

Opportunities and Challenges with Digital Open Badges

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Editor's Note

The following article was originally published in *Educational Technology* and is used here by permission of the editor. For more information on open badges, "[Open Badges: trusted, portable digital credentials, Doug Belshaw](#)" is an excellent presentation from Doug Belshaw, who worked on the original project. Also, the K-12 [BadgeChat](#) on Flipboard from the Open Badge Alliance contains many curated articles and information related to K-12 use of open badges.

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In 2011, Arne Duncan, Secretary of the U.S. Department of Education, gave a speech at the MacArthur Foundation Digital Media and Lifelong Learning Competition and detailed the need to establish certifications of achievement recognizing informal learning experiences. He said, "Today's technology-enabled, information-rich, deeply interconnected world means learning not only can—but *should*—happen anywhere, anytime. We need to recognize these experiences" (Duncan, 2011, para. 14). Informal learning settings such as web-based and blended learning environments, after-school and extracurricular activities, and vocational and work-based training programs are becoming increasingly prevalent. However, participants in these environments have difficulty being recognized for the competencies they develop.

This inability to recognize learning in informal contexts is one of many concerns with traditional assessing approaches. A second concern is that traditional credentials are not always effective communicators of a student's skill or knowledge. When a student is given an "A" at the conclusion of a course, what does that grade symbolize? How easy is it for a student, parent, or teacher to look inside that grade to discern the specific competencies acquired by a particular student? On a larger scale, how easy is it for a potential employer to analyze the degree and GPA of a prospective employee and understand the full range of that prospect's skills and competencies? Such indicators fail to provide a transparent picture of an individual's experience and qualifications.

These two challenges of how to recognize and reward informal learning, and how to increase transparency in traditional grading practices are two credentialing challenges begging for a solution. In the last several years, advances in the field

of microcredentialing, specifically digital badging, has shown promise in solving these assessment challenges.

What Are Digital and Open Badges?

The definition for digital and open badges includes both concepts of structure and function for the users. Structurally speaking, digital badges are small digital images that represent an individual's learning within a specific domain. These images are embedded with rich metadata that increases transparency into what is actually learned (Gamrat, Zimmerman, Dudek, & Peck, 2014; Gamrat & Zimmerman, 2015). This metadata could include information about the badge issuer (institution name, date of issue, rubric and requirements for the badge) and badge earner (name, evidence of learning, and feedback from the issuer), providing a more transparent picture of what has been learned and the observable evidence of that learning.

Open badges are a unique type of digital badge with additional affordances built into the technology that allow for the credential to be integrated into any compatible learning or portfolio system. While some digital badges are useful indicators of learning within a closed system (e.g. Khan Academy, Duolingo), open badges can be exported into open backpacks that collect and display these microcredentials from many different formal and informal learning systems.

Because of their digital and open affordances, open badges can also serve a variety of functions, including as a map of learning pathways or trajectories (Bowen & Thomas, 2014; Newby, Wright, Besser, & Beese, 2015; Gamrat & Zimmerman, 2015), "descriptions of merit" (Rughinis & Matei, 2013), signposts of past and future learning (Rughinis & Matei, 2013), a reward or status symbol (Newby et al., 2015), promoters of motivation and self-regulation (Newby et al., 2015; Randall, Harrison, & West, 2013), "tokens of accomplishment" (O'Byrne, Schenke, Willis, & Hickey, 2015), a learning portfolio or repository (Gamrat et al., 2014), and a goal-setting support (Gamrat & Zimmerman, 2015).

Benefits of Open Badges

This long list of functions served by open badges illuminates some of the major benefits and affordances of badges, including positive effects on motivation, guidance, and recognition.

Using digital badges as an incentive for learning or performance is a common practice. Upon completion of a badge, learners are awarded a badge that becomes an outward symbol of a successful learning experience. Careful badge design could even create appeal for a learner's intrinsic motivation by rewarding effort and improvement instead of performance (Jovanovic, Devedzic, 2014), and by providing choices for learners, thus increasing their autonomy and self-direction (West & Randall, 2016).

In fact, many organizations with badging structures include self-direction as a major component. The Sustainable Agriculture & Food Systems Major (SA&FS) at University of California, Davis allows students to create completely customized badges (content and criteria) that will recognize an individual's learning and achievements across various learning contexts (University of California, Davis, 2014).

Additionally, as badges increase learner autonomy and choice, they can also improve how we guide and scaffold students to new, engaging, and personalized learning experiences that are relevant to their preferences, abilities, and aptitudes. Indeed, Green, Facer, Rudd, Dillon, and Humphreys (2005) argued that there were four key aspects of personalized learning through digital technologies, including giving learners choices, recognizing different forms of skills and knowledge, and learner-focused assessment. Open badges address these key attributes of personalized learning by increasing learning options, assessing discrete skills at a micro level, and credentialing learning both within and without traditional formal institutions. These badges can then be organized into learning paths that provide guidance to learners in particular domains. An example is from Codeschool (<https://edtechbooks.org/-jc>), which uses paths to direct students through micro-learning activities within certain areas. In this way, badges help scaffold students in taking ownership of their learning process.

Digital badges not only illuminate the learning pathways for future learning, but can also recognize learning experiences that previously have not been easily acknowledged through a credential. By design, badges are microcredentials that display learning discrete competencies along with relevant data. Mehta, Hull, Young, & Stoller, (2013) suggested that this could potentially offer a solution to the medical training profession by helping medical students gain important competencies while staying current on their learning. He suggested that medical students could earn a badge for a specific procedure, test, or even medical explanation. That badge would be displayed on the learner's profile and would reflect their learning across a variety of settings. Additionally, each badge could include an expiration date that would ensure that medical professionals were current in their training, a feature that has also been suggested for other domains such as teacher education (Randall et al., 2013).

Examples in Open Badging

Over the last several years, open badges have attracted attention as a way to solve many difficult educational problems. As of March 2013, Mozilla Open Badges, a major host of the badging community, had 700 unique registered issuers that linked to over 75,000 digital badges (Gibson, Ostashewski, Flintoff, Grant, & Knight, 2015). Other research estimates that over 2,000 organizations have currently implemented badging into their learning environments (Jovanovic & Devedzic, 2014). From analyzing web search trends in more recent years, we can assume that these numbers have only increased.

The attention received by digital badges is increasing due to examples of successful badging programs in secondary and higher education environments. Teacher Learning Journeys (TLJ) developed through a partnership between Penn State University and NASA, National Aeronautics, and the National Science Teachers Association (NSTA) provides an example of a successful badging program for inservice teachers. This partnership worked together to create 63 professional development activities as part of the TLJ for each teacher. Teachers were asked to browse the various activities and plan which activities they wanted to participate in to develop their teaching abilities. Additionally, teachers were offered two levels of competencies for each activity: badges and stamps (a lower achievement). Through a careful case study of program participants in TLJ, researchers discovered that the badging structure provided learning pathways that allowed teachers to self-regulate their professional development and learning. Teachers were given options of various content badges, and could choose the level of performance they wanted to develop within the desired content. This program included the principle of self-regulation that are important characteristics in establishing higher levels of motivation (Pink, 2011).

Purdue University's badging system, known as Passport, allows faculty members create, design, and issue their own badges in support of all learning (Bowen & Thomas, 2014). Passport has been a successful tool in establishing badges for intercultural learning courses, educational technology courses, and even for LinkedIn proficiencies through the university's career center. By enabling faculty members to become badge creators, Purdue is encouraging the development of an assessment culture based on transparency, competency, and recognition.

Institutions of higher learning are not the only organizations experimenting with open badges. Primary and secondary schools are also beginning to implement badging systems to motivate, direct, and recognize student learning. The MOUSE Squad, an organization aimed at helping disadvantaged students, utilizes badges to motivate, assess, and recognize student learning both in school and with after school programs. A case study of the program outlined the successful experience of a young girl named Zainab who immigrated to the United States from Nigeria at age 12. Through engaging in the MOUSE program, Zainab gained technological skills in a social collaborative experience to create a device for the visually impaired that would alert them when food was placed on their plate. The skills and competencies developed by Zainab were represented as badges on her college application and helped her earn a full scholarship to the University of Virginia (O'Byrne et al., 2015).

Badges can recognize learning beyond the physical walls of an organization as well as beyond the typical organizational schedule. One leader in the area of digital badges, although these badges are not open and compliant with the Open Badge Infrastructure, is Khan Academy. In addition to course content, Khan Academy uses a digital badge structure that

acts as learning pathways for future learning as well as recognition of skills and competencies previously developed. In addition to concrete content skills, Khan Academy is notable for its collection of badges issued for “soft skills” such as listening, persistence, and habit formation (“Badges,” 2015)—an idea that may begin to spread to open badge systems as well.

Challenges in Digital Badges

While digital badges offer promise for solving some difficult educational challenges, critics have pointed out several concerns, particularly with issues of scope, awareness, and assessment practices.

With so many institutions experimenting with badging systems, it is possible that the flood of badges is undermining the efforts to use badges as an effective assessment tool. In their assessment of badges, West and Randall (2016) hypothesized that unless the badging community can show how badges can be a rigorous and meaningful assessment tool, the idea of badges will fade away without making any difference on the educational environment. This flood of badges, particularly “lightweight” badges, can clutter the badging landscape and hinder the ability for the end user (e.g. employer, academic institution, etc.) to determine the value and quality of badges. Therefore, the responsibility of the badging community is to create and issue badges that are rigorous and meaningful.

Another challenge to open badges is the struggle to be recognized outside of their native badging ecosystem. In badging, an ecosystem is made up of badge developers, earners, issuers, and end users that interact with each other to learn, display, and recognize competencies. Ecosystems can be local in nature, where badges are intended to be used within an individual’s learning space, or global where badges are designed to be displayed and recognized beyond the institution’s community. While both badging ecosystems can serve an important purpose, creating a global badging ecosystem requires organizations outside the institution to recognize and accept the badge performance and assessment. This recognition is difficult to achieve with institutions who have standards, requirements, and objectives that often do not align. However, because of the portability of the open badge technology, it is possible for like-minded institutions of learning to form consortiums where badges could hold value with peer institutions within the consortium. Professional organizations with a vested interest in those skills might consider endorsing these badges to give them increased weight and importance (Ma, 2015).

Much like any start-up organization trying to enter into a new market, new ideas, such as open badges, require brand awareness by consumers to begin gaining cultural acceptance. Generally speaking, consumers must be made aware through positive interactions with a product or idea before they are willing to embrace it. Although open badges are becoming more common in work and educational settings, a lack of awareness about badges persists. Decision makers in government, business, and education appear to be generally unaware of the potential of badges to motivate, direct, and recognize learning.

The inability of badges to be diffused and implemented into a wider educational context may be due to a larger struggle between traditional and competency-based grading. Competency demands mastery of content and allows for the variables of time, resources, and location of learning to vary (Reigeluth & Garfinkle, 1994). Traditional approaches to assessment allow for student’s learning to vary while keeping other variables constant. Open badges can be used in a competency approach to assessment that encourages students to redo and rework problems until they have mastered the skill and fulfilled the requirements for the badge.

Conclusion

The inability to effectively recognize informal and formal learning competencies in traditional business and educational contexts begs for new ways of assessment and new forms of credentials. Well designed digital open badging systems offer potential solutions. While badges are becoming increasingly common, proponents of widespread adoption of badges face difficult challenges in creating common norms around the scope for badges and the learning they represent, how to successfully build badge awareness and credibility that extends beyond institutional boundaries, and

how to effectively navigate to more competency-based styles of assessment. What is needed for an innovation like open badges to be successful, at this stage, are additional examples of effective badging practices, along with rigorous research into the principles of quality badging. Scholars could study how teachers, learners, and organizations have implemented open badging successfully, and what challenges they have faced. Other research could investigate how to increase awareness and acceptance of badge credentials, the most effective scope and granularity for effective badges, how badges may or may not contribute to effective e-portfolios and overcome the challenges these portfolios have traditionally faced, how to effectively scale and manage badging systems, and how badges may contribute to enhanced motivation and self-regulation. By exploring these and other issues, we can better determine whether open badges are another technological fad, or a potentially disruptive innovation.

Application Exercises

- What are two informal learning experiences you have participated in that could be assessed with an open badge?
- Think of a skill you would like to learn. Then, look for different resources that offer badges in that skill. Compare the resources, and pick one that you would prefer to use. Explain your choice.
- The authors list several challenges to spreading the use of badges more fully. Choose one of those barriers and share some strategies you think would help address that concern.

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Dr. Richard E. West is an associate professor of Instructional Psychology and Technology at Brigham Young University. He teaches courses in instructional design, academic writing, qualitative research methods, program/product evaluation, psychology, creativity and innovation, technology integration skills for preservice teachers, and the foundations of the field of learning and instructional design technology.

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