

DEVELOPING AN ONLINE CREDIT-BEARING INFORMATION FLUENCY COURSE: LESSONS LEARNED

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In the fall of 2007, an advisor from University College, the university's college for undecided majors, approached librarians on the Undergraduate Services Team (UST) at the University of Arizona (UA) Library about developing a one-credit online information literacy class for undergraduate students. The advisor believed such a course could assist with student retention while helping students acquire needed information literacy skills. While the UA Library has a long history of offering for-credit as well as one-shot instruction sessions, this collaboration represented the first time that the UA Library had an avenue for offering a for-credit course completely online. Although UST librarians had previous opportunities to work as co-instructors for classes, this class presented the first opportunity for the librarians to work as the instructors of record for a class. Being the instructors of record for an online class provided us with a number of heretofore unavailable opportunities, the most important being the ability to oversee all aspects of teaching and assessing students. Along with these benefits, the course gave us the opportunity to better understand how to use Desire 2 Learn (D2L), the campus course management system, as an instructional tool and how to structure an online learning environment that would ensure student success. Finally, it provided an avenue to increase the visibility of the UA Library's instructional role on campus.

CURRICULUM DEVELOPMENT

Our timeline to get the class developed and piloted was a relatively short three months. A design team made up of three UST librarians and the University College advisor

began working to identify learning objectives and outcomes. To guide our development of course objectives, we reviewed the Association of College and Research Libraries (ACRL) Information Literacy Competency Standards for Higher Education. We used this review to inform a discussion about how we would structure and teach the essential skills and objectives that we believed novice researchers needed to conduct university-level research. We then compared our brainstormed ideas to the ACRL Standards and used the two documents to develop a rough outline of the course.

Although the design team based the philosophical underpinnings of the course on the ACRL standards, we made a conscious decision to not use the language of the ACRL standards in the objectives and instead worked to write objectives in language that we believed would be more meaningful to students. After many iterations, we developed the following list of focused objectives for the six-week class we titled "The Skillful Researcher."

Module 1 – The World of Information

Objectives

By the end of this module students will:

- Identify different types of information resources and their unique characteristics
- Select the best resources for particular research needs
- Locate different services and resources via the Library's website

Module 2 – Focusing Your Topic

Objectives

By the end of this module students will:

- Narrow a research topic so that it is appropriate for an assignment

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- Create research questions based on a research topic
- Describe several major issues of a research topic

Module 3 – Database Basics

Objectives:

By the end of this module students will:

- Select keywords
- Use keywords to create search strings
- Apply keywords and search string skills to a library database search

Module 4 – Choosing the Best Resources

Objectives:

By the end of this module students will:

- Analyze citations and abstracts
- Use citations and abstracts to select the best article for a given topic

Module 5 – Avoiding Plagiarism

Objectives:

By the end of this module students will:

- Recall the consequences of violating the campus plagiarism policy
- Identify plagiarism
- Choose strategies to avoid plagiarism
- Know how to paraphrase a short passage correctly
- Learn the basics of the MLA Citation style

Module 6 – Final Assignment

Objectives:

By the end of this module students will:

- Assemble an annotated bibliography

BASED ON PEDAGOGICAL PRINCIPLES

Once we had identified objectives, we began the process of developing assignments and activities and creating the necessary materials. Our first step was to identify and purchase software tools that would allow us to create engaging and interactive materials. D2L enabled instructors to hold discussions, create quizzes, and collect student data. However, it is not a content authoring software program and we needed a set of tools that would allow us to create engaging instructional materials including lectures, interactive games, and learning objects. After reviewing several software programs, we chose Articulate Rapid E-Learning Studio and Adobe Captivate to create the bulk of our materials. These two rapid e-learning programs were chosen because of their cost, ease of use, and ability to produce professional course materials.

In our collective education experience, we knew we needed to avoid common distance learning pitfalls. One of our main concerns in the creation of the course was to develop it in a way that was guided by sound pedagogical principles rather than by technology. In our past experience, the design team found that it was all too easy to get caught-up in what technology can do rather than how well it meets educational goals. Thus, in the development of materials, we were careful

as to how and where we would incorporate the flashier aspects of technology. We also wanted to avoid the pitfall of simply taking materials that we had used in face-to-face instruction and transferring them to the online environment. While long PowerPoint supported lectures can work well in a traditional class, they do not do a good job of engaging students in an online environment (Henry & Meadows, 2008). Hence, throughout the development process we strove to develop content that followed best practices in education, including active learning and learning style theories.

Numerous educators emphasize the importance of active learning (Bianco, 2005; Chickering & Ehrmann, 1996; Dewald, 1999; Henry & Meadows, 2008). Active learning as opposed to passive learning allows students to interact with what they are learning and not simply memorize it. In order to provide students with an active learning experience, we built interactivity into each tutorial. For some tutorials the interactivity was minimal, but still present. For example, at a minimum we allowed students to move freely within a tutorial so that they could proceed at their own pace and review material as they needed to. In their usability testing of an online tutorial with interactive game features, Armstrong and Georgas (2006) found that students reacted favorably to fun, interactive game features, so we endeavored to include as many pedagogically sound interactive game features as we could manage. To increase interactivity, we inserted quizzes and games throughout tutorials so that students could check their own comprehension and further engage with the material. For example, in one learning game, students need to verify their understanding of a concept by trying to reveal a hidden answer before running out of time (see Figure 1 and Figure 2).

In addition to games, we also developed split-screen tutorials in which students interact with a live web page. For example, in our tutorial on the use of Academic Search Complete, students see a split screen with the live database on one side and a series of instructions and questions on the other side. As students proceed through the tutorial they are accomplishing the task of learning the mechanics of the database as well as the task of locating resources to complete their assignment. We selected this method for teaching database searching because it allows students to be able to accomplish a task in the process of learning how to navigate a live database.

Knowing that students learn in different ways, we also developed content that would allow us to reach students with diverse learning styles. To this end, we created materials that included both auditory and text components and varied the use of each. We kept the screen text to a minimum so that it could be more easily scanned. We also made sure to use smart graphics that conveyed meaning and added to a concept rather than graphics used simply for decorative purposes. Screencasting software such as Captivate, helped guide students through web sites and allowed us to present information with both visual and auditory elements. In order to address the needs of kinesthetic learners we created and used tutorials where students had to use their mouse to interact with the tutorial.

Figure 1: Screen Shot of Word Quiz Directions

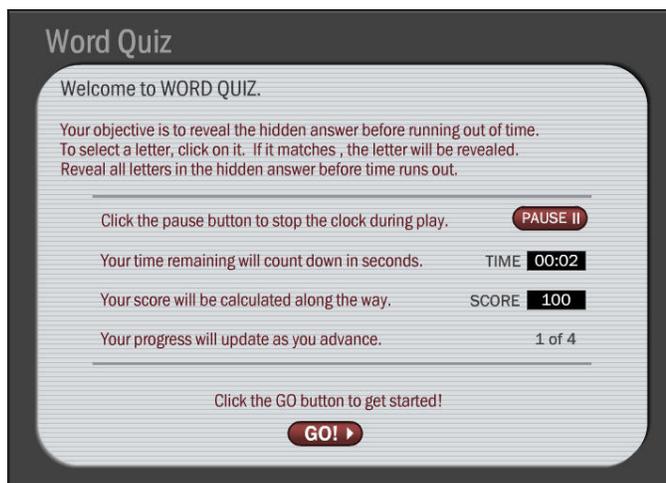
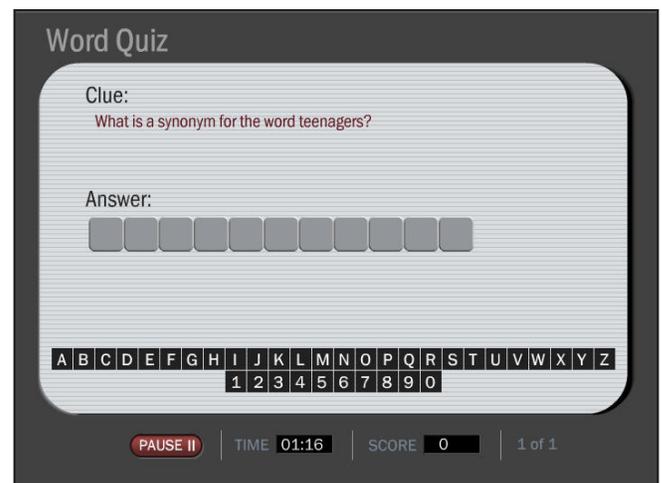


Figure 2: Word Quiz Game Interface



BUILDING COMMUNITY THROUGH DISCUSSIONS

As educators we were familiar with the importance of community in the classroom. In the traditional classroom, students are able to interact with one another and with the instructor on both a social and academic level in order to offer one another support, help with assignments, and to build relationships. These relationships help students feel they are part of a safe community where they can ask questions, take chances, and grow intellectually. Additionally, social learning theories suggest that students have more meaningful learning experiences when they are able to interact with others, learn from one another, and work collaboratively (Rovai, 2007; Chickering & Ehrmann, 1996). Henry and Meadows (2008) list community and social presence as one of their principles for excellence in online teaching. Because the online environment does not naturally facilitate these types of interactions, it is much more difficult to build an effective online learning community. Therefore, another goal in the development of this course was the building of community.

In order to build this online learning community, we took advantage of D2L's discussion thread features and included weekly discussions in each of our modules. We wanted the discussions to have both academic and social dimensions so we made sure to include both types of discussions in the course. For example, the first discussion prompt asked students to introduce themselves while later discussions asked students to post on specific tasks based on course activities and content. We also built extrinsic motivators in order for students to post quality discussions and more frequent discussions. Rovai (2003) found that courses where discussions were graded had significantly higher discussion posts than courses where discussions were not graded. Thus, we graded students not only on the frequency of their posts but also on the quality of those posts. We developed a set of grading rubrics to assess and give points for both. After piloting and restructuring the course, we also assigned points to encourage students to respond to others' discussion posts. After the restructuring, we made a point to make students aware of the rubric for each weekly discussion thread.

IMPLEMENTATION

We taught the first round of the Skillful Researcher during the summer of 2008. It was originally structured as a five week course and two sections of the course were offered each of the two summer sessions. In the fall semester, four sections of the course were offered in two rounds, for a total of 8 sections. In Spring 2009, six sections were offered. Each section began with an enrollment of 25 students, but some additional students were added as the course gained popularity. The course was advertised in the Daily Wildcat, the student newspaper, and also received recognition in the University of Arizona's UA News Web publication.

For the instructors, many unexpected and time consuming tasks and responsibilities that are not normally present in a traditional class arose. These included repeatedly migrating content from a master course site to individual course sites, sending weekly updates to students via e-mails, responding to student inquiries regarding D2L issues, facilitating and responding to online discussions, and overall maintenance of the course site. Each librarian was devoting up to 10 hours a week on each course. Due to these unexpected overly time consuming tasks, we decided to use graduate assistants (GA) who were already working in UST to help teach the course. We began the fall semester with one GA and increased to three GAs in the Spring. The GAs had teaching backgrounds, were familiar with D2L, and had content knowledge as graduate students of the School of Information Resources and Library Science. The GAs aided us both in teaching and managing the course and proved to be great a resource for providing feedback and suggestions for improvement. In order to train the GAs and transfer the majority of the teaching responsibilities to them, we developed an extensive training manual and held a four hour training session. We continue to meet weekly with the GAs to discuss any issues that arise. This approach has proven successful, and has only incurred two minor mishaps along the way both of which involved student and GA communication.

ASSESSING THE COURSE

In order to assess and improve the course, we developed several formal and informal feedback mechanisms. Informal methods included gathering feedback from other librarians and from the GAs at different points during the course development and implementation phases and later incorporating this feedback in our restructuring efforts. Additionally, we encouraged students to provide us with feedback as they were taking the course. Along with the informal feedback from students, librarians, and GAs, we also had a formal Teacher/Course Evaluation which was administered at the end of each class. This evaluation allowed students to systematically evaluate the course.

The feedback received from these different mechanisms fell into one of three major categories: course content (e.g., students did not understand an assignment), navigation (e.g., students could not access a link or an assignment), and workload (e.g., too many assignments in one week). This feedback allowed us to make significant modifications to the course including restructuring the course from five to six weeks, downsizing module three by eliminating or moving several assignments and tutorials, and significantly redesigning the course interface for easier navigation. Interestingly, many of the smaller changes we made were surprisingly time consuming. For example, changing a poorly-worded quiz question involved making a change in the master course file and then copying the file to each individual class. Similarly, any change in a Flash tutorial file required contacting our technology support in order to update the file on our server.

CONCLUSION

The creation of this course allowed us to reach a new group of students in a different and more time intensive way than we had in the past. We were able to avoid common pitfalls of developing and teaching online courses by focusing on our objectives and keeping our focus on sound pedagogical principles. The success of this course and the lessons we learned from its development has allowed us to begin the process of developing a one-credit online course for freshman students enrolled in first-year composition courses and has encouraged the organization to continue to examine the viability of developing and offering additional online for-credit courses.

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