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## Giving Games the Old College Try

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# Giving Games the Old College Try



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**In Brief:** Based on evidence that games might help students get more engaged in my online class, I decided to overcome my skepticism and road-test two information literacy games. First I tried BiblioBouts, which uses the online citation management tool Zotero to integrate gaming into a research paper assignment that is already part of the course syllabus. Students have to set up Zotero accounts and log into the game's online platform to play and see their scoreboard; the technology requirements were too much for my class and the experiment didn't feel successful. The following year I tried a comparatively low-tech game that students probably experienced as a regular assignment with a dash of competition thrown in. Whether or not this activity is a real game, I have continued to use it because it encourages students to practice expert researcher skills. After reconsidering my assumptions about games in an environment where serious learning takes place, I still have questions about using them for information literacy instruction.

## Giving Games the Old College Try

When it comes to educational gaming, I've always been skeptical. I'm not opposed to gaming on principle—resistance seems futile in the same way that campaigning against comic books and rock and roll once was. As a non-gamer, the idea of “gamifying” information literacy instruction just sounded like another bandwagon for librarians to jump on. Yet the potential for engaging and even fun instructional activities was too much for me to resist. I decided to give games a try.

With apologies to real game designers, I'll define games as activities that are designed as games from the beginning (not retrofitted with “gamification” components), are played online, and create interactive user experiences. My reasons for this working definition are entirely selfish: I teach online information literacy courses so I'm always looking for activities that will engage students and meet my learning objectives.

In this article, I look at where games fit into the information literacy instruction literature, discuss my experience trying out two different games in a for-credit online information literacy course, and leave you with the questions I still have now that I've reconsidered my assumptions about games in an environment where serious learning takes place. I'm not sure whether I fully met my goals with the games that I tried, but I did shake off some of my skepticism along the way.

### Information literacy games

It's easy to find so-called information literacy games that turn out to be regular old research instruction activities with puns in their titles. As game designer [Liz Danforth](#) notes, “...game mechanics are being tacked on to practically everything these

days, almost as an afterthought” (2011, p. 84). [Margaret Robertson](#), another game designer, makes the point that adding progress markers like points and badges to an activity does not actually make the activity a game. By contrast, she writes, “Games give their players meaningful choices that meaningfully impact on the world of the game... Games offer fail conditions as well as win conditions... It’s crucial that we stop conflating points and games” (2010). [Broussard](#) (2012) provides a thorough overview of online library games that meet at least some of these criteria, along with best practices for their implementation, in her article “Digital games in academic libraries: A review of games and suggested best practices.”

Librarians have embraced game-based learning for some time. For example, in 2008 [LOEX-of-the-West](#) was about gaming in library instruction, while in 2010 the Canadian conference Workshop for Instruction in Library Use took “Design, Play, Learn” as its theme. The LOEX-of-the-West conference organizers wrote,

The parallels between good pedagogy and game design were striking and thought provoking. Both seek to engage and challenge players/students in active learning, problem solving, and experimentation using a variety of strategies from narrative learning to multimedia appeals to varying learning styles to rewards both intrinsic and extrinsic. (Finley, MacMillan, & Skarl, 2008)

Others propose even more specific connections between gaming and information literacy. [Waelchli](#) (2008) has done indicator-level mapping of the [ACRL Information Literacy Competency Standards](#) to fantasy sports, while [Gumulak and Webber](#) (2011) mapped game-playing to the [SCONUL information literacy standards](#).

Further, there is good evidence that [real learning takes place in video games](#). One authority, [James Paul Gee](#) (2003), describes 36 different learning principles found in good video games (and not necessarily found in school curricula). Along these lines, [Nicholas Schiller](#) (2008) provides an analysis of the video game “Portal” that includes takeaways for instruction librarians.

It is possible to find less optimistic opinions on the subject. For example, [Kickmeier-Rust et al](#) (2007) point out that games developed by educators are usually lackluster compared to the immersive experiences available commercially. [Ian Bogost](#), a game designer and director of the Graduate Program in Digital Media at Georgia Institute of Technology, concurs: “There just aren’t enough high-quality games that also serve serious purposes effectively. Making games is hard. Making good games is even harder. Making good games that hope to serve some external purpose is even harder” (2011, p. 2). Librarians would be right to wonder whether we can possibly hope to succeed where well-funded corporations often fail.

Postmortem-style articles in the library literature reveal some of the problems librarians have had with games. One of the 2008 LOEX-of-the-West sessions described how outsourcing development to game designers resulted in a game that, from the librarians’ perspective, did not adequately address the learning objectives set out in the ACRL Standards ([Hood](#), 2008). To take another example, a Welcome Week scavenger hunt game at UC Merced flopped when very few students participated ([McMunn-Tetangco](#), 2013). Librarians don’t always like to share our failed experiments, but these case studies can be instructive.

Just because people learn while playing games, does it necessarily follow that we should therefore use games when the main goal is learning? Students are bound to notice when games have learning as a primary outcome, though they play along in order to humor us or get their grade. Librarian and blogger [Bohyun Kim](#) writes: “Games are played for fun, and the fun comes from actions not having real-world consequences. For this reason, when a goal other than fun is imposed, the game begins to lose its magical effect on our motivation and productivity” ([Kim](#), 2012, 467-468). This suggests that games may fit best with orientation and outreach activities, where fun can be the primary goal.

Certainly no learner-centered librarian would advocate for dry, boring lessons. Undergraduates, in particular, may need an ice-breaker to help them overcome library anxiety. But real learning takes time and involves difficulty, and I think that we can admit this to students. Student comments after playing [BiblioBouts](#) (one of the online research games that I road-tested) reveal that we’re not really fooling them anyway: “BiblioBouts [...] is a part of our grade so that’s why I saw it as an assignment. And like the game itself like finding sources, it was – it was helpful definitely but it was another assignment;” and, “You still had to go through and read the article. It still was a step-by-step process and that kind of gets boring like – not boring but it’s still something – like I saw [BiblioBouts] as an assignment, an assignment rather than a game” ([Markey, Leeder, & Rieh](#), 2012, p. 25). Reading the article may not be fun, but it is, ultimately, what you have to do.

Further, librarians already have a problem getting our instructional content taken seriously, and we should be careful that we’re not compounding our image issues through gamification. For example, a student who played BiblioBouts said of the game:

I think it's good because you're not realizing at the time that you're learning about research. Like you might not want to think, "Oh, I want to go learn about library research today." You're playing the game and you're learning about it without doing that. (Markey et al, 2010)

This student seems to say that the purpose of games is to *sneak in* the part that's good for you - the chocolate-covered broccoli approach to information literacy instruction.

The sneaky approach doesn't sit well with my belief that students will benefit from librarians' sharing the information science behind information literacy skills. One of my research interests is Meyer and Land's [threshold concepts](#), which encourage instructors to see students as novice practitioners rather than as outsiders to the discipline. From this perspective, librarians might look for activities that open the hood on database searching, or that contrast differing notions of authority in different contexts - that is, activities that will encourage students to view research through a new, librarian-like, lens (Townsend, Brunetti, & Hofer, 2011).

On the other hand, Waelchli and others point out that games don't always equate with fast and easy solutions. Waelchli writes:

Video games create a unique popular culture experience where players can invest dozens of hours on one game, create characters to identify with, organize skill sets and plot points, collaborate with people around the world, and determine actions based on new and existing information. (2010, p. 381)

Players have the patience to spend this kind of time because they have achieved that enjoyable [flow state](#). Waelchli seems to throw down the gauntlet in challenging librarians to come up with game activities that will make students take our content *more* seriously, not less. I think that there is enough evidence on the side of gaming that it's worth investigating whether it is a strategy that can be adapted for real learning beyond the orientation session.

### Game #1: BiblioBouts

BiblioBouts is an online game - scoreboard, points, badges, and all - designed to teach research and evaluation skills. It uses the online citation management tool Zotero to integrate gaming into a research paper assignment that is already part of the course syllabus. The BiblioBouts development team worked on the premise that interactive online gaming can help overcome the gaps in undergraduate information literacy skill development. (Leeder, Markey, & Rieh, 2010). With the support of an IMLS grant, the BiblioBouts team worked through several iterations of testing and assessment to develop the game (Markey, Leeder, & St. Jean, 2011). The game is no longer available now that the grant has ended, though the developers hope to find an organization to maintain it in the future (C. Leeder, personal communication, December 13, 2013).

At the time of my BiblioBouts experiment, I co-taught a 2-credit online information literacy elective called Basic Library Skills—LIB199 for short—with my Portland State University Library colleague Kerry Wu, Business and Economics Librarian. When I saw [Chris Leeder](#) present on BiblioBouts at the 2010 Library Research Seminar I could immediately see its potential for LIB199. The game seemed as if it might solve some of the problems that we were experiencing in our course: uninspired discussion board postings, little motivation to engage with classmates, and lack of community in the online classroom. We hoped that BiblioBouts would provide opportunities to practice skills learned in the course while shifting some of the interactivity away from the discussion boards.

BiblioBouts was designed for use in disciplinary courses, but we were able to adapt it for our information literacy course. Here is a detailed outline of how we used it in LIB199. Following the links below will also give you an idea of how the game works.

#### One week before the game started, we...

[introduced](#) the game along with links to BiblioBouts Home and setup instructions (links no longer available), asked students to participate in a [group discussion](#) to decide on our research topic, linked out to Georgia State's [Zotero guide](#) and assigned a Zotero practice exercise.

#### The first and second weeks of play, we...

provided detailed [instructions](#) about how to get started and how we would grade the first two bouts, linked to the BiblioBouts [game instructions](#), embedded the Donor bout demo (no longer available), embedded the Closer bout demo (no longer available), played the Donor and Closer bouts.

### **The third week, we...**

provided [instructions](#) about the third bout and how we would grade it, linked to the [game instructions](#), embedded the Rating & Tagging bout demo (no longer available), played the Rating & Tagging bout.

### **The fourth week, we...**

provided [instructions](#) about the third bout and how we would grade it, linked to the [game instructions](#), embedded the Best Bibliography bout demo (no longer available), played the Best Bibliography bout.

To clarify the scope of our goals, we didn't think of the game as a teaching tool. In fact, we *added* instructional content to make sure that we were supporting all of the skills that students would be practicing with BiblioBouts. The new content included information on installing Firefox, a graded assignment on source evaluation, a database search practice worksheet, and a handout on subject databases, all of which we felt were needed in order to prepare students to play the game (and all of which were relevant to the overall goals of the course). Also, we had to make sure that that we covered the relevant concepts in time for them to be put to use in the game.

### **BiblioBouts in practice**

Before we played BiblioBouts, some students showed enthusiasm for the idea of a research game while others went into a technology tailspin over Zotero's Firefox requirement. The week before we planned to start playing, we set up the game by asking students to make a group decision on a course discussion board about a collective topic to research. This process ran smoothly and we settled on "teen drug use" before the end of the week. Those who suggested other topics ("alternative medicine" was a contender) were willing to go along with the majority decision in order to cooperatively play the game.

We began running into problems when we asked students to follow directions to set up their BiblioBouts and Zotero accounts. Starting the week before the game officially began, and continuing all the way to the end of the game, Kerry and I fielded panicked discussion board posts, emails, phone calls, and visits to the library for tech help. Almost half the class had trouble accepting their invitation to the game because they were logged into more than one email account (the game's developers write that "Observing some players' exasperation with the game's initial registration process was a difficult pill for the R&D team to swallow because students' interest, goodwill, and patience were sometimes lost before they even started playing the game" [Markey, Leeder, & Rieh, 2012]). Students were very confused by having to sync two different third-party platforms - Zotero and BiblioBouts - on top of using the learning management system to access the course. We often relied on the game developers for help when we couldn't figure out how to fix problems ourselves.

For example, a student sent us the following email (anonymized, of course):

I got an invitation forwarded to my yahoo address, and I followed it to the bibliobouts page and logged in, but nothing happened.

I already have 2 zotero accounts and 2 bibliobouts accounts (one with yahoo address and one with gmail adress) I've tried 10 times to create a third with my school email address, but it won't let me create one for some reason. Bibliobouts obviously has some bugs that need to be worked out.

Can I do something else for the next 2 bouts?

I can't get it to work and I don't have time to keep trying this anymore. Maybe I did it wrong initially, but I can't get it to work!

I'll do an MLA bibliography for the next two, but I'm done wrestling with that stupid website! so frustrated!

I'll put it in what ever format you want with whatever sources you want, but I CAN'T GET BIBLIOBOUTS TO WORK.

please give me an alternative and let me know as soon as possible.

Our reply:

Yes, I agree that there are bugs with the BiblioBouts game and I am REALLY sorry that you are so frustrated. I hear

you!

I am trying one more thing. I just sent an invite to your yahoo account. Please take a deep breath :) and accept that invite then register using that same yahoo address to create your account. Let me know what happens, OK?

Good luck,

Amy

The student's response, which concluded the conversation:

Holy sh\*# it worked!

thanks for your help, I guess I'm back on track.

Hopefully there won't be any other issues.

Because we heard so much about the problems—our discussion board was filled with subject lines saying “help,” “still confused,” and “more trouble”—Kerry and I assumed that BiblioBouts was a complete flop. We were prepared to adjust our grading scheme if needed so that we wouldn't penalize students for participating in our experiment. But when the time came to assign grades, it turned out that the class did incredibly well at meeting the expectations we had set. Almost everybody got the highest possible grade plus extra credit points for all four “bouts.” This was much better than they did on the individual quizzes and written assignments that we gave during the rest of the quarter. We were puzzled about how to connect the dots between the negative response to the game and the surprisingly good grades.

Did we realize our goals of providing skills practice and building online community? Maybe. I think that students did have a good opportunity to practice—perhaps better than they gave the game credit for. We hoped to address a student engagement problem unique to the online environment, yet the game proved too difficult to administer in an entirely online course. As one student posted on the discussion board, “This is the hardest online assignment, and I have had 10 other online classes.” We did not repeat BiblioBouts and resolved to henceforth and forevermore only use content that can be brought into the learning management system rather than asking students to navigate away to other platforms.

## Game #2: Citation Sleuthing

Time passed, Kerry moved on to other projects and no longer co-taught LIB199, and I was ready to try another game in the course. This time I used a book as my starting point: *Let the games begin! Engaging students with field-tested interactive information literacy instruction* (McDevitt, 2011). I decided to adapt Jenna Kammer's game called Database Diving (while I was at it, I changed the name as well). It appealed to me because it creates a context for students to practice expert research behavior. Professionals and academics don't just read an article as a standalone piece—they read it in context and track down sources that catch their interest or relate to their own projects. At the same time, Kammer's game provides an opportunity to scaffold writing a bibliography, which was part of the final project for my course.

The instructions and rubric for this assignment evolved over the three quarters that I used and refined it. Here is how I presented it the last time it was taught:

### Assignment 2: Citation Sleuthing

This assignment has two goals: practice tracking down the sources of information mentioned in articles you read; and practice writing *perfect citations* in the style of your choice.

1. Read Dan Fisher's article, Ready for the “Digital Natives”?, and write a *perfect citation* for it.
2. Track down at least 5 of the sources referenced in the post and write *perfect citations* for them (I counted 13 potential sources that you could cite for this article).
3. Keep going... If you see a reference list in one of the linked sources, track down and write *perfect citations* for those sources as well.
4. Organize your *perfect citations* in a timeline, oldest to newest (note: usually bibliographies are organized

alphabetically by the author's last name, but for the purposes of this assignment please organize chronologically). In order to get full credit for this assignment, your timeline must include:

- Citation for Fisher's article;
- Citation for at least one book;
- Citation for at least one scholarly article;
- Citation for at least one report from a private organization;
- Citation for at least one website or webpage.

5. The group leader will upload the citation timeline to the specified group dropbox. Make sure that the names of participating group members are at the top of the document.

**Note:** *Perfect citations* don't have any formatting mistakes. We care about punctuation, capitalization, italics, the order of the elements, etc. Visit the citation handout if you need a reminder of the resources available to you. The best you can do on this assignment is 5/10 if your citations are not perfect.

**Extra Credit:** You can compete for extra credit points for your group by finishing first, having the most correct citations, or finding the oldest citation in the class. On your mark, get set, go!

*This activity was designed by Jenna Kammer and originally appeared in Let the games begin!: Engaging students with field-tested interactive information literacy instruction (Neal-Schuman, 2011).*

### Rubric for Assignment 2: Citation Sleuthing

Here is how we will evaluate Assignment 2. Please read the assignment instructions carefully before you begin!

	2 pts	1 pt	0 pts
Cite Fisher's article	Perfect citation	Has citation but it's not perfect	No citation
Cite at least one book	Perfect citation	Has citation but it's not perfect	No citation
Cite at least one scholarly article	Perfect citation	Has citation but it's not perfect	No citation
Cite at least at least one report from a private organization	Perfect citation	Has citation but it's not perfect	No citation
Cite at least one website or webpage	Perfect citation	Has citation but it's not perfect	No citation

Extra Credit:

- 1 EC point for all members of the group that hands in their assignment first
- 1 EC point for all members of the group that submits the most correct citations
- 1 EC point for all members of the group that tracks down the oldest citation

In trying out this new game I applied some of the lessons that I learned from the BiblioBouts experience. It didn't require registration with a third-party platform and could be done entirely using the same technologies that were used for all assignments (discussion boards, Google docs, email). There was no signup process - students worked in assigned groups that stayed the same for the whole quarter. Compared to BiblioBouts, this game is decidedly low-tech.

In order to prepare students for the assignment, I had to make sure that we covered the following skills before we started: identifying formats, advanced web search, searching databases for articles, searching the catalog for books, finding a known

article, and citation. The groups had two weeks to complete the assignment.

### Citation Sleuthing in practice

Once again, the first time I tried the game my students did not have a good experience. They spent far longer than I intended on it. I assigned the Newsweek article recommended by Kammer, but its sources were in some cases vanishingly hard to track down, and students expended too much effort chasing after the extra credit points. I had a group get into a serious fight over whether they were allowed to include sources that did not meet the evaluation criteria we had practiced using in the previous assignment.

One student posted to the discussion board:

Is it just my group, or is everyone spending hours upon hours on this?

A classmate replied:

That is such a great question. I feel like I am doing the amount of work equivalent to that of my 4-credit classes.

Trying to calm the waters, I wrote back:

Sounds frustrating! Do you have 5+ citations on your timeline? If so, why don't you check whether your group is willing to call it a day and hand in the assignment as is. That way you can move on to other things.

Hope this helps,

Amy

With the help of my TAs, [Emporia State University MLS](#) students Jaki King and Carlyne Begin, I refined the wording of the assignment over the next two quarters in order to clarify my expectations about the amount of work involved. I also changed the rubric to enable partial credit for incorrect citations. Since the goal is to track down and cite the sources, the points needed to be divided evenly between demonstrating those two skills.

Finding an article to replace the original one was tricky. For the purposes of the assignment, the article cannot already have a bibliography or links to its sources. It should lead out to the types of sources that students need to practice citing, such as journal articles and books. I also wanted it to relate to an information literacy or information technology concept in order to stay within the theme of the course. After trying to use a Harvard Business Review blog post that turned out to only permit limited viewing, I finally hit on the Fisher article referenced above.

Perhaps it's unfair to compare this experience to the one I had with BiblioBouts, since I gave this game the benefit of repeated attempts and revised it each time I used it. Setting aside the technology problems that I eliminated by playing a game within the course, I was willing to stick with this game because the connection between my objectives and what the students actually practiced was more easily controlled. Given another opportunity to teach a for-credit IL course, I will use this assignment again.

### So... Did gaming work for me?

One premise of educational gaming is that it leverages our intrinsic motivation for play. Given this, I was intrigued by the BiblioBouts team's findings that the *real* motivator for students to play BiblioBouts is grades. Even cash prizes were not as effective at getting students to play as the promise of a half-point grade increase from the professor (Markey et al, 2009). This finding would appear to answer the question posed by the title of the team's 2009 article, "Will undergraduate students play games to learn how to conduct library research?"—Yes, if it is required for a grade. This finding offers insight into how to increase game participation, but at the same time it casts doubt on the claim that playing educational games motivates students to learn.

Students took the competitive element of Citation Sleuthing very seriously. Even one extra credit point clearly motivated them to find the most citations, hand their assignment in first, etc. I don't think that it's a good idea to equate feeling

competitive with feeling playful. Some of my students had an agonizing experience with the game. Yet adding competition to an activity is a fairly simple way to “gamify” it, and it seems to me that it is so hard to use games well that we might be better off sticking with simple ideas.

Setting the motivation issue aside, does educational gaming improve student learning outcomes? The BiblioBouts designers have collected data that provides subjective information about whether students were satisfied with their experience (Markey et al, 2010), which is not quite the same thing (Hofer & Hanson, 2010). One faculty member reported in an interview that he saw improvement in the quality of final papers: “The assignments, the essays came out really much, much, much better than I have ever seen them with this group of students ... So the quality of their thinking has gone up, which is why I am very excited about using this game” (Markey, 2012, p. 11).

The game developers’ research suggests, however, that students may not always apply the skills that they practice while playing BiblioBouts when it comes time to write their papers. They game the system by focusing on scholarly sources while playing BiblioBouts, but their assignment bibliographies were not significantly different from those of classmates who did not play or did not complete the game. BiblioBouts is about finding sources, not necessarily understanding them, and so students may not have the reading skills or specialized disciplinary knowledge needed to actually interpret, evaluate, and deploy an academic article in their own work (Markey, Leeder, & Taylor, 2012).

In their publications (one of which I coauthored: Markey, Leeder, & Hofer, 2011), the BiblioBouts developers strike a balance between advocating for the product of their hard work – e.g. “BiblioBouts solves the problem of teaching students information literacy skills, concepts, and tools in a unique way” (Markey et al, 2010) – and calling for sensible pedagogy, such as “These findings demonstrate that information literacy games cannot stand on their own” (Markey et al, 2009). The premise of the game itself is compelling in that it provides a very flexible scaffold for students to practice research-related skills while requiring faculty to consider how to integrate and support the game in the context of the course and assignment.

However, playing the less immersive, more limited game worked better in my course. I was also able to set it up so that I could assess the effectiveness of the game itself, which I was not able to do with BiblioBouts. At the same time, I’m not sure that my students experienced Citation Sleuthing as a game. It was presented as an assignment and generated as much anxiety as an assignment. I ended up feeling that if I engaged students and met my learning objectives, if I encouraged students to see information just a little bit more the way that information professionals do, then it didn’t matter very much whether the activity was or was not a game.

After this much investment, I don’t think that I can qualify as a gaming skeptic anymore. However, I still think that the use of games, or gamification, should be very carefully considered. I’ll leave you with a few questions I’d like to discuss further – please comment!

What is the minimum threshold for an activity to be a game? Do we need a better way to differentiate between games, activities, and gamified activities?

Do librarians in particular need to think about games? Or should we mind our own business?

Have you tried a game that worked? Have you tried a game that didn’t work?

Do librarians need a widely usable game that’s developed by professionals?

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