations and his methods for teaching similar material in future classes. He also found that student engagement in the game was high, and that students enjoyed playing (as confirmed by a survey he later conducted in class). These advantages alone, perhaps coupled with the idea of asking students to create their own questions, may be sufficient to encourage other instructors to use the game in their classes. However, it was also notable to the author that *none* of the individuals he taught in *any* of his classes mentioned the *Jeopardy* game in their course evaluations (either positively or negatively).

Perhaps the most important question that IS instructors may want to answer is whether or not to use games such as *Jeopardy* in their own classes. At present, the evidence for such a decision, both from this study and others, seems ambiguous. If "demonstrable learning gains" are the determin-

ing factor, the empirical evidence from this study suggests playing such games in the classroom may not yield much. If instructors use such alternate criteria as "student satisfaction," "useful feedback to both students and instructors," or "a welcomed use of class time" as decision metrics, both this study and most of the others cited in the references below suggest that playing Jeopardy in the classroom is a positive activity.

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