

Digital Badges as Effective Assessment Tools

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“Badges can help engage students in learning, and broaden the avenues for learners of all ages to acquire and demonstrate – as well as document and display – their skills. Badges can help speed the shift from credentials that simply measure seat time, to ones that more accurately measure competency. We must accelerate that transition. And, badges can help account for formal and informal learning in a variety of settings.”

– Secretary Arne Duncan, 2011



The beginnings. More than three years have passed since Secretary Arne Duncan [addressed the nation](#) in the 4th Annual Launch of the MacArthur Foundation Digital Media and Lifelong Learning Competition. Soon after, a large number of articles related to digital badges emerged, many attempting to define the concept, some forecasting an “educational revolution” where badges would eventually replace more traditional forms of assessment, and some voicing reservations/concerns about this new “educational gadget” (see references for related publications). Yet, the uncertainty about implementing digital badges has been hard to eradicate and potential users still wonder how they can be utilized as assessment tools. For key terms used with digital badges, please see the glossary at the end.



Exciting possibilities. Badges provide the opportunity to assess skills that we do not normally assess in more traditional forms of content-based assessment like summative exams and reports. In addition, there is an increasing number of institutions that are revising their core curriculum to incorporate learning outcomes such as creative and critical thinking, global citizenship, leadership, teamwork, and ethical reasoning (to name a few). Grant (2014) states that even though traditional assessment approaches favors quantifiable measurements that are replicable and objective, 21st century skills like the ones mentioned above require different methods altogether. The author which are designed to recognize collaborative work deeper learning and increased engagement can be a viable solution.

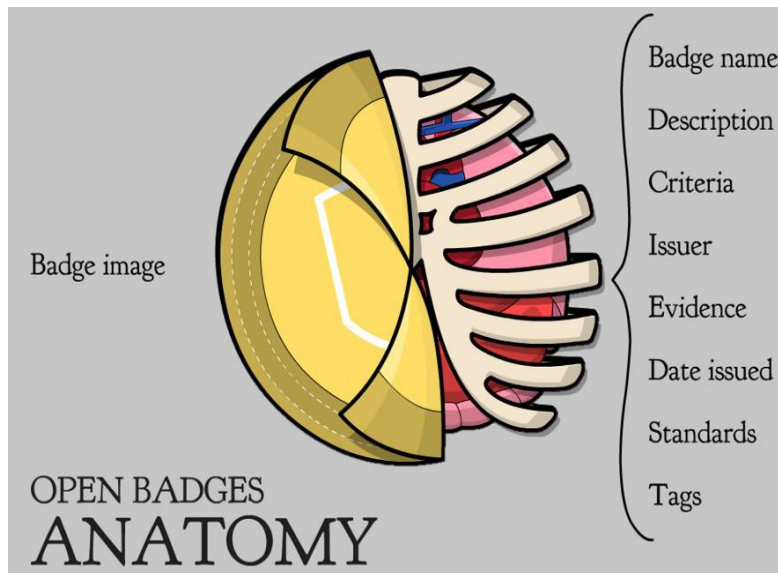
Purdue’s Global Learning Faculty Development and Service-Learning programs have *open badge* groups to assess *soft skills* such as Intercultural Learning and Civic Engagement/Global Responsibility (see [PUPIL](#)). They are using the university’s learning and e-portfolio system that uses digital badges to demonstrate user’s competencies and achievements (see [Passport](#)). The

program is uniquely built to be an assessment platform and it allows *issuers* to tie learning outcomes to badges and challenges. The system also allows for badge scaffolding, varying point values, and forced order to earn a badges. Passport developers are [accepting applications](#) for those wanting to explore digital badges for learning in a trial fashion. Visit the [Passport site](#) to read about success stories from faculty innovators who have used digital badges in their classes.



Open badges: more than meets the eye. In my experience, the number one concern about digital badges relates to their validity/credibility. The fact that “anybody” is able to be an *issuer* seems to make potential users very hesitant about the idea. However, not all badges are created equal and not all badge groups are managed in the same way. Part of the problem may be that a comparison is often made between *open badges* and other more “static” badges, like Boy Scouts merit badges or gaming badges. The analogy is correct in that the badges show an accomplished skill or level; but in many of those cases, the *viewer* has no way of knowing what the person did in order to earn that badge. This is where *open badges* differ: the *viewer* is able

to look at the metadata embedded in the badge which includes information about the *issuer*, the criteria, and the *earner's* evidence (i.e. videos, images, documents, links, online assessments, etc.).



[“Badge Anatomy”](#) by Class Hack. Creative Commons license CC BY-SA



Making badges work. Badges can be designed to measure/demonstrate various types of skills. Mozilla provides a short list which includes *hard skills* (e.g. mastering a programming language or math concept) and *soft skills* (e.g. critical thinking, collaboration). See the [source](#) for a full list of skills and [how assessment works](#) for each of these skills.

Perhaps one of the less questionable use of badges is to measure *hard skills*: you either know it or you don't. This type of badge has been successfully implemented at Purdue in departments like [Nursing](#) and [Chemistry](#). However, even this type of *hard skill* badge has to be carefully designed if the goal is to assess the actual acquisition of a skill. Let us consider two possible scenarios for a Chemistry "pipette" badge:

Background information: a chemistry instructor has 900 students and they need to learn how to properly use pipettes. In addition to being one of the basic skills the students must know in the field, the lab would save approximately \$3,000 every semester (spent to replace broken equipment).

1. The instructor designs the badge and a true/false question for the students to answer after reading about how to pipette in a lab manual. The question reads "I am confident that I can use a pipette". As long as the students answer "true" to that question, they automatically earn the badge. This will save valuable time to the instructor while ensuring that the students read the instructions on how to use the equipment.
2. The instructor designs the badge and sets the criteria for the appropriate use of the equipment. The students have to produce a short instructional video to demonstrate the use of a pipette. They can use their smartphones to record the video and upload it to the badge platform (or share a YouTube link). The instructor and teaching assistants review the videos, give feedback to students who do not demonstrate the skill competently (the students may revise and re-submit the video) and approve the badge for students who satisfy the criteria.

Needless to say, the metadata contained in the badge of scenario #2 would provide more evidence of students' ability to perform this particular task. In the eyes of the viewer, the credibility of a badge may correlate with the credibility of the issuer (an established university versus an unknown individual) and the validity will be determined by the quality of the supporting documentation contained in the badge. Thus, an interested issuer in higher education should consider creating the badge/s using a platform that belongs to a recognized educational institution and follow the assessment standards that would be used when planning any other type of educational activity: the badge criteria should align with the course/institution's learning objectives, the earner should receive meaningful feedback after submitting the evidence, and (ideally) the badge would foster student engagement and motivation.

REFERENCES AND RELATED PUBLICATIONS

- Abramovich, S., Schunn, C., & Higashi, R. 2013. Are badges useful in education?: It depends upon the type of badge and expertise of learner. Education Tech Research Development. Available at: <http://www.lrdc.pitt.edu/schunn/research/papers/Abramovich-Schunn-Higashi.pdf>
- Casilli, C. 2012. Badge system design: What we talk about when we talk about validity. Persona. Available at: <https://carlacasilli.wordpress.com/2012/05/21/badge-system-design-what-we-talk-about-when-we-talk-about-validity/>
- Davidson, C. N. 2012. Can badging be the zipcar of testing and assessment? DMLCentral. Available at: <http://dmlcentral.net/blog/cathy-davidson/can-badging-be-zipcar-testing-and-assessment>
- Halavais, A.M. C. 2012. A Genealogy of badges: Inherited meaning and monstrous moral hybrids. Information, Communication and Society, 15(3), 354-373. Available at: <http://www.tandfonline.com/doi/abs/10.1080/1369118X.2011.641992>. Open access version from 2011: <http://alex.halavais.net/a-genealogy-of-badges>
- Foster, John C. 2014. The practicality of digital badges. Techniques. Connecting Education & Careers. Available at: <http://digital.graphcompubs.com/article/The+Practicality+Of+Digital+Badges/1800298/0/article.html>
- Foster, John C. 2013. The Promise of Digital Badges. Techniques. Connecting Education & Careers. Available at: <http://www.nocti.org/pdf/news/techniques/Nov%202013%20-%20The%20Promise%20of%20Digital%20Badges.pdf>
- Glover, Ian and LATIF, Farzana. 2013. Investigating perceptions and potential of open badges in formal higher education. In: Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2013. AACE, Chesapeake, VA, 1398-1402. ISBN 9781939797032
- Goligoski, Emily. Motivating the Learner: Mozilla's Open Badges Program. Access to Knowledge: A Course Journal, [S.I.], v. 4, n. 1, feb. 2012. Available at: <http://ojs.stanford.edu/ojs/index.php/a2k/article/view/381/207>
- Grant, Sheryl L. 2014. What Counts As Learning: Open Digital Badges for New Opportunities. Irvine, CA: Digital Media and Learning Research Hub. Available at: <http://dmlhub.net/publications/what-counts-learning/>
- McDaniel, R., Lindgren, R., & Friskics, J. 2012. Using Badges for Shaping Interactions in Online Learning Environments. In 2012 IEEE International Professional Communication Conference (IPCC). New York: IEEE. Available at: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6408619>

Mozilla Foundation and Peer 2 Peer University, in collaboration with The MacArthur Foundation. 2011. Open badges for lifelong learning. Available at: https://wiki.mozilla.org/images/b/b1/OpenBadges-Working-Paper_092011.pdf

Young, Jeffrey R. 2012. Grades Out, Badges In. The Chronicle of Higher Education. Available at: <http://chronicle.com/article/Grades-Out-Badges-In/135056/>

GLOSSARY

The following are key terms that are important to keep in mind when talking about digital badges (see Goligoski 2012 and Grant 2014 for more details):

- **Badge:** a symbol or indicator of an accomplishment, skill, quality or interest. *Digital badges* are online records of achievements that can support connected learning environments by motivating learning and signaling achievement (from [Mozilla Open Badges](#)).
- **Open Badges:** a type of badge that allows to verify the skills, interests and achievements via information (metadata) attached to the badge image file.
- **Developers:** groups that create programs where badges can be designed and issued (e.g. [Mozilla Open Badges](#), [Passport](#), [Open Badge Designer](#)).
- **Issuer:** the entity creating the badge (e.g., educational institutions, government agencies, employers).
- **Earners:** the learner, the person receiving the badge.
- **Displayers:** the place where the badge is displayed (e.g. [Mozilla Backpack](#), Facebook, LinkedIn, e- Portfolios, [Passport](#)).
- **Viewer:** the person viewing/reviewing the earned badges
- **Badge ecosystem:** also called *ecosphere* or *badgesphere*, contains all of the relevant components mentioned above (see Foster 2014 for more details).