*Chapter Five*

# Using Digital Badges to Enhance Research Instruction in Academic Libraries

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## INTRODUCTION

Digital badges are an electronic means of communicating credentials or achievements. They have a visual element, similar to an icon or a scouting badge, which creates an initial indication of the credential. With a click, badges then convey metadata about the learning path required to earn the credential and can provide access to more information or work product. They are "instantly accessible portals to evidence of a person's accomplishment, like internships and portfolios of work" (Carey, 2012, Nov. 2). At their best, badges can create a sort of interactive e-résumé. Thus far, they have proven particularly popular in computer-oriented fields such as programming, web design, and game design, but they are making headway in other academic areas as well.

Librarians—whether in academic libraries, public libraries, or specialized libraries—do extensive amounts of education, but rarely do they have mechanisms to acknowledge student achievement or be acknowledged themselves for the teaching they provide. Digital badges offer new opportunities for librarians to add value to existing educational systems and be acknowledged as educators. Take the following example: a librarian may partner with a humanities professor whose students must write a research paper by the end of the semester. Typically, the librarian may be invited into the classroom, or the students may be sent to the library for a single research lesson on data-

bases and search terms—not enough for truly high-quality research. A better alternative may be that the professor require the students to complete a series of badges—designed, implemented, and managed by the librarian—that build thorough research skills and ultimately produce a better paper (for example, University of Central Florida [UCF] [2014]). The badge program adds value to the humanities course without much additional cost to the university, better research is conducted, student achievement is recognized, and teaching by librarians in their area of expertise is acknowledged and validated. In addition, not only would the badges enable students to communicate their research competencies digitally, but they would also act as an incentive for further training.

This chapter explores the nature and potential of badges, their technical aspects, and the institutional issues involved in establishing digital badge programs in academic libraries.

## THE NATURE AND APPLICATION OF DIGITAL BADGES

Badges come in many forms and have been used for centuries as indicators of credentials, achievements, and rank. As Halavais (2012) points out, badges have also been used to mark people as belonging to a group (for good or ill), to indicate authority (military ranks), or to simply communicate a viewpoint (bumper stickers and political buttons).

Badges hearken back at least as far as the Middle Ages, where pilgrims wore badges to communicate which holy sites they had visited (BBC, n.d.), and servants, retainers, and followers wore badges indicating their loyalty to a particular nobleman (Fox-Davies, 1907, p. 14). The United States military has been issuing badges since the Revolutionary War (Washington, 1782), though the system of military badges expanded considerably in the twentieth century to indicate skills, identity, and rank (Navy Personnel Command, 2011). Of course, scouting organizations have long used badges as signs of achievements. Sir Robert Baden-Powell included identification and proficiency badges in *Scouting for Boys*, the 1908 publication that gave rise to modern scouting organizations (Baden-Powell, 1908/2007, p. 37). Other examples include police badges and martial arts belts (Halavais, 2012).

More recently, badges have been popularized by the video and online gaming communities. Badges and similar indicators are used to reward and communicate progress or achievement in a game. Research indicates that incentives, progress, and rewards—even when they are only ephemeral—are vital characteristics of successful games (Zichermann & Cunningham, 2011). A good example of this is SuperBetter (n.d.), a website that encourages players to improve their health and increase their personal resilience by mapping their own goals, incentives, and rewards in a gamelike environment.

Likewise, skill-based incentives in a learning process have been identified as a means to motivate beginners and even those with intermediate skills when other forms of promotion are not available or not relevant. As Halavais explains,

> Badges of achievement do more than just celebrate a particular victory or ability. From very early on, it became clear that they encouraged excellence and the development of particular skills, or even just participation in a collective action. While a trophy or medal is one way of inducing competition among a group to see who might become the most skilled, this does little to motivate the neophyte. As a result, indications of more discrete skills, and of levels of skill, have frequently been adopted as a way to shape behavior. (Halavais, 2012)

Because of this potential to motivate all kinds of learning, educators are interested in digital badges. They are being implemented by K–12 teachers (Ferdig & Pytash, 2014), the Smithsonian Institution (Waters, 2013), and institutions of higher learning including Purdue University, Carnegie Mellon University, and the University of California, Davis (Carey, November 2, 2012).

According to Brent Herbert-Copley of Canada's Social Sciences and Humanities Research Council, the ideal college graduate is now "T-shaped," combining a broad set of skills such as information literacy, writing, communication, and teamwork (the horizontal stroke) with in-depth knowledge in a particular area (the vertical stroke) (Herbert-Copley, 2013). Badges provide students seeking these horizontal skills with structure for their learning, recognition of their achievement, and the means to communicate their skills to potential employers.

Enthusiasts point to several aspects of digital badges that make them flexible and informative. Perhaps the biggest advantage is that badges have the capacity to convey far more information about the learning path than traditional grades or transcripts. Someone seeing an "A" on a typical transcript cannot readily know what earning that "A" actually entailed. A list of classes taken or a degree granted can give some impression of a body of knowledge, but the impression is built on nothing more than course titles or the degree major. In contrast, badges are "talkative" (Rughinis, 2013). They can carry with them all the information about the requirements involved in earning the badge, who issued the badge and what their level of expertise is, what the student accomplished, when the badge expires (if applicable), and how the accomplishment relates to other learning experiences and other badges. Badges can also provide a portal to a work product created in pursuit of the badge. In short, they provide evidence-based documentation of an achievement (Casilli, 2012).

A second advantage of badges is that, thanks to projects such as Mozilla's Open Badge Initiative, badges can easily be designed and issued by anyone. Although this may seem threatening to traditional educational institutions that have long dominated the credentialing market (Carey, 2012, March 13), a more open system of credentialing through badges may well benefit society at large. Erin Knight, senior director of Learning at Mozilla, sees badges as an opportunity to counter the monopoly accredited schools have on education that "counts" (Carey, 2012, Nov. 2).

Digital badges are also highly portable. People collect badges in portfolios—called backpacks, wallets, passports—that can include badges from multiple issuers. Figure 5.1 offers an example of a Mozilla Open Badge Backpack. Badge issuers may be traditional educational institutions or alternative sources of learning, but together they can give a fuller picture of a person's commitment to learning and expertise. Badges can be organized into different portfolios, such as one for a job search, one for a graduate school application, and one for a hobby. Badges can easily be communicated via social media, e-mail, and personal or professional websites, all at no cost to the badge earner. "[B]adges may be not just an alternative to traditional résumés and transcripts but an improvement on them" (Carey, 2012, Nov. 2).

In addition, research instruction itself would likely benefit from the use of badges. Research and information literacy classes typically develop a student's skills in a few discrete areas, each limited by the time available and the

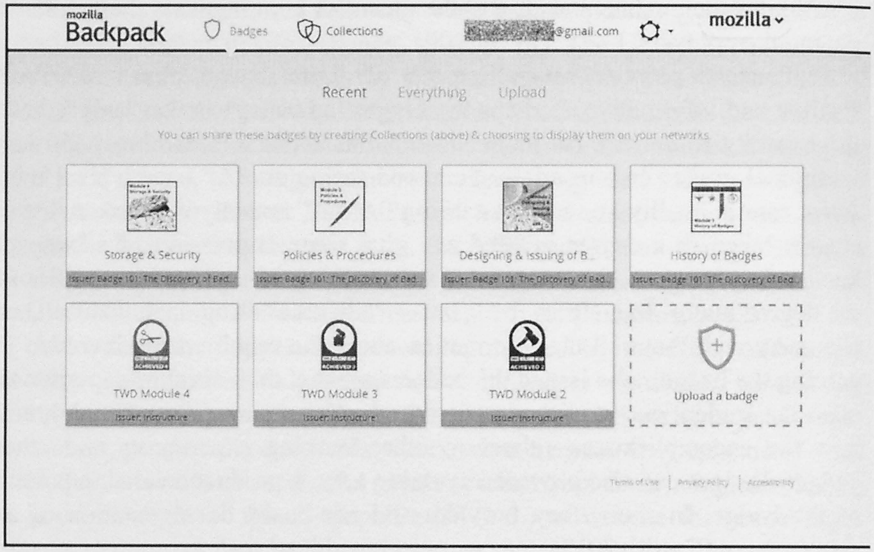


**Figure 5.1. Mozilla Open Badge Backpack.**

readiness of the students. These limitations keep instructional librarians from delving deeply into these skills, thereby limiting the instruction all students receive. Offering optional badges would let librarians provide advanced instruction to those students seeking greater expertise without pushing up against the limits of time, interest, and readiness on the part of an entire group. The self-selection for advanced badges would also give students control over their individual educational goals and needs.

This idea of a series of badges leads to the notion of metabadges. Metabadges are simply badges that indicate completion of multiple related badges. This can help communicate both iterative progress as well as mastery, similar to a progression of courses taken to complete a major or a graduate degree. The University of Central Florida's information literacy badge program offers a good example. At the basic level, students who complete any of the library's information literacy instruction modules and score at least 80 percent on the module's quiz earn a digital badge. If a student goes on to earn all five badges in the "Gather" series, he or she gets the "Gather Information" metabadge. Similarly, earning all four badges in the "Evaluate" series results in the "Evaluate Information" metabadge, and so on. Adding another layer, if a student earns all three second-tier metabadges (which requires earning all fourteen first-tier badges), they earn the grand prize: the top-tier "Information Literacy" metabadge (University of Central Florida, 2014). In a comprehensive system like this, not only do the badges build on one another in substance, but they can also be designed to be visually coherent: distinguishable from one another yet with similarities that tie the whole together. The overall effect is attractive and clearly communicates both iterative learning and overall advancement. Figure 5.2 gives an illustration of what badges from a three-tiered system might look like.

Although badges have many benefits, there are some potential pitfalls and plenty of unknowns. Authentication (determining that the badge has not been altered) and validation/verification (checking that the badge has actually been earned and issued by the stated issuer) are major concerns. It is also important, particularly in the academic context, to make sure that the badge does not come to replace the learning it represents. A badge is a symbol that other skills and knowledge exist in this individual's portfolio of skills and talents. Therefore, badges awarded in the educational context must reflect time and effort and be based on vetted standards, or they will become empty symbols (Edwards & Green, 2014).

Educators also worry about badges setting up a system of external motivation when they would prefer students to be intrinsically motivated. In fact, it may well be this fear of extrinsic motivation that makes people leery of the idea of "gamification" in learning (Edwards & Green, 2014). Pure intrinsic motivation may be unrealistic, though, and a well-structured badge program can offer a reasonable balance between extrinsic and intrinsic motivation. On

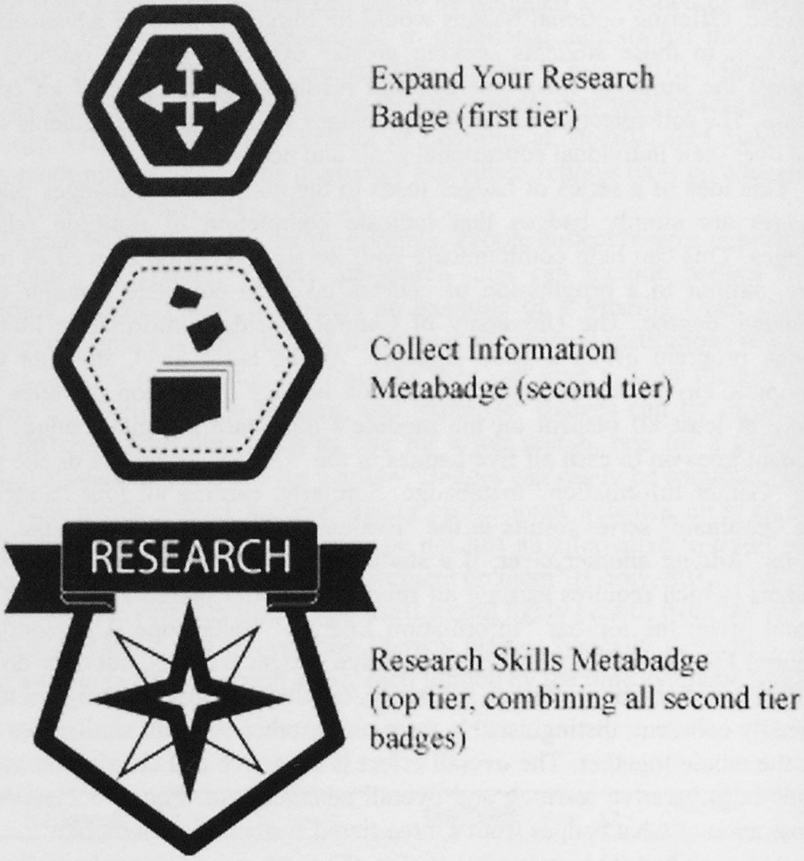


**Figure 5.2. Three-tiered badges example.**

the one hand, people enjoy the sense of accomplishment when they acquire a symbol of their achievements; on the other hand, badges can be designed to build layers of learning, with one badge pointing to the next level of instruction and enticing the learner with suggestions as to how useful that new knowledge will be (Rughinis, 2013; Kim, 2012).

Well-designed badges hold promise for learning. Research on the overall effectiveness of badges in higher education is still sparse (Domínguez et al., 2013), but with the continued growth of online education, social media, and electronic résumés, it is likely that badges in some shape or form will continue to be developed and promoted.

## CONSIDERATIONS IN DEVELOPING A BADGE SYSTEM

Digital credentialing recognizes "learning of many kinds which are acquired beyond formal education institutions . . . ; it proliferates and disperses authority over what learning to recognize; and it provides a means of translation and commensuration across multiple spheres" (Olneck, 2012, p. 1). This dispersion of authority challenges the norms of mainstream higher education. Dan Hickey, associate professor of learning sciences and a research scientist for Indiana University's Center for Research on Learning and Technology, warns that adopting badges at the university level presents many challenges, because early adopters may not fully anticipate the impact that badges have on "the whole ecosystem" of higher education (Raths, 2013). Getting institutional buy-in for a badge program will require convincing administrators and faculty that the opportunities presented by digital badges outweigh the challenges.

University digital badge projects are rarely a top-down undertaking. Typically, digital badge programs arise from collaborative efforts "of people agitating from the middle" (Raths, 2013). If you are a mid-level agitator, what challenges do you need to anticipate and prepare to resolve if you want to bring your badge program to fruition?

An important first step is to understand where the university lies on the spectrum of technology adoption and innovation. A starting point might be to assess the institution's view of instructional technology and online education. If the institution prides itself on educational innovation, it may grant greater latitude than an institution that is not an early adopter. For example, Hickey notes that Indiana University, where he works, has allowed projects to move forward with the understanding that policy issues will be resolved later (Raths, 2013). Elsewhere, however, and with no small amount of irony, the digital environment is perceived as riskier, and institutions that previously paid no mind when academic units handed out paper certificates evidencing the completion of specialized learning opportunities may be alarmed by digital badges. To alleviate concerns, a badge program proposal will need to address the following questions.

### *1. What skills or experiences are students seeking to enhance their portfolios or résumés? In what areas do they need encouragement for further learning?*

At the Agriculture Sustainability Institute at the University of California, Davis, faculty implemented a badge program for undergraduate majors in Sustainable Agriculture and Food Systems. Students were acquiring valuable skills outside the traditional curriculum, and faculty wanted to help students document these activities. The badges recognize outside-the-classroom activ-

ities that align with the Institute's core competencies of "systems thinking, experimentation and inquiry, understanding values and interpersonal communication" (Buell, 2013).

This University of California, Davis program is an example of a badge system driven by student activities. Badges can also be driven by instructor or librarian identification of areas in which more learning is needed, achievements could be better recognized, and incentives are lacking. What employers want can also be highly relevant in determining what skills should be emphasized in a badge program.

*2. What institution or academic unit is standing behind the badge?*

The value of a badge depends in large part on the reputation of the issuer. Students are likely to want the full value of their institution behind the badge to impress potential employers. On the other hand, universities and colleges need to be protective of the value of their brand. They may require institutional approval of the badge criteria, and want to be assured of the validity of any badges issued under their auspices. A proposal will need to speak to concerns of authentication and fraud and how the selected technology addresses these issues.

Seeking the backing of the institution is important on the front end. The university's crest on the badge may or may not be a motivator for all students; however, those students for which the crest is a motivator will cry foul if their newly earned badge does not have the status of the university behind it when they expected otherwise.

Because the politics and personalities within colleges and universities vary, the need to align with an academic unit may vary as well. In one institution, a badge program might be most successful if it stays within a single academic unit, while elsewhere it will work best to cross disciplinary lines and seek multiple bases of support. Considerations might include subject expertise, responsibility for the workload, technological confidence, relationships with students, and ties to the professional development office.

*3. Does the badge program support or enhance existing curriculum, and if so, how? Or does it supplant existing curriculum opportunities, and if so, why will the badge program be an improvement?*

In the University of California, Davis, example, student experiences outside the classroom provided the impetus for the badge program, and the badges in turn support the existing curriculum. What happens if your badge program seeks to replace a traditional course? Badges that replace existing curriculum options will probably face greater resistance. Replacing existing

curriculum can raise questions about accreditation and may have an impact on tuition revenue. A badge program proposal will need to speak to why allowing students to earn a non-tuition or reduced-tuition badge makes sense.

Massive open online courses (MOOCs) may have already laid the supporting groundwork for badge programs that supplant specific coursework. Some universities are allowing students to complete MOOCs and earn completion certificates. Are these completion certificates appearing on transcripts? Are MOOCs being seen as an equivalent rather than a watered-down version of the for-credit curriculum? Are MOOCs allowed to stand in for introductory credit-bearing courses? If yes, it makes sense that digital badges could gain a similar foothold.

*4. How will the criteria for earning the badge be determined and vetted?*

A badge system is more likely to be successful when the content of the badges is well designed and supported by an interested community (Carey, 2012, April 8). Developing criteria for a badge is familiar to instructors; the questions are those that any instructor addresses when developing a new course. Who should be involved in developing the criteria? Does some university unit, such as an academic affairs committee, need to approve the criteria? Will the criteria be measured against outside standards? What are the learning outcomes the students should achieve? How will satisfaction of the criteria be measured?

For academic librarians wanting to issue badges for research skills, this community already exists and has agreed-upon general standards (Association of College & Research Libraries, n.d.). Standards exist in specialty areas as well, such as the *Principles and Standards for Legal Research Competency* issued by the American Association of Law Libraries (American Association of Law Libraries, 2013).

While aligning badges to vetted standards is recommended, each badge system can still be unique, with its specific steps, expectations, and parameters determined by the issuer. This leaves room for both professional creativity and tweaking of standards so that diverse forms of learning can be recognized and valued. Historically, credentials have fulfilled two roles in education: recognition of learning and recognition of desirable learning behaviors (Halavais, 2012). An "A" on an exam and extra credit points awarded for participation in class are both symbols of achievement, the "A" recognizing mastery of content and the extra credit points recognizing a particular education-enhancing behavior. A badge system can be unique in its implementation of these two roles, because it can reward both in one iteration and communicate both achievements via its metadata.

*5. What metadata will be included, and how will it be maintained?*

The purpose of metadata is to provide sufficient evidence for a badge viewer (a potential employer, a supervisor, an admissions officer) to comprehend and value the individual's accomplishment. Unlike metadata, transcripts and résumés have limited qualitative and comparative value. A transcript includes only the basics such as a course name and number, the date the course was taken, and the grade earned. Similarly, a résumé lists dates of employment with a particular employer and provides only a brief description of the position prepared by the résumé owner.

Badge metadata is largely unconstrained. In addition to providing the date the badge was earned and the issuing organization, metadata can detail the work produced to earn the badge. Badge metadata typically includes the criteria used to evaluate the learner, but more is possible. It could include access to the actual lesson as well as work product such as a capstone project or student portfolio. It is this ability to link to actual evidence of experience or knowledge that moves badges far beyond the traditional résumé or transcript in providing information useful in fully evaluating the individual's accomplishments. The connections possible with digital badges are exciting, but they do raise questions about student privacy, which are discussed below.

Badge metadata raises two other issues, both related to the longevity of the badge. First is the question of expiration. Some credentials, such as diplomas, never expire. Others, such as professional licenses, require continuing education or annual fees. Then there are credentials that expire after a stated time, such as CPR certification. Some research skills are relatively timeless and universal—planning, devising search terms, documenting your findings, and avoiding plagiarism. Other skills are more susceptible to changes in technology. Digital badges for these latter skills run the risk of growing stale and may merit an expiration date.

The second issue is maintenance of the metadata. Once a badge exists, most of its data should be static—name and description of the badge, name of the earner, issuer, date—and remain intact as long as the host remains in business. Links to outside materials, however, are susceptible to link rot. For example, if you design a badge with a link to the course syllabus, one small change in the filename for that syllabus breaks that link and undermines the badge's value. Persistent links and reliable hosting of materials are crucial.

*6. How is scalability built into the badge program so that it can expand to meet demand?*

It is important to have a sense of the entire scope of the project even if you do not intend to roll it all out at once. If you anticipate that the learning opportunities can expand over multiple levels, it is smart to design multiple badges that build on each other on the front end just as you would map out

courses that build on each other. The level one badge should adequately prepare the student for the level two badge, and so on. At the same time, the design of the badge program, if done with care, can allow students to gain valuable skills at every level, making it possible to piece together an individualized learning path. A badge program that is initially designed to scale both up and down is better in the long run for both the badge earners and for those administering the badges.

*7. How will you build faculty support for and student interest in the badge program?*

The fortunate badge program will have a powerful advocate and an interested student base. As an advocate, a librarian designing a badge program will need to articulate the value and need for the badge program. The story will need to be compelling in order to generate time and funding commitments. It will fall on the advocate to explain the benefits, design a prototype to help people understand how a badge works, survey students as to their level of interest, prepare a marketing campaign, and reassure faculty that the badges enhance rather than threaten instructional offerings.

Employer expectations are likely to be key to buy-in. The advancement and acceptance of badges will depend on the "information needs of employers, the validity of the information conveyed by badges, the efficiency and practicality of prospective employees acquiring badges, and the efficiency and practicality of prospective employers utilizing them" (Olneck, 2012, p. 4). Institutions of higher education that understand this equation will be able to participate in the badge phenomenon without risking their own role in continuing to deliver education.

A digital badge program does not have to be an "us versus them" situation. As demonstrated by both Purdue University, where badges have been used to teach nanotechnology and other science-related subjects to students around the world, and the Agriculture Sustainability Institute at the University of California, Davis, digital badge programs can easily coexist with traditional educational efforts and expand rather than threaten our view of learning. In these instances, the institutions identified skills desired by students and employers along with experiences that arose naturally out of the current educational programs. As these programs demonstrate, digital badge programs do not need to replace existing traditional educational efforts; rather, they bring "more people, more activities, and more kinds of learning, doing, and being within the embrace" of higher education (Olneck, 2012, p. 6).

*8. What technology is involved, and how does it work?*

In September 2011, the MacArthur Foundation, along with Mozilla and the Humanities, Arts, Science, and Technology Alliance and Collaboratory (HASTAC, pronounced "haystack"), announced the Digital Media & Learning Competition. This two million dollar competition was designed to encourage the development of badges across diverse organizations. Simultaneously, Mozilla announced development of its Open Badge Infrastructure (OBI) (Mozilla, n.d.). In their press release, Mozilla stated, "Open Badges is a response to this trend: an open specification and APIs that provide any organization the basic building blocks they need to offer badges in a standard, interoperable manner" (Surman, 2011). The MacArthur Foundation press release added, "Mozilla is creating an Open Badge Infrastructure—a decentralized online platform that will house digital badges and can be used across operating platforms and by any organization or user. This approach will help to make digital badges a coherent, portable and meaningful way to demonstrate capabilities. It will also encourage the creation of 'digital backpacks' of badges that people will carry to showcase the skills, knowledge and competencies they have gained" (MacArthur Foundation, 2011).

API stands for "application programming interface." API is generally used to refer to a collection of functions that determine how computer applications interact with each other. With the OBI, Mozilla has standardized the functions of how badges can be issued, authenticated, and verified, thus enabling portability and consistency across various platforms. An API also determines how badges can be displayed in places other than a hosted storage space. Having created this "ecosystem" for digital badges, Mozilla's Open Badges has become the preeminent open-source framework for digital badge creation, storage, and management. A number of platforms, including Achievery, Badge Forge, Credly, and Sash, operate on the OBI standard (University of Southern California, The Center for Scholarly Technology, 2013).

When awarded to a learner, badges are pushed into a storage space for the learner to manage and make available for display in other digital spaces, such as a blog or social media sites. In Open Badges, this storage space is called the Backpack (see Figure 5.1). With programming knowledge, custom badge systems can be made, but staying within the OBI ensures portability, allowing the badges to be communicated to broader communities.

The visual element of a badge can be created in any type of image editing software, including Adobe Fireworks, Adobe Illustrator, Microsoft Paint, or even Microsoft PowerPoint. Any software that can generate a .png (portable network graphics), .jpg (joint photographic experts group), or .gif (graphics interchange format) file is suitable for creating a badge. When working with

Mozilla's Open Badges, the image must be a .png file, and the standard file size is 256KB or less. Other badge hosting systems may allow other file types and sizes.

Since creators of badges may not possess the skills needed to create these optimized image files, open-source image libraries of badges are available. Mozilla even built a badge design studio where a badge creator can design and export badges made by navigating through drop-down menus and choosing from preselected templates, patterns, and images (Chicago Summer of Learning, 2013). A similar service called, not surprisingly, Open Badge Designer is offered by MyKnowledgeMap. Here, badge creators can devise a badge while also having the ability to choose a workflow that integrates other software that will seamlessly encode the image with metadata (MyKnowledgeMap, 2014).

As discussed above, common metadata designated for badges are the date of issue, name of recipient, title and affiliation of the person who verified the work needed to achieve the badge, scores, and access to assessments such as exam questions. With Mozilla's Open Badges, this metadata is specified in a .json (java script object notation) file. If using custom programming, this data may also be specified in an .xml (extensible markup language) file or other script that can be interpreted and embedded into the image file.

Once the badge image and necessary metadata have been prepared, the metadata has to be associated with the image. Mozilla refers to this process as "baking" in the metadata. It happens in one of two ways: (1) taking the metadata of the unique learner and baking it into the badge's image file, or (2) using an issuer API to bake the metadata into the badge upon verification and push it into the Backpack. Currently, baking can be done through Mozilla's "baking service." This service interprets the .json file and encodes the image, producing a new .png containing a link. When a viewer clicks on the badge, a window will open, displaying the specified metadata in a user-friendly format. Figure 5.3 provides a basic example of badge metadata as displayed when a user clicks on a badge.

Mozilla's OBI has two support features that can confirm a badge's legitimacy: the authentication channel and the verification channel. The authentication channel assures viewers that the badge was actually issued to the learner, is not expired, and has not been altered since it was issued. The verification channel is used by an issuing organization or individual to add an encrypted signature. Though this is not a required step, it does make the badge more trustworthy. When a badge is verified, the administrator of a badge storage space can communicate with the issuing organization to make certain the badge carries the signature.

Ongoing work is being done to further streamline the workflow of creating, encoding, building requirements or tasks for achievement, evaluating, issuing, and storing digital badges. In March 2014, Mozilla released a limited

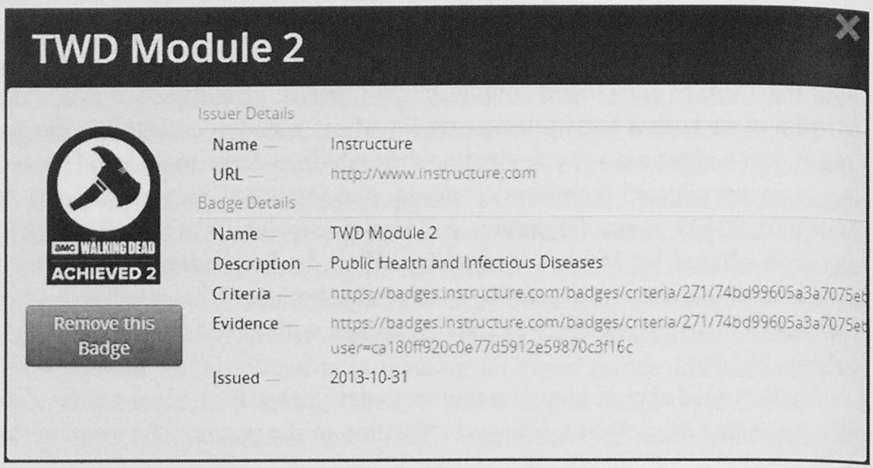


**Figure 5.3. Example of basic badge metadata.**

beta version of an Open Badges application and API called BadgeKit. This will create a more user-friendly interface for badge creators, tools for creating badges, and ease in interacting with badge earners.

*9. What will the badge program cost?*

Badge projects on university campuses tend to begin with collaborative efforts of subject experts, and some aspects of a badge program can be done at no to very low cost. For example, you can design a simple badge icon and house it through Mozilla's Open Badge Initiative for free. At some point, however, instructional design, graphic design, and technological support may be required. A budget might include costs of professionally designed visuals, the assistance of an expert in instructional design if there are online lessons, and tech support for both instruction and management of the badge metadata. If available, costs from comparable projects would be helpful in proposing a budget.

*10. What legal concerns need to be addressed?*

- *Privacy concerns*

Badges may implicate federal privacy laws dealing with educational records. The Family Educational Rights and Privacy Act of 1974 (FERPA) requires educational institutions that accept federal funding to permit students to access their education records, petition for corrections, and control disclosure of certain records. If the student is a minor, then the parents have

these rights. Violating a student's rights under FERPA can lead to unpleasant investigations from the U.S. Department of Education and, at worst, jeopardize federal funding. In general, libraries issuing badges should have thorough records access and disclosure policies to ensure compliance with FERPA and to uphold librarianship's long-standing privacy protection ethos.

FERPA applies to "educational records," so the initial consideration is whether a badge is an educational record. For purposes of FERPA, educational records are those that contain information directly related to a student and are maintained by an educational institution or someone acting on their behalf. Since a badge earned by a student contains information directly related to that student, it is likely to be deemed an educational record. In addition, even if an academic library hires a company to maintain its badge program, the badges would still be educational records since the outside company would be acting on behalf of the educational institution.

Since most badges are likely to be educational records under FERPA, a badge program must take into account FERPA requirements. Yet badges are specifically designed to facilitate open communication about student achievements, and pieces of metadata cannot be turned on and off at will once they are baked in. The entire badge can be hidden, but then it has no value. How can we resolve this tension between privacy requirements and the "talkativeness" of badges?

One possible resolution is offered by the FERPA exception for "directory information." Directory information is a student's name, address, telephone number, date and place of birth, major, participation in officially recognized activities and sports, dates of attendance, degrees and awards received, and last school attended. Directory information can be disclosed if the school has: (1) issued a public notice detailing what information can be released as directory information, and (2) given students an opportunity to instruct that their directory information not be released. Under the directory information exception, libraries could display badges (typically in something like OBI's Backpack but perhaps also in congratulatory website postings or alumni newsletters) that include a student's name in the metadata and the nature of the award represented by the badge. At the same time, libraries should not include grades or assessment scores in the metadata because that information does not fall under the directory information exception.

Relying on the directory information exception is essentially an opt-out system; the library will disclose only basic student information in badge metadata unless the student opts out, in which case the library or its vendor would not display the badge. This places responsibility for display of the badge on the institution, subject to notification of the student's wishes.

Given that badges are generally designed so that communication of them is controlled by the badge earner, a more workable option is to seek student consent at the outset. Under FERPA, any educational record can be released

with the student's written consent. When a student signs up for a badge program, the library can require the student to sign a consent form releasing the badge as an educational record. This opens up the metadata possibilities by removing the badge from the directory information exception, and aligns much more readily with the way badges and badge portfolios work. It grants the student control over the badges in their portfolio, and leaves room for the library to communicate its badges for publicity purposes.

Although written consent allows the release of any record, libraries should still consider carefully what information will be included in a badge's metadata. For instance, if students must pass an exam as part of the requirements for earning a badge, should the badge's metadata include the actual test score? Or is the issuance of the badge enough information? As discussed earlier, badges are powerful in part because there are few limits on the information they could communicate, but too much information may infringe on librarianship's ethos of privacy and may make student consent hard to gain. Depending on the nature of the work, some students may be uncomfortable with making a badge publicly accessible. For example, disclosing test scores may raise students' defenses while sharing portfolio work may not. The value of a badge is greatly reduced if it is not shared publicly, so it is best to include enough assessment information in the badge metadata to support the badge award but not so much that students feel exposed. For instance, the metadata could include a link to the badge requirements and a statement that those requirements have been satisfied. If someone later wants access to more detailed assessment information, requests for those records can be handled like other educational records and require written consent from the student.

Also, the badge itself may inadvertently disclose assessment information that is too specific. For example, issuing a "gold" version of a badge that requires a particular score or grade may be disclosing information that the library would not normally include in metadata. Different levels of badges can be highly effective, but consider each level carefully so as not to inadvertently disclose information the library deems too confidential.

- *Trademark concerns*

When designing the image that will visually represent a badge, it may be tempting to use a recognizable logo. For example, a badge indicating mastery of a particular computer program could display the program's logo, or a badge issued by a unit within an educational institution could display the institution's crest. Succumbing to such temptation is legally very risky. Many educational institutions and companies closely control use of their logos and

other distinctive markings, especially if they have registered the marks as trademarks protected under the federal trademark law.(See Trademark Act of 1943.)

Trademark law is designed to help prevent confusion in the marketplace as to who is responsible for a product or service (Dinwoodie & Janis, 2007, p. 1599). If a badge uses a logo that could indicate that connection to or endorsement by the trademark owner, the badge may attract some unwanted attention. There are some exceptions that permit using trademarks without the owners' permission, but prudent badge design involves avoiding use of trademarks, obtaining permission from the trademark owner, or eliminating any suggestion that the trademark owner endorses or is affiliated with the badge.

Academic institutions are often just as protective of their trademarks and visual identities as businesses are. Academic libraries may be able to obtain permission to use a university trademark, but there may be specifications that must be followed to help maintain the school's brand. The University of Texas's Wordmark guidelines are a good example of this (University of Texas at Austin, n.d.). Before adding an institutional seal or well-known mark to a badge, check for visual identity or trademark use policies.

*11. What are the measures of success for the badge program?*

The success of a badge program depends on delivering the desired learning outcomes and accruing benefits to the students earning the digital badges. A badge program design should include ways of tracking student achievement and following up with students to find out how useful the badge program was for them. Generally, statistics on participation, completion, and short-term feedback will provide the baseline, but planning the means to contact badge earners about the usefulness of the program after six months or a year would be remarkably valuable.

In the end, be prepared for the long haul. Collaborative projects, especially those attempting to address challenging and complex questions with innovation, require time to hear all parties and respond to and resolve concerns at multiple levels. As a result, digital badge programs do not happen overnight. Most programs take over a year to launch. For example, the University of California, Davis, badge program was in development for eighteen months (Arizona State University, 2013; Raths, 2013). As in all new ventures and projects, the success of a digital badge program lies in part in the detail and depth of the proposal. Cutting short the planning process may significantly damage the ultimate success of the program.

## CONCLUSION

Badges have long been used as indicators of credentials, achievements, and rank in many arenas. The advent of academic credentialing through digital badges issued by a multitude of players opens many possibilities for recognizing and validating learning outside the traditional classroom. In addition, digital badges present academic librarians, often unacknowledged for their many teaching efforts, with an opportunity to move the recognition of their teaching and their impact on students' educational experiences into the limelight. Although badge programs are challenging to develop and implement, courageous and inventive librarians can seize this exciting and innovative opportunity to validate their students' efforts and their own contributions to higher education.

## NOTE

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