

Put the Pencil Down: Using Student Podcasts to Assess Learning in a For-Credit Research Course

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Introduction

For-credit information literacy courses—which cover the recognition and definition of information needs, as well as location, evaluation, and responsible use of information—are now becoming part of the curriculum at colleges and universities. This trend is being driven by the programmatic adoption of ACRL Information Literacy Standards by academic library departments, local campus adoption of information literacy graduation or general education requirements, as well as mandates from higher education accreditation agencies such as Middle States Commission on Higher Education and the Western Association of Schools and Colleges.

At Hunter College, a public liberal arts college that is part of the City University of New York, the library department offers such an information literacy course, LIBR 100: Information Research. Since this one-credit course was developed in 2006, a fixed-choice, pre- and post-assessment has been used to assess student learning over the duration of the semester. Given that information literacy involves mastering a research process which engages higher-order cognitive skills such as analysis, synthesis, and evaluation,¹ the co-investigators decided to create a set of more performative pre- and post-assessments that would more accurately capture a student's research process: podcast narrations of student's research strategy on a specific subject. Though not strictly performance-based, it was theorized that these podcast assessments had performance-based elements,

such as elicitation of “higher-order learning skills and reasoning” and contextualization which would make the podcasts more authentic forms of assessment than fixed-choice tests.²

Literature Review

In higher education, podcasting has been mostly used as a medium to simply deliver instructors' lecture content rather than as a medium to capture and foster active learning.³ Within the realm of academic librarianship in particular, a review of the peer-reviewed library literature reveals there is ample documentation on the use of podcasts for delivering of instructor created content for library orientation and information literacy instruction.⁴ However, there is no evidence of the use of student generated podcasting as venues for recording learner knowledge and self-reflection related to information literacy.

Recently there have been relevant methodological developments which suggest a potential greater use of podcasting in information literacy instruction and assessment. These techniques include written or audio-taped journaling, which have been used to record learner metacognition—that is thinking about one's thinking—related to the information research process.⁵ Such metacognitive knowledge is threefold, and includes “self-knowledge (awareness of one's own cognition, including knowledge of one's strengths and weaknesses and the awareness of one's motivational beliefs), task knowledge (knowledge about the cognitive demands of the task), and strategic knowledge

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(procedural knowledge of cognitive strategies to employ when unsuccessful).⁶ These recent findings suggest that student journaling using audio-podcasting can be similarly used to capture and assess the cognitive and metacognitive skills required for effective information research.

Using Podcasts as an Assessment Tool

The assumption that students use the Internet, out of perceived convenience, to do their academic research instead of library search tools led to the development of this assessment tool. The authors were looking for a richer way to understand the research process of students at the start of the LIBR 100 course, when they seemingly had low-levels of information literacy skills, and measure how that process had changed as a result of the learning objectives of the course. The assessment of the process of research was not coming to light in the previously used pre- and post- fixed-choice survey. Although the fixed-choice survey measured the understanding of the concepts and ideas taught in the course, it did not reveal whether students actually put them into practice when planning or thinking about their research.

An assignment was then developed that would allow the instructors to better understand the students' perspective on research, as well as allow the students to reflect on what they had learned during the semester. A pre- and post-assessment was given to students in the form of a question: "If you were asked to write a paper on Global Warming how would you begin and proceed with your research." The students were instructed to produce a 3-minute podcast answering this question. The pre-assessment podcast was recorded in the second class, and the post-assessment podcast was recorded in the second-to-last class of the semester. The podcasts were created using the Wimba Podcaster tool in Blackboard. After completing the post-assessment students were asked to listen to both podcasts and reflect on the differences and what they had learned as a result of the course. Students were also encouraged to listen to their classmates' podcasts. Additionally, students completed a survey on their perceptions of using the podcasts as an assessment of their learning.

The podcast assessment has been used for three semesters. Two of the semesters are being studied as part of a research project. Data Set 1 was gathered in fall 2008 and included 18 students enrolled in the course. Data Set 2 was gathered in fall 2010 and in-

cludes approximately 21 students enrolled in the course. Since the course is an elective there is a wide variety of students enrolled. Although targeted at lower undergraduates, juniors and seniors dominate the make-up of the course. This is due to the need for one-credit courses to fulfill graduation requirements.

The first time this assessment tool was used in fall 2008, students were asked to bring a script to class where the podcast would be recorded. After sharing the results of this research with colleagues, it was posited that unscripted podcasting would more accurately reflect the students' process as they would have not been primed by instructor expectations for performance. In fall 2010, the assessment was modified; the results of the change are currently being looked at and will not be considered in this paper.

Analyzing the Podcast Data

To analyze students' knowledge of learning outcomes, as articulated in both sets of podcasts, a content analysis strategy combining a qualitative and quantitative approach was applied⁷ to Data Set 1.⁸ The unit of analysis was the recorded text of individual podcasts, which was based on a written script produced by each student. The audio texts were then coded for target learning objectives and outcomes—these comprised the categorical variables for coding. The actual recorded podcasts rather than the prepared scripts were analyzed since technical problems with the courseware system which was used for delivering completed scripts prior to actual recording time was down; also a couple of students had not prepared scripts or altered them in when they did the actual podcast recording. These learning objectives and outcomes were derived primarily from the course syllabus and were reframed for coding using the ACRL Information Literacy Competency Standards for Higher Education.⁹

A full analysis of Data Set 2 and comparisons with Data Set 1 is currently underway (Data Set 2 was compiled in December 2010 after the completion of the semester). The following section will discuss the findings from Data Set 1.

Findings

The authors identified particular learning outcomes they believed would be improved from the first to the second podcast. These included:

- The student refers to finding background information at the beginning of research.

- The student identifies the purpose and audience of potential resources.
- The student identifies value and differences of potential resources in a variety of formats.
- The student reviews the initial information need to clarify, revise, or refine the question (including topic selection).
- The student examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias.

These particular outcomes involve higher-order thinking skills—analysis, synthesis, and evaluation. If the podcasts were able to assess these skills, it was believed this form of assessment would be a valuable tool.

Refers to finding background information at the beginning of research

Finding background information is an important step in the research process. It helps students focus their topics, as well as gives them a better understanding of terms and concepts that will be useful in searches. Most students did not mention finding background information in the first podcast. By the second podcast, more students were recognizing this as a first step. One student explicitly recognized in Podcast 2 as compared to Podcast 1, that “If I were now to start researching the topic of Global Warming, I would begin with reading a few reference sources to gain a bit of background knowledge...” Another student, in the write-up comparing the podcasts said “In the second podcast, I also mentioned searching background info which I did not mention in the first. I also didn’t know that searching for background information could be so helpful in determining how effective your topic is. It also helps in determining which keywords yield the most results.”

Identifies the purpose and audience of potential resources

In Podcast 1, most students did not explicitly address the purpose and audience of possible resources (e.g. discussing the merit of popular vs. scholarly works, current vs. historical resources, etc.) that might be useful for the search topic. However, by Podcast 2, this group demonstrated knowledge of the need to identify the value of specific resources and their audiences. For instance, in Podcast 1, a student began by stating that

“[The] Internet is the first source to use to research on global warming. I would use Internet Explorer or Firefox to [do] the research on Google...” Contrastingly, in Podcast 2, the same student announced at the start “If I were to write a paper on global warming, I would be using different types of resources to do my [research]. First I would go to the Hunter website to and use the database... Academic Search Premier... and see what I can find through peer-review... Academic Search Premier or Greenfile is a good site to look at recent articles...for global warming... Then I would look at newspapers to find recent news...”

Identifies value and differences of potential resources in a variety of formats

Many students do not use the variety of sources that instructors would like to see explored for a research topic. Often they do not differentiate between books, articles, websites, and other materials nor understand how each of these sources might provide different value when answering a research question. It was anticipated that this would change as a result of the learning objectives of LIBR 100. Through the podcast assessment, we did see progress in this area. In Podcast 1, most students did not comparatively discuss the merits of potential information resources prior to their search. However, many in this same group did recognize this critical step in Podcast 2. For instance, a student began Podcast 1 as follows “To begin my research process I’ll first go to the Hunter College Website and then go into the database section and go to the database Science Direct...” However, in Podcast 2, this student explicitly articulated criteria for selecting an information resources: “A good choice in a database makes a difference—it can make a difference [in] the quantity and quality of the results received; choosing a book would also be important, when choosing book it is important [to] consider whether the book is current, the status and information about the author, and whether the information is easily readable and well researched; much is to be considered when choosing a website...”

Reviews the initial information need to clarify, revise, or refine the question (including topic selection)

Another problem area we find needs improvement is the ability to clarify, revise, or refine the research topic. Several students in Podcast 1, did not recognize

the need to refine the given research topic of Global Warming prior to initiating a search. However, in Podcast 2 this group articulated priority for topic refinement as a first step prior to search. This was seen through the addition of key search words in search strategies and through the review of search results. For instance, in Podcast 1, a student did not address topic refinement and focused on database selection; in Podcast 2, this student states "...You'll use the topic of Global warming, don't worry if this is too broad... Once you have given your topic a general read of your articles, narrow your topic to one specific area..."

Examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias.

It is not surprising that few students mentioned the evaluation of resources in the first podcast. The few students that mentioned source evaluation only show a cursory understanding of the topic. One student quickly stated that it is not good to use Wikipedia or "home-made websites" when doing research, another student said she would evaluate her sources to see if they were scholarly, and another, who focused all of the first podcast on Google searching mentioned he would check the credibility of the websites he found.

Source evaluation was much discussed in the second podcast. Students addressed authority, currency, and bias, not only of web resources but also of books and articles found through catalog and database searches. One student focused much of the second podcast on source evaluation; her grasp of its importance was clear in her statement: "I never before questioned an author of a book after checking it out of a library. Now I see that it is important to have an expert in the field of which you are researching." The student above, who was so focused on Google searching in the first podcast, indicated he has gained more in-depth knowledge of source evaluation in the second podcast. After discussing the use of library databases to find information, he said that he used Google to search for information on authors writing on global warming to see if "the person is connected to a university or other credible institution." Additionally, another student showed her deeper understanding of source evaluation in her write-up: "I also realized the importance of footnotes or endnotes that identify the sources of the information that I did not realize in

[the] first podcast. For the books, I realized in the second podcast that once I find the book that is useful for my topic, I have to check the list of sources and footnotes in the back of the book for the credibility of the sources of the information. Furthermore, those footnotes can help me to search further on other books or articles on that topic to have more information."

How did the audio recording project affect student learning?

The podcasting assessment was successful in helping students articulate their current skills and thinking about the research process. Some said that the podcasts helped them get organized and provided a verbal outline. Others said that the podcasts revealed their weak spots and helped raise self-awareness. Most students thought that creating audio recordings helped them think about what they knew about doing research and helped them articulate the research process better. These findings align with Lee, McLoughlin, and Chan's observations that students' metacognition develops when they produce and share audio-podcasts with disciplinary content.¹⁰

What did students learn by reflecting on the differences between their first and second podcast?

By listening to their first and second podcasts, students realized that they gained knowledge about the research process, learned about useful databases and resources, and can now perform better searches. Students noted that their first podcasts were shorter, vague and showed "that I had a basic method of doing research." In contrast, their second podcasts were more detailed, revealed new techniques used such as truncating and connecting words, and included more resources such as different databases. One particular student stated that her first podcast "reflected an emphasis on finding research to support my thesis" but the second podcast "revealed that I now focus more on finding a plethora of sources that I can use so that I broaden the quantity and quality of my sources."

Conclusion

This case study on the use of podcasts as information literacy assessments suggests that podcasts can be useful from an instructor as well as a student perspective. The investigators found that podcast recordings of student narrations of their information research

strategies were useful as pre- and post-assessments; the podcasts measured the acquisition of higher-order thinking skills that are engaged in an information research process—such as analysis, synthesis, and evaluation. From a student perspective, students saw evidence of their own learning by listening to and reflecting on their initial and final podcasts; also, by listening to other student's final podcasts, students became aware of information research methods used by other students and reflected on own methods and knowledge of the information research process. Such benefits from a student's viewpoint suggest that narrating their information research process via a podcast as well as listening to their own or their classmates' podcasts increases learner metacognition. However, these findings are limited to this case study, and quantitative studies will need to be conducted to validate the generality of these conclusions. Another avenue meriting further research is the comparative value of student generated podcasts versus written work in the context of an information literacy course: does a podcast narration of the information research process demonstrate more or less "higher order" thinking skills than what would be evident in a written product?

Notes

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