Scavenger Hunt Enhances Students' Utilization of Blackboard

Dianne C. Jones
Professor
Department of Health, Physical Education, Recreation and Coaching
University of Wisconsin-Whitewater
Whitewater, Wisconsin 53190
jonesd@uww.edu

Abstract

Distance education courses present some unique challenges for both students and instructors. One of the first challenges students experience occurs when they try to navigate through the technology environment itself. While it is true that traditional-aged students are much more technology savvy than ever before, their acumen in technology does not ensure that they will automatically understand how to navigate a technology-driven learning environment.

As students initially learn how to work in a distance education learning environment, they can become frustrated because of the time it takes to "get around." When this happens, the instructor often has to spend a great deal of time responding to a variety of trouble-shooting questions. Regardless of the distance education courseware in use or the level of sophistication with technology that a student has, problems typically surface with each new course.

As a strategy for addressing this issue proactively, the author created a solution that was specifically designed to highlight the technology skills needed throughout the course. The goal was to reduce the amount of frustration that students often felt as they learned the new technology so that they could focus more readily on course content. The solution was the development of a preliminary assignment -- an on-line Scavenger Hunt -- that prompted students to learn or review all the technology-related skills they would need in the on-line course in a fun, non-threatening and purposeful way.

The use of the Scavenger Hunt game has made the use of a web-based course management system, like Blackboard, less threatening for students and has significantly reduced the need for additional instructor time to deal with technology-related issues throughout the course.

INTRODUCTION

Distance education courses present some unique challenges for both students and instructors, especially when it is the student's first experience with a totally web-based educational endeavor. One of the first challenges students experience occurs when they try to navigate through the technology environment itself. This challenge can quickly transfer to the instructor, who must respond to a variety of trouble-shooting questions. Regardless of the distance education courseware in use (Blackboard, WebCT, Desire2Learn, etc.), courseware navigation problems seem to surface with each new, exclusively web-based course.

Technology-related challenges did not occur in courses that met face-to-face because the instructor was able to review course management features with students during live class meetings. The visual presentation of the Blackboard features, via a computer and LCD projector, during the face-to-face class and individual face-to-face meetings with students eliminated Blackboard-related issues for students in the traditional classroom. For students who were enrolled in a totally web-based class, however, this live support was not a built-in option.

Several things became readily apparent with respect to how quickly and how well students were able to adapt to the technology-enabled environment. First, students in the first semester of the year were more likely to raise technology-related questions because they had not yet used or become familiar with the course management system. In contrast, second semester students had fewer questions and demonstrated greater ability to navigate in the learning environment as a whole because they had been exposed to the course management system in other face-to-face or web-based courses. As well, graduate students who were taking their first on-line class experienced significant difficulty in adapting to the web-based learning environment because they may have never been exposed to a course management system.

Even after many attempts to help students in totally web-based courses navigate through the technology environment with written information, the author continued to face numerous questions from students regarding the technological tasks needed to fulfill course assignments. In addition, students' questions continued throughout the course as new task requirements were added.

Therefore, as a strategy to address students' needs for successful course participation, the author created a preliminary assignment that would highlight the technology skills needed throughout the totally web-based course so that students were less frustrated and could deal with course content rather than technology issues. The solution developed as part of this strategy was a *Scavenger Hunt* game developed in PowerPoint that prompted students to learn or review all the technology-related skills they would need in the course in a fun, non-threatening and purposeful way.

OBJECTIVES

The instructor's objectives in developing this solution were to:

- Accelerate the learning or review of the course related technology skills in a non-threatening, fun, and purposeful manner.
- Construct a learner-centric modality that allows for interactivity and experience-based learning of the technology skills needed in the course.
- Integrate the activity seamlessly into the first lesson of the course.
- Give formative and evaluative feedback to the students on their technology skills through the activity.
- Create a learning object that could be shared.

The expectations of students were that they would:

- Play a Scavenger Hunt game that is fun and purposeful.
- Learn or review all the technology related skills that will be used in the course.
- Receive formative and summative feedback on the technology skills that will be used in the course.

USING GAMES TO ENHANCE LEARNING

The author decided to use a familiar game as an instructional tool to ensure that students would develop the technology skills necessary to successfully navigate through the web-based course

environment. This particular activity was selected for its potential with respect to both content and design.

From a course design standpoint, one of the greatest strengths of using games for learning is that they are excellent tools for connecting learners to knowledge, key concepts, facts, and processes in a way that is "fun and purposeful" (Salopek, 1999, p. 30). The key phrase for this author was using games with purpose. Because games are often fun, they also help learners construct meaning and to discover things about a subject area in a more learner-centered, personal way and in a non-threatening environment. Most of the students were participating in their first totally web-based course. Therefore, creating opportunities for them to practice the required technology skills used to successfully interact with the course content, fellow learners, and the instructor in a non-threatening environment was desirable.

From a course content standpoint, games can also provide useful tools for generating feedback for the learner as to how well he or she has internalized the learning (Sugar, 2002). This feedback loop extends to the instructor, as well. The opportunity for both formative and summative evaluation allowed the author to meet a key learning objective – that is, to make sure students had the requisite technology skills for the course.

The author also considered the use of a learning game from a learner standpoint. According the Prensky (2001) the profile of learners has changed and our learners provide some of the strongest arguments for using games in learning. The demographics tell us, more and more, that the younger generation -- the so-called Generation Y -- is more technologically savvy than any predecessor generation. Consider the following demographics:

> "Each day the average teenager in America watches over 3 hours of television, is on the Internet one-half hour, and plays 11/2 hours of video games" (Prensky, 2001b, p. 3). According to Prensky (2001c), they do all of this before they ever even leave for college! As a result, Prensky suggests, "learning via digital games is one good way to reach *Digital Natives* in their 'native language'" (2001c, p. 1).

The younger generation has advanced technology skills, however, they are not necessarily related to the skills that are needed in a totally web-based course or in academically-related activities. The development of the Scavenger Hunt game was a way "to reach the *Digital Natives* in their "native language'" and assure that they did have the technology skills needed for the course (Prensky, 2001c, p.1).

What does this have to do with interactive exercises and games? Quite simply, more and more research is suggesting that the way in which people learn and process information is changing (Pace Marshall, 1999; Rieber, Smith & Noah, 1998) and some researchers are exploring the concept of play and its value in the learning domain. Rieber, Smith & Noah (1998)-- whose interest in play is driven by their desire to explore situations "where a person is motivated to learn, is engaged in the learning act, is willing to go to great lengths to ensure that learning will occur, and at the same time finds the learning process (not just learning outcomes) to be satisfying and rewarding" (Rieber, Smith & Noah, 1998, p. 4) -- identifies how play can provide a meaningful bridge to learning: "Play as progress is a view that play is an activity leading to other outcomes, such as learning. Play as fantasy describes the process of 'unleashing' an individual's creative potential. Play as self acknowledges that play itself is to be valued without regard to secondary outcomes…" (Rieber, Smith & Noah, 1998, p. 2). The attributes "closely match those of modern educational theories where learning should be a self-motivated and rewarding activity" (Amory, et.al., p. 1).

The use of a game also allowed the author to directly address the learning style needs of the visual (58%) and tactile learner (22%), which represents eighty-percent of those involved in the content related courses (Jones & Mungai, 2003). When constructed with different learning styles in mind, games can often accelerate the learning process. For example, because games involve 'doing,' they

provide the kinesthetic learner with opportunities to engage in his or her own learning in a physically interactive way. According to Fister (1999) "…if you understand your audience and your material, it's possible to build a gaming environment that makes learning more enjoyable and more relevant for users" (Fister, 1999, p. 70). In an article by Berson (1996), the author, a high school social studies teacher, used interactive games with technology as the enabling tool in his class. He found that more visual learners were not only able to enhance their critical thinking skills, but they also increased their ability to interpret visual cues such as maps and graphs.

One of the foremost experts in the use of games that teach, Sivasailiam Thiagarajan -- "Thiagi" -- instructs trainers and educators that "an awareness of your participants and an understanding of their needs and learning styles are vital to using training games effectively" (Salopek, 1999, p. 30). Since the author has researched the learning styles of students in her courses over the last five years she knew that the use of a game would enhance learning transfer by addressing the student's learning styles (Jones & Mungai, 2003). While educators know that adapting their style of teaching to meet the style needs of their learners is important, they must also be aware that doing so is neither easy nor automatic. The rationale for doing so, however, is clear.

Interactivity was a major objective in developing the Scavenger Hunt. It was important that students be involved in their own learning. Interactivity is one of the easiest and best ways to enliven your on-line training materials (Kirk, 2001). For the purpose of this article "the term *interactivity* refers to those functions and/or operations made available to the learner to enable them to work with content material presented in a computer based environment" (Sims, 2000, p. 2).

Lewis (2003b) found that people generally remember 20% of what they see, 40% of what they see and hear, and 70% of what they see, hear, and do. Callahan & Switzer (2002) refer to the seeing, hearing and doing as direct experience, which they believe decisively shapes individual understanding. Direct experiences show more brain activity because of the involvement with actively stimulating environments (Callahan & Switzer, 2002). According to Ewell (1997) the brain activity research points out the need to create active student engagement in all teaching situations.

The use of a learning game enabled the instructor to introduce, teach, review and evaluate students' technology skills in a self-paced, interactive, learner-centered manner. At the same time, the game enabled students to get individual assistance when they encountered problems, and to determine their individual skill level with the specific technology used in the web-based course.

A Scavenger Hunt game developed with PowerPoint was selected as the tool with which to introduce, teach, and review the technology skills needed in the web-based course because: 1) It met the learning needs of the visual and tactile learner, while also accommodating their intellectual level; 2) It met the objectives of the instructor; 3) both the instructor and students had some pre-existing familiarity with the game; 4) the game has simple rules, an intuitive interface, and allows for individually-paced learning; 5) It allowed for clear goals, directions, procedures and was interactive; 6) It provided clear and timely feedback; and 7) It facilitated mastery of the content by continuing until the answer was correct.

LEARNING THROUGH MULTIMEDIA

 "Technology is neither a hardware nor a software. It is a powerful set of tools that the teacher and learner can use to facilitate his/her own *learning process.* Technology resources can provide opportunities for learning and can create the "conditions that optimize learning" (Callahan & Switzer, 2002, p. 14). However, "An interaction between learners and content cannot be assumed to be an automatic facility of the computer based medium. Rather, considerable design effort must continue to be placed on the ways in which learners will both adopt and adapt to the exchange of ideas and engagement with content through computer mediated resources" (Sims,

2000, p. 8). Bob Godwin-Jones (2002) states "think pedagogy first, technology second. It's good to focus attention first on strategies which you know are ones that help students learn, and then see how technology might help carry them out" (p. 1). The advantages of using computer-based, teacher-created materials are numerous. Some of them include:

- "Interactive exercises increase motivation when the material is directly linked to the course and/or interests of students.
- The exercises are game-like and fun.
- The students can work through the exercise taking as much time as they need and learning as they go.
- They receive immediate, frequent and non-judgmental feedback" (Zieba-Warcholak, 2003, p. 1).
- They can be used for self-teaching, review and self-realization (Salopek, 1999).
- Formative and summative feedback provides a knowledge check for the learner and teacher (Lewis, 2003a).
- Provide assistance in the absence of a human teacher (Lewis, 2003a).

POWERPOINT

The technology software of choice for this project was PowerPoint. The main reasons for selecting PowerPoint were accessibility and familiarity for most educators and students. Even if the teacher or students are not familiar with PowerPoint, it is an easy software to learn through tutorials. In addition, PowerPoint has presentation versatility because: a) it can be used as an original file, PDF format, and in html format, b) it can run with videos and have narration added, and c) the software allows interactivity.

Other reasons that PowerPoint was selected as the software for the Scavenger Hunt games were:
1) Ease-of-use; 2) No production was necessary; 3) Can be created on the desktop; 4) Requires low bandwidth; 5) Is inexpensive and visually simulating; 6) Sounds or auditory stimulation can be added; 7) It provides many design choices; 8) It accommodates the learning styles of students; 9) Templates can easily be developed as transferable learning objects; 10) It can be tailored to suit all cognitive abilities (i.e., elementary school to college); 11) It allows the designer to link to web sites or external materials; 12) Students can add information; 13) Materials can be downloaded easily from the web or a course management system; 14) Viewers are available if the student does not have the software; 15) It can be easily field tested; 16) It is suitable for a web page, course management system or DocuShare site; 17) Tutorials can be developed using the software to help students use the game; 18) Designers have the ability to embed the content effectively into the game context and to create interactivity; and 19) It can be used to achieve learning objectives.

DEVELOPING THE SCAVENGER HUNT

Once the decision was made to use Power Point, the next order of business was designing the Scavenger Hunt activity as a shareable learning object. In order to create effective multimedia, some design considerations included:

1) Clear learning/performance objectives (Lewis, 2003a)
Students were informed in the first lesson that the Scavenger Hunt game was developed to help them learn or review how to navigate the Blackboard environment and demonstrate the technology-related skills that would be needed in the course in a fun, non-threatening and purposeful manner.

2) Right level of content difficulty for your learner (Salopek, 1999)

The content difficulty in the Scavenger Hunt game was directly related to all the technology skills that would be needed in the course. For some students, the material represented a general review while others were learning technology skills that would be needed in the class for the first time.

3) Keep the learners coming back because it is fun.
A game was developed to learn/review material in a fun and non-threatening manner that still had clear learning/performance objectives. Scavenger Hunt is a game that many people are familiar with and with which they can have fun.

4) Keep the interface intuitive
Every new task in the Scavenger Hunt took the learner back to the same homepage, which used

the actual icons from Blackboard. There was a consistent homepage button that directed the student back to the Scavenger Hunt task page. Every task had a "Help" icon to

facilitate the completion of the task.

5) Learner choice in the way they interact with the material (i.e., learner control) (Bates, 1995)
Students interacted with the material based on their ability to complete the task. For example, some students did not need to use the "Help" icon while other students used it extensively.

6) Learners should be able to repeat access to the materials for self-learning (Bates, 1995)
Students had access to the Scavenger Hunt throughout the course so that they could get help with technology related skills if needed.

7) Some material should be able to stand-alone while others will be linked (Bates, 1995)
The Scavenger Hunt task stood alone on each slide while the "Help" icon and homepage button were link to other slides.

8) Material should allow the student to navigate easily (Bates, 1995)
All the Scavenger Hunt slides were linked to the appropriate task slides and visually through the use of icons.

9) Integrate meaningful engagement through access to different content representations (Sims, 2000)
Every task in the hunt was related to a different technology skill that would be needed in the course.

10) Enable manipulation of the content (Sims, 2000)
The students were constantly manipulating the content through links to different tasks, going to Blackboard to download materials, accessing the "Help" icon, etc.

11) Adopt a cyclic question, answer and feedback loop (Sims, 2000)
The Scavenger Hunt game revolved around a task – a question the student was expected to answer, followed by feedback from the teacher on certain tasks or the hunt, itself, when it was completed.

12) Provide feedback
Feedback was given to the student after some individual tasks and after the game was completed. For example, Task 1 of the Scavenger Hunt required the student to copy and paste

an announcement from Blackboard into an email and send it to the instructor. Feedback was given to the student after the task was completed.

13) Allow remediation or correcting an answer (Lewis, 2003a)
The incorrect tasks sent by the student to the instructor were sent back to the student for correction.

14) Focus on action-consequence model (Sims, 2000)
The fact that incorrect tasks sent to the instructor were sent back to the student indicates an action-consequence model.

15) Provide tools to solve problems (Sims, 2000).
Every task had a "Help" icon to facilitate the completion of the task.
Finally, when assessing learning objects Elsenheimer (2003, p. 4) suggests asking these questions:

1) Does the program stimulate the senses?
2) Does the program require the learner's active involvement?
3) Does the learner have freedom of movement?
4) Can the learner tell what to do on every page?

The Scavenger Hunt game was developed using learner-centered principles. First, the learners were introduced to PowerPoint via a step-by-step PowerPoint demonstration that can be linked for use in other courses (See figure 1). Impatica was used to convert the PowerPoint file into a compressed format that is optimized for streaming over the Internet. The PowerPoint tutorial was necessary since the students were going to need to be able to use PowerPoint to view and navigate through the Scavenger Hunt game as well as other materials in the course.

Figure 1. PowerPoint Tutorial

Second, the learners were told exactly what was expected of them, and they were advised that it was an active learning event. Third, the learners were told exactly how participation would occur with the instructor and the other learners. In addition, the learners were told how to get help when they had problems with the Scavenger Hunt. Fourth, the learners were told how the Scavenger Hunt was linked to the learning objectives and how they would apply the lessons learned within the course. Finally, upon successfully completing the Scavenger Hunt, a debriefing was conducted and course points were allocated.

The Scavenger Hunt was used as an assessment tool. It provided structure to the learning and facilitated learner insight on the progress and ability to meet the technological aspects of the course. Figure 2 shows the first slide of Scavenger Hunt game. All slides within the Scavenger Hunt were disabled so you could not advance the slide without clicking on a hot link during the slide show.

Figure 2. First Slide of the Scavenger Hunt Game
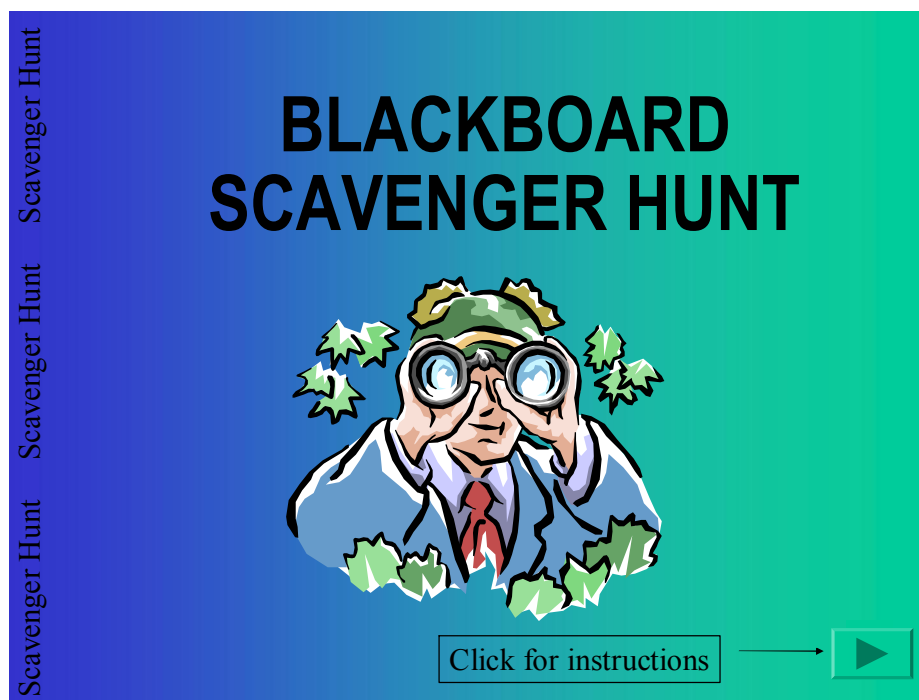
The second slide of the Scavenger Hunt included directions for how to proceed through the Hunt (Figure 3). The instructions told the students how to advance to the next slide and click on the Blackboard icon to find the hunt instructions for that task. The students were also either linked to a document that gave assistance if they were having trouble with the tasks of the hunt or they could get help on the task slide by clicking on the help icon. One of the tasks of the Scavenger Hunt was to highlight, copy and paste so the help link tells students how to accomplish this task of the hunt.

Figure 3. Scavenger Hunt Directions Slide.

The next step was the development of the Scavenger Hunt game (Figure 4). The actual icons from Blackboard were used for the tasks included as part of the Hunt. This familiarized students with the Blackboard interface. The Hunt tasks were developed by determining what type of technology skills were going to be needed in the course and then developing an interactive activity to support that skill. For example, the students had to complete quizzes in the course so a practice quiz was included in the Hunt as a way to reduce the technology-related fears of taking the quiz so the student could focus on the quiz questions.

Figure 4. Scavenger Hunt Homepage
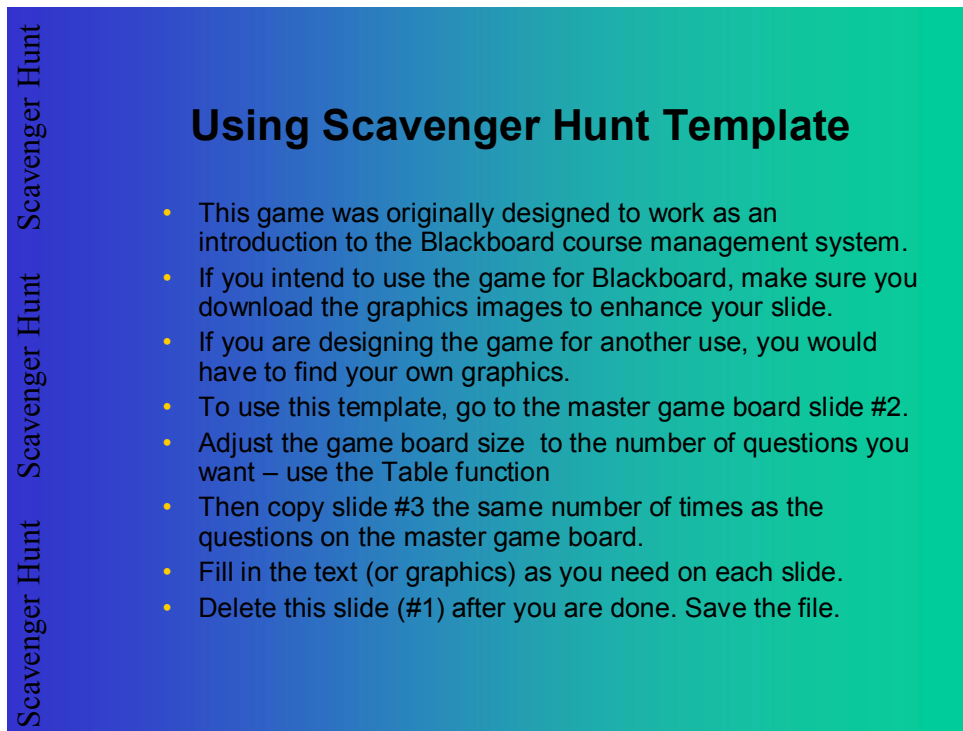
The Scavenger Hunt game is a transferable learning object that can be used in any Blackboard delivered course. When customizing the game the instructor should consider all the technology skills used in their course and create an activity that supports skill development in those specific areas. The Scavenger Hunt game template is shown in Figure 5 and the second slide (pictured below) tells you how to use the template for the development of your Scavenger Hunt game.

Figure 5. Game Development Scavenger Hunt Template

In order for the instructor to track the progress of students through the Scavenger Hunt tasks an Excel grading matrix listing tasks 1 to 16 of the Scavenger Hunt was developed. This is shown in Figure 6.

Figure 6. Scavenger Hunt Task Grading Matrix

Upon successful completion of the Scavenger Hunt, students were given 3 points toward their grade and the instructor knew the students had acquired the technology skills needed to navigate through the course. If the student did forget how to perform a technology skill they could go back to Lesson 1 and review the task in the Scavenger Hunt game.

RESULTS

The Scavenger Hunt game has definitively helped the instructor/students achieve the stated objectives by providing a learner-centric, interactive, experience-based modality that reviewed and taught course-specific technology skills while giving the students formative and evaluative feedback. The Scavenger Hunt game is also a shared learning object and has been used by faculty on the UW-Whitewater campus after they are given access to the game during Blackboard training sessions.

Students have successfully accomplished the tasks comprised in the Hunt and, as a result of participating in the Hunt, many expressed a greater level of comfort when navigating through Blackboard. The games approach to learning worked much better than simply asking students to read the Blackboard Student Manual as the sole means of learning how to use the course management tool. The benefit for students using the Scavenger Hunt game was that they could learn and review all the technology related skills needed in the course (i.e., copy/paste, download and save a file, etc.). Anecdotally, comments made by students using the Blackboard course management system for the first time indicated that the Scavenger Hunt game had reduced their frustration and insecurity.

While the author has not conducted quantifiable research with respect to student retention in web-based coursework, evidence clearly suggests that since implementing the game, no

students in five graduate courses offered on-line once the Hunt had been implemented had dropped the course. In addition, the author has evaluated undergraduate student learning outcomes in a course that is offered in both a traditional classroom and an on-line format. The exams given in both course formats are the same, and both are taught by the author. Results indicate that over the past two semesters, the students in the web-based section have done better on the exams than students in the traditional class, albeit the differences were not significant. More focused research would be required to determine any relevant correlation between use of the Scavenger Hunt and its impact on student performance. In this instance, the author was most interested in evaluating learning outcomes because assumptions are frequently made that students do not learn as much in totally web-based courses as they do in traditional face-to-face courses. This instructor did not find this to be so.

From an instructor perspective, teaching the course content became much easier after the Scavenger Hunt game became part of the first lesson. The instructor was no longer dealing with incessant technology-related issues and, therefore, could focus on the course content. The time required to develop the learning game on the front end was easily recovered once the course started because there was significantly less instructor time required for answering technology-related questions.

The Scavenger Hunt game is a shareable learning object that has been used by other faculty on the UW-Whitewater campus for teaching and reviewing Blackboard as well as for teaching other educational content.

SUMMARY

The up-front time spent on the development of the Scavenger Hunt game "can produce significant savings in academic time, once designed, and greatly improve learning effectiveness" (Bates, 1995, p.5), not to mention the impact that the games have on the learner's motivation to learn. There is a growing documentation that suggests that games may represent an extremely useful methodology for engaging learners at all levels. The Scavenger Hunt or other educational games may be particularly valuable with the new generation of learners who are currently filling our traditional and on-line educational environments.

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