# FROM GIRL SCOUT TO GROWN UP: EMERGING APPLICATIONS OF DIGITAL BAGES IN HIGHER EDUCATION

Margaret WU[1], Dan WHITELEY[2], Margaret SASS[3]
[1]ITAP ,Purdue University, United States, mewu@purdue.edu
[2]ITAP ,Purdue University, United States, dan@purdue.edu
[3]Center of Instructional Excellence, Purdue University, United States, sassm@purdue.edu

**Abstract:**Despite the fact that digital badges have been an emerging trend in education in recent years, some professionals in the field of higher education are uncertain as to how to incorporate the technology, specifically digital badges, into their practice. In this article, the authors address this uncertainty by discussing four applications of digital badges at a large Midwestern university. A brief summary of the origins of and educational theory behind digital badges precedes this discussion.

## INTRODUCTION

It is evident that our students are technically savvy and are interested in new and innovative ways to enhance their learning experience. One of those innovative ideals falls under digital badges, a phrase that some faculty and higher education administration may not heard of as yet. However, due to the increasing interest in the concept of these virtual badges, colleges and universities are exploring the new world of innovation.

For many, the term badges conjure up images of colorful patches on Boy Scouts and Girl Scout uniforms. In some respects, those images are applicable to a new breed of badges known as digital badges. Just like the cloth badges that countless Girls Scouts and Boy Scouts have earned over the years, digital badges are used to recognize the skills and tasks an individual has developed. The advantage of this new form of badge is that it can be used toward professional development and academic learning.

The origins of digital badges come from online discussion forums and social media platforms, such as FourSquare, as a way to distinguish “super users” from average users. To earn this type of digital badge, users must accomplish more tasks to earn certain badges based on what that badge represents. Although many social media sites and online discussion forums still use digital badges in this way, digital badges have also evolved in complexity to the extent that many in the media identify them as an ideal way for individuals to showcase skills. These badges capture specific and sometimes marketable skills that traditional documentation such as transcripts and diplomas do not provide (Gligoski, 2012; Matkin, 2012; Young, 2012;). Abilities include those gained through the military, professional development programs, and non-credit courses offered at two and four year colleges. Digital badges can even serve as evidence of participation in civic organizations, clubs, and other non-traditional learning experiences.

Although no single entity deserves credit for developing the more evolved form of digital badges, the open source software company, Mozilla, is definitely pioneering the technology’s use and availability for a broad range of users. Through its Open Badges Infrastructure (OBI), Mozilla has provided coding and identification verification systems available to organizations that want to issue badges to their members. However, some barriers arise for those who are interested in using Mozilla’s OBI but lack computer programming skills.

Fortunately, EverFi’s Sash and Purdue University’s Passport are two examples of applications aimed at reducing some of the technological barriers associated with creating and offering digital badges. In addition to Sash and Passport, Mozilla is currently developing a similar project called Open Badges. For now, Passport is the only completely free program that allows users with no programming skills to create, track, and award digital badges.

Other options are available for individuals who are interested in earning digital badges but are not affiliated with any particular program. These individuals can earn badges through open online universities such as Peer to Peer University, Codecademy, or Kahn University. Regardless of where individuals earn badges, participants can display their badges using Mozilla’s Open Badge Backpack platform as a way to promote their new skills. Additionally, badge earners can use social media sites, such as Facebook or Twitter, and job search sites, such as Monster, to showcase their digital badges.

While there is certainly a lot of buzz around digital badges, there is a lack of qualitative research regarding the use of digital badges in varied curricular and co-curricular settings. In an effort to contribute to the literature regarding the practical use of digital badges, this article will provide an overview on how to incorporate digital badges in higher education. A brief review of the theory supporting the use of digital badges to assess learning is also discussed.

**LITERATURE REVIEW**

When Secretary of Education, Arne Duncan (2011) identified digital badges as a potential "game-changing strategy," he was referring specifically to the potential of digital badges to serve as micro-credentials. The president of Charter Oak State College, Ed Klonoski (2010), provided a succinct definition of micro-credentials when he described them as "a cluster of courses around a core of expertise." The advent of digital badges might just assist in helping to shrink that cluster. Badges help in providing credentials related to expertise gained through smaller learning experiences or a sequence of smaller learning experiences belonging to a larger experience, such as a course, an after school program, or even military service. Thus, badges provide documentable evidence of skills that were once difficult to quantify and document on resumes or transcripts. As the New York Times states, digital badges "may be a convenient supplement [to traditional resumes or transcripts], putting the spotlight on skills that do not necessarily show up in traditional documents" (Eisenberg 2011). Digital badges offer potential employers useful information on skills that "tell you who issued it, when it was earned, and the criteria for earning it—*and* it can link to all of the evidence" (Watters, 2010, p.10). However, some doubt whether employers will value digital badges as much as they value more traditional credentials like a college transcript. Jeffrey Seligno, editor at *The Chronicle of Higher Education* addresses those doubts by stressing the fact that digital badges offer demonstrable evidence of skills a traditional transcript cannot offer.

> "The big question, of course, is whether employers would view badges as credible, especially when compared against a traditional college diploma. Probably not, at least not at first. But employers express plenty of dissatisfaction with the current crop of college graduates, especially those from lower-tier schools. For some technical jobs, employers might prefer a system that can show them what students studied, as well as samples of their work". (Selingo, 2013, p. 69)

The evidence-based feature of digital badges can be especially valuable and motivating for higher-education students who can only provide individual grades and general e-portfolios that highlight the work they have done in college (Batson, 2012). This feature of digital badges is also attractive for students who are in the process of completing their degrees and need documentation of their skills while pursuing scholarships, applying for internships, seeking employment, or applying for graduate school. Digital badges can also offer evidence of skills earned through coursework for students unable to complete their degrees.

Game-based learning adds to the theoretical framework of digital badges. Game-based learning is part of a trend in instructional design commonly referred to as "gameification" or gameified" learning. The term "gameification" refers to the application of video game design principles to non-game experiences. Gameified learning engages and motivates individuals by offering incentives for completed tasks. The amount of time spent completing specific challenges and tasks associated with badges supports the findings in Chickering and Ehrmann's work on the seven principles of a quality undergraduate education. In a research bulletin exploring the gameification of the post-secondary classroom, Epper et al. (2009), identify digital badges as one of six trends that will "drive the adoption of game-based learning" (p. 1). They also propose a theoretical ecosystem for game-based learning in which digital badges function as the assessment component of the ecosystem.

One of the advantages of game-based learning is that it offers students "the instructional scaffolding strategies that offer individualized support for learners by means of a series of incremental improvement opportunities where a learner builds on past successes" (Epper et al., 2009, p.7). Digital badges simultaneously provide learners with evidence of those past accomplishments and the motivation to tackle challenges that could result in future successes.

Similarly, James Paul Gee (2004) notes that good games are those in which the problem solving required by its players is very progressive. As Gee (2004) states it, "earlier parts of a good game are always looking forward to later parts [and] prepare the player to get better and better at the game and to face more difficult challenges later in the game" (p. 19). Gee's ideas apply to digital badges in the sense that the tasks learners must complete to earn a digital badge, if structured in a leveled or tiered fashion, can prepare students to complete more complicated tasks in a learning experience. Although game-based learning is described in the classroom context here, the learning theory can translate to co-curricular learning as well, which relates to one of the applications of digital badges we discuss later in this article.

It must be noted that digital badges offer a way to engage students in the learning process, a key concept to increase student learning outcomes. As Epper et al. assert, "the majority of today's postsecondary students are digital natives and have grown up with computer games" (p. 1). These students respond well to game based learning, such as digital badges, because it is what they have been familiar with throughout their lives. Additionally, digital badges offer students a way to develop and demonstrate skills in an interconnected manner. It also offers them a sense of accomplishment that helps them to persist and progress with their learning rather than practicing skills in isolation and out of context. Gee notes the following:

> In good games, players learn and practice skill packages as part of accomplishing things they need and want to accomplish. They see skills first and foremost as a strategy for accomplishing a goal and only secondarily as a set of discrete skills. (p. 21)

A digital literacy partnership between the Department of Education and the Office of Postsecondary Readiness in New York City can attest to the motivational potential of digital badges. This program involves students in second-chance high schools and provides an opportunity for these students to empower themselves in the development of real-world skills and knowledge. Many of these students are at risk of dropping out of high school or are transitioning back to school after having dropped out (Nolan et al., 2012). Many of the badges that are used in this type of program are tiered or leveled so that one badge must be earned to progress to the next level within the program. Additionally, these badges have point values that vary depending on the skill level or effort involved required to earn them. Students use the in-house created badge system to share their badges with fellow students and teachers in the program. The program designers have even created a class of badges that students can nominate each other for based on their positive actions within the program or their contributions to the group. All of these features have vast implications when it comes to engagement and motivation because they help to bolster "students' sense of process and accomplishment – and, far more precisely than a letter grade, pinpoints, the skills and understanding students have to show for their efforts" (Nolan et al., 2012 p. 45). If digital badges can have such an impact on motivation for "at-risk" students in a traditional classroom setting, imagine the motivational potential they could have for students who are voluntarily participating in curricular and co-curricular activities at a traditional four-year university.

## DISCUSSION

Finding early adopters for a new technology can be a challenge. Digital badges represent an unfamiliar concept for faculty and staff members, thus new technology such as digital badges can be underutilized. If in effort to determine if digital badges could be something that could be more widely used on their campus, an assessment staff at a large Midwestern University felt the need to understand the use of digital badges by faculty and staff. In order to do so effectively, the team monitored how digital badges were being used by the few faculty and staff that had adopted the technology. As a result of these actions, a snapshot of how digital badges were used by faculty and staff emerged. This article discusses how four diverse areas on the authors' campus use digital badges.

## DIGITAL BADGES WITHIN THE CLASSROOM

In the Spring of 2013, the President of this Midwestern university commissioned a task force to measure student outcomes while attending the university. One of the task force's recommendations for increasing student growth was for faculty to offer more digital badges as part of their instruction. During the time of this recommendation, few faculty members were using digital badges in their classrooms. However, one faculty member in the College of Education was using this tool. This professor stated two factors that caused him to incorporate digital badges within his courses. First, a close colleague within the College of Education was one of the driving forces behind the development of digital badges at the university. The relationship exposed this faculty member to digital badges. Second, the professor's graduate student, was a developer of a digital badge platform used at the university. Bolstered by these two professional relationships, this professor began to use digital badges in the fall of 2014 with his Introduction to Educational Technology Course, a 200 level undergraduate course that is required for all students seeking a teaching certification.

The class introduced a series of eight badges comprised of a portion of the course's required assignments. Students who completed all of the badges would demonstrate skills in the areas of social media, word processing, desktop publishing, spreadsheets, media editing software, and classroom technology. The eight badges were designed with scaffolding levels of difficulty and original though demanded by the tasks associated with the badge levels. For example, to earn the first badge in the series, students must complete basic tasks such as identifying resources related to educational technology and creating an RSS feed to connect to organizations, websites, and individuals related to educational technology related, while the later badges in the series require students to complete more complex tasks, such as using media software to create a digital story. All supporting materials for students were within the challenges that comprise the digital badge. Through creating this series of thoughtful and challenging digital badges, not only did the professor diversity the instructional eco-system of his classroom, but he has also offered students a way to showcase potential employers of their skills and knowledge. Students can choose to share the badges with others as well. Thus, the videos and other artifacts they created served as evidence, in addition to their academic transcript, the skills they have developed through completing the course.

## DIGITAL BADGES IN THE CO-CURRICULAR CONTEXT

Perhaps one of the most promising applications of digital badges is the digital documentation of co-curricular learning, a concept that many universities are adopting highlighting. In this context, the term "co-curricular" refers to activities

that contribute to the academic learning experience, especially activities that provide students with opportunities to learn and develop skills through active participation. These activities may be led by faculty, staff, or students, but they must have stated goals and measured outcomes. Although co-curricular activities can create substantial and significant learning for students, often their new abilities and skills are not documented. Offering digital badges for co-curricular learning could create a platform of collecting and illustrate this higher level of learning.

One of the co-curricular departments at the university decided to try digital badges in the context of their LinkedIn Boot Camp. The boot camp's purpose was to help students create a LinkedIn profile that would lead to successful networking and a positive online image. Once they completed the book camp, participants would earn a digital badge which they could choose to share their badge via the Passport digital badge platform, Mozilla's Open Badges Backpack, or selected social media sites. Employers, as well as others, viewing the boot camp badge would be able to see the ten challenges that students completed to earn the badge. Prior to their decision to use digital badges, interns associated with the department developed a four-category rubric with values ranging from zero to three to evaluate each of the ten challenges with three being the highest level of achievement. Those three rubric values translated to three levels of digital badges based on the quality of the tasks submitted for each of the ten challenges. Students with mediocre profiles would be awarded a LinkedIn Learner badge; students with good profiles would be awarded a LinkedIn Leader badge; and students with outstanding LinkedIn profiles would be awarded a LinkedIn Legend badge.

Initially the department planned to offer digital badges to all 163 boot camp participants, however, the program coordinator and the student interns quickly recognized that offering the badges to such a large group might become unmanageable. Therefore, they decided that a more manageable approach would create a test group consisting of department ambassadors (learning leaders) and interns. This approach would allow the student interns enough time to verify the work the ambassadors did to earn the badges and to consider any modifications that would be necessary for a wider group of participants in the future.

## DIGITAL BADGES AS A MEANS TO FULFILL GRADUATION REQUIREMENTS

An example of digital badges is through fulfilling core curriculum. For example an assistant director of the faculty development organization at the university, created a series of badges to assess and document intercultural learning beyond the classroom. The series consists of six badges related to intercultural learning in the areas of intercultural openness, intercultural curiosity, cultural self-awareness cultural worldview, intercultural empathy, and intercultural communication. Once students have earned those six badges, they can earn a seventh capstone badge by reflecting in writing on what they learned by completing the six previous badges and by completing a brief quiz. The Association of American College and Universities's (AACU) Intercultural Knowledge and Competence VALUE rubric served as a guide for structuring the challenges that comprise each of the seven badges. The staff member chose to use the AACU rubric for this domain because it is the same rubric that university where the badges uses to assess intercultural learning as part of its core curriculum. It was the designer's intention that undergraduates could complete the series of badges to complete the intercultural learning requirement of the university's core curriculum. After a rigorous review process, the badges were approved as fulfilling the intercultural learning portion of the core curriculum. As a result of this staff member's innovative use of digital badges, students now have a means, beyond traditional coursework, to fulfill one of their graduation requirements.

## DIGITAL BADGES AS OUTREACH

Outreach programs, whether they are targeted to the community at large or to the K-12 population, are a very common component of many academic programs at many major universities. As an example of how digital badges can become part of community outreach, the Office of Engagement within one of the university's colleges is developing a four tiered system of badges of increasing difficulty. For example, at the lowest level are the discovery badges which can students can earn by visiting the college's kiosk at different events. The next level of badges, the Explorer Badges, require students to read or watch materials related to various aspects of a certain disciple and complete a quiz related to those materials. All of the badges in this series are designed to teach K-12 students something about an aspect of the discipline. The next two levels are titled Leader Badges and the Champion badge. Although those badges are currently under development, they are designed to recognize students who have demonstrated significant learning and dedication to the learning about multiple aspects of a particular profession.

## CONCLUSION

In providing readers with this snapshot of four very different applications of digital badges, it is the authors' hope that educators, in higher education and K-12 education, will become inspired by these early uses of digital badges and begin to use digital badges at their own schools. The digital badges concept is a versatile and unique educational technology that can only reach its full potential if the early adopters of the technology share their experiences with each other.

**REFERENCES**

Batson, T. (2012, March 18). Beyond the course: ePortfolios' value for credentialing [Web log post]. Retrieved from: http://www.aaeebl.org/tbb?mode=PostView&bmi=862293

Duncan, A. (Speaker). (2011). Digital badges for learning: remarks at 4th annual launch of the MacArthur Foundation digital media and lifelong learning competition [Speech transcript]. Retrieved from United States Department of Education site: http://www.ed.gov/news/speeches/digital-badges-learning

Epper, R.M., Derryberry, A., & Jackson, S. (2012). Game-based learning: Developing an institutional strategy. (Research Bulletin). Louisville, CO: EDUCAUSE Center for Applied Research. Retrieved from http://net.educause.edu/ir/library/pdf/ERB1208.pdf

Gee, J. P. (2004). Learning by design: Games as learning machines. *Interactive Educational Multimedia*, (8), 15-23.

Gligoski, E. (2012). Motivating the learner: Mozilla's open badges program. *Access to knowledge 4*(1).

Klonoski, E. (2010, April 20). Micro-credentials: the next frontier [Web log post]. Retrieved from: http://charteroakpresident.blogspot.com/2010/04/micro-credentials-next-frontier.html

Matkin, G.W. (2012). The opening of higher education. *Change: The magazine of higher learning* 44(3), 6-13.

Nolan, J., Preston, M., & Finkelstein, J. (2012). Can you DIG/IT?. *Phi Delta Kappan, 94*(2), 42-46.

Watters, A. (2012) Show me your badge. *Campus technology*, (26) 4, 8-16.

Young, J.R. (2012, January 8). Badges earned online pose challenge to traditional college diplomas. *The Chronicle of Higher Education*. Available at http://chronicle.com/article/Badges-Earned-Online-Pose/130241