Badges in Information Literacy Instruction

a working white paper by

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A. Introduction

The 2013 New Media Consortium Horizon report identified gamification and particularly digital badges, as technologies that could significantly impact higher education in the next two to three years. Several articles in the Chronicle of Higher Education academic periodicals have popularized the idea of badges as disruptive agents to traditional learning and assessment (Young,, 2012). This disruption occurs at the same time as the ongoing evolution of academic library services, especially the push for information literacy instruction. Academic Libraries are poised to explore ways this disruptive technology can be integrated into higher education. Digital badges originate from the toolkit of games. Gamification in education is often mentioned as a way to engage and motivate learning. Applying effective game elements to learning requires surprising planning and reconsideration of content and learning goals. Far from concerns of "dumbing-down" instruction, effectively applying gamification to learning actually complicates the process; adjusts the roles of learners and instructors and adds new dimensions to the process of learning and assessment. This paper will explore applying digital badges to information literacy instruction.

What are digital badges?

Digital badges are an element of gamification in which progress toward an accomplishment or skill is tracked using digital certificates issued by the instructor to the learner. "Digital badges are an

assessment and credentialing mechanism housed and managed online. Badges are designed to validate and make visible formal and informal learning settings. Digital badges hold the potential to transform where and how learning is valued." (MacArthur Foundation, 2013).

Digital badges bring the potential for motivating student participation, tracking the possible paths to a learning goal and providing a more granular and transparent degree of assessment than qualitative surveys. Digital badges may provide insights into the associations students make between instruction activities and learning goals.

In addition, many libraries are using digital learning objects to increase their instructional reach. Digital learning objects are automated, interactive programs delivering information and learning activities remotely to learners. Digital learning objects greatly extend information literacy instruction efforts by providing point of service instruction at any time of day. Together, digital badges and learning objects are able to facilitate instruction and assessment in one step. Learning objects facilitate information literacy instruction while earned digital badges allow for assessment. Digital badges allow instructors to assess learning goals addressed by the digital learning object.

Background

Digital badges in higher education are only recently the subject of scholarly study. Many of the scholars exploring digital badges study gamification. Gamification was first adopted by marketing personnel as a way to engage consumers and audiences and improve productivity. Recent years have seen experiments with game elements and especially digital badges in community education. Higher education is relatively new to exploring uses of badges and game elements in learning and assessment. Recent works introduce the concept of digital badges and how they might work to support education. Anne Eisenberg (2011) provides a simple description of how digital badges store achievement

information and how major organizations are using badges to innovate how credentials are earned and presented. Cheryl Grant provides a digital badge primer for librarians and the roles for institutions in offering badges. (Grant, 2014). Experiments at University of California Davis are rethinking educational credentials through a focus on Digital Badges (Carey, 2012). Digital badges are redefining the traditional roles of learner and institutions, allowing learners and instructors to interact on a more level plane to negotiate learning and achievement (Nicholson, 2012).

Digital badges are being used by several institutions of higher learning. The University of Southern California is utilizing badges in the Joint Educational Project, a service learning program. Purdue University is building its own badge delivery platform and issuing badges in combination with a non-credit-bearing MOOC. Longwood University used badges to support an online course preparing students for college. In an extra-curricular use of Badges, Seton Hall uses badges to encourage greater student engagement with campus events. (Raths, 2013). A Rhode Island high school is also recognizing and encouraging learning outside of class by issuing digital badges (Fleming, 2013).

Scholars are examining how digital badge programs can benefit higher education. Bixler and Laying (2012), propose applying digital badges to higher education at Penn State University as a solution for assessing large online courses. Carla Casilli, badge system designer for Mozilla's Open Badge project, has ongoing explorations of the pedagogy and practical design behind implementing a badge program in her blog (Casilli, 2014).

Discussion

Digital badges solve several problems for information literacy instruction. First they provide a more reliable means of assessment for information literacy instruction. Many times instruction

librarians rely on voluntary, qualitative feedback or numerical attendance statistics to assess instruction. Badges add a deeper layer of understanding not only of the number that participated in an instruction session but also whether objectives were completed and learning goals attained. All of this is signified through a digital badge.

Information literacy is sometimes disregarded for several reasons. Some professors assume students are proficient with research. Many students assume that research is "easy enough" that instruction is not needed. A "one size fits all" approach to one-shot library instruction fails to take into account students' varying levels of research experience in a single library instruction session. Often, students are assigned library instruction classes only to be exposed to information literacy objectives they have learned in prior instruction session from another course. Redundancy of instruction can be counter-productive to promoting information literacy among students. Students that could use more advanced literacy direction are subjected to basic concepts over again. Badges may decrease the redundancy of instruction. A badge program enables librarians and professors to determine a particular class's mastery of information literacy and customize a library instruction session according to actual student needs.

Digital badges also make individual learning paths transparent. Students develop their own connections to learning objectives and these connections may differ from those explained in library instruction sessions. Badges can make these paths apparent to students, librarians and instructors. Research and learning are highly individualized processes. Understanding how these connections are made can help improve the delivery of information literacy instruction. Nicholson (2012) and Casilli (2014) discussed this issue in their blogs.

Digital learning objects add a new dimension to library instruction. DLOs allow the prospect of

anytime, point of service information literacy instruction. Some simpler learning goals, such as how to locate a book and where to check it out, can even be handled without library instruction, allowing librarians to focus on more advanced and customized instruction topics during face-to-face instruction. DLOs can be programmed so that completion automatically issues the badge to the student and allows librarians to assess instruction efforts..

Application:

Digital Badges have technical and programmatic components. On the technical side, students complete an instruction activity and submit completion to the badge issuer, who, after reviewing the submission, issues the badge. Students can retrieve the issued badge for storage or display on their resume or social networking sites of their choice. The mechanics are fairly easy to develop. An API can be programed to issue and deliver badges through a verified email address. The Open Badge protocol developed by Mozilla is the current standard for developing badges. Free and subscription badge issuing organizations, such as Credly and Achievery, also provide issue and delivery services for digital badges. Many course management systems, Moodle and EdX, have badge capabilities built into their functionality.

The technical infrastructure for issuing a badge is relatively easy to implement; however, the programmatic aspects of digital badges are far more complex. Badges need not be digital. From the boy scouts and girl scouts to elementary education, badges have been used in a variety of social and educational settings. Digitizing badges facilitates delivery and verification but badges can be totally analog as well though digital badges make the assessment and display of badges much easier.

Whether or not a badge program is digital pales in importance to how the program is

conceptualized. Planning the program is the determining factor of a badge program's success and usefulness. As with any student-centered instruction, learning outcomes must be determined in advance. Each learning outcome represents a badge. The tasks leading up to each badge form a kind of matrix or constellation of activities and connections that are necessary to achieve the badge. (Casilli, 2014). The path to a particular badge may not be linear. Two learners achieving the same badge may arrive by drastically different paths. Librarians must develop a variety of learning activities that apply to learning objectives which, in turn, earn badges.

Using Information Literacy as an example, the first step in developing a badge program is to identify learning goals. These goals will comprise the information literacy curriculum and also determine the available badges. Activities earning these badges must be arranged in paths that may point to a badge. Carla Cassilli conceptualizes the framework for badges as a constellation or an interwoven series of paths relating to a given badge or set of badges (Cassilli, 2014). For example, if evaluating scholarly information is the learning objective, then an *Evaluating Scholarly Information* badge signifies whether the student completed the activities associated with that badge. Laying out goals and activities is the crucial preparation for an effective badge program. Without this step, a badge program is not going to be a useful or meaningful means of assessment.

Information Literacy has a set of learning objectives that can be turned into badges. These learning objectives are achieved through specially designed activities to demonstrate mastery. The process of incorporating authentic assessment activities with learning outcomes into information literacy instruction is outlined by Whitlock and Nanavati (2013).

Authentic Assessment Steps for Library

Instruction applied to a Badge program.	
Articulating learning outcomes	Articulating learning outcomes translates to available badges.
Designing learning activities and assessments	Designing the activities and their evaluation determine the steps to appropriately earning a badge.
Establishing evaluation criteria	Setting up rubrics or other performance measures that determine mastery of the outcomes.
Deploying activities and implementing assessments	Deploying the activities gives access to the learner to earn the badge.
Reflecting and advising	Reflecting on whether the activities truly demonstrated mastery of the objective is important for the instructor.

Instructional librarians must remember there are many ways to achieve a learning objective. A proper badge infrastructure makes the learning path visible and allows librarians to systematically assess whether the learning goals are achieved. A badge system can be designed to include the learner's reflection too. Once a set of learning activities are completed, the learner can assess what goals the activities have helped him achieve and present a justification for why a badge should be awarded. This carries the possibility of adjusting the dynamics between learners and instructors in positive ways.

Proposal:

This paper advocates for the development of a badge program to support Information Literacy instruction at a liberal arts university. Implementing a badge program will address several issues:

-Determine Information learning outcomes.

-The development of a matrix or constellation of activities aligned to learning outcomes.

-Developing a technical infrastructure for issuing and delivering digital badges.

- Setting up a means of review and assessment of the badge program.

Benefits:

A badge program supporting information literacy will:

- Provide a representation of the information literacy curriculum.

-Allow students, professors and librarians an idea about whether students have mastery of specific information literacy skills.

-Students will have proof of information literacy skills that can be displayed to colleagues and employers

-Provide a new dimension of assessment outside of voluntary qualitative data that will allow Libraries to better assess their instructional effectiveness.

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