ALLIANCE FOR EXCELLENT EDUCATION

DIGITAL BADGE SYSTEMS:

The Promise and Potential

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In 2013, the Alliance for Excellent Education issued a report highlighting the emerging uses of digital badges and their potential to expand education and workforce opportunities. Digital badges—defined as digital credentials that convey an array of skills, interests, and achievements—are steadily growing in acceptance as a way to validate learning that takes place not only in school but also at home and in a number of other out-of-school settings.

This report builds on the growing body of literature about digital badge systems by providing insight into how they are being used to enrich course curriculum in formal academic settings and enhance professional learning for educators in libraries and other out-of-school environments. It also explores the types of partnerships and policies that have played a critical role in helping these systems to flourish. Although many of the examples described in this report are in the early stages of implementation, these emerging digital badge systems illustrate the multiple ways they are supporting college and career readiness.

It is worth noting that some of the organizations at the forefront of implementing digital badge systems are now beginning to document their success through field research and developing new tools to support emerging systems. The Badge Alliance, for example, is a network of organizations helping to develop and spread the adoption of standards for designing, assessing, issuing, and sharing digital badges.

Also, a new research project out of Indiana University's Center for Research on Learning and Technology is working to capture a coherent set of design principles to guide the development of future badge initiatives. Known as the Design Principles Documentation (DPD) Project, the research focuses on assessing how badge systems developed across thirty winners of the 2012 Digital Media and Learning (DML) Competition. The findings are currently being synthesized into a final report that connects the design principles to relevant literature in education research and offers case studies that elucidate the lessons and challenges learned from building these digital badge systems.

ENRICHING COURSE CURRICULUM THROUGH EXPERIENTIAL LEARNING

When used in formal academic settings to complement traditional grading systems, digital badges can convey a range of skills and competencies that many believe are important but not fully captured by letter grades or grade point averages. Often, digital badges are tied to project-based learning opportunities; rather than measuring a student's knowledge of basic formulas, facts, and figures, digital badges can provide evidence of how well a student can *apply* that knowledge to real-world situations.

Digital badges are often interest driven as well, which means that students can be given more choice about how they want to demonstrate learning. If, for example,

a science teacher creates a badge to recognize critical thinking, teachers can work with students to demonstrate that skill in the context of a project that is personally meaningful to the individual student. Technically, each student would receive the same type of digital badge, though it could have been earned by successfully completing varying projects. The difference between receiving a letter grade and a badge is that, in addition to validating learning that has not historically been captured through letter grading, the digital badge is coded with data about the specific criteria used for assessing learning and evidence of what was done to earn the badge. The ability of the data to provide a concise, yet more nuanced, representation of skills is what makes them valuable to students, education institutions, and, ultimately, employers.

DIGITAL BADGES IN ACTION: University of California, Davis (UC Davis)

The Sustainable Agriculture and Food Systems major at UC Davis was officially launched in 2011 as an interdisciplinary offering for undergraduates. The major was designed to help students gain knowledge, skills, and experiences using traditional and nontraditional teaching methods, including hands-on experiential learning techniques.[1] Whereas conventional course grades weren't sufficient to capture the array of experiences and skills—such as internships and fieldwork—that are built into the undergraduate program, the university created its own badge system as a way for students to add more depth to their transcript.

The goal of UC Davis's badge initiative is to validate experiential learning that aligns with seven core academic competencies and program requirements.[2] During the development process, the UC Davis team worked closely with local employers to identify the competencies that were most important. These competencies included systems thinking, experimentation and inquiry, understanding values, interpersonal communications, strategic management, civic engagement, and personal development.

While the overall framework is aligned to these competencies, individual badge criteria and assessments are designed by students and faculty. UC Davis intended for students to be the first assessors of their own work, followed by program experts who provide validation.[3] Through allowing students to design their own credentials and to perform their own self-assessment as the first step to earning a badge, the program is trying to create an environment that "instill[s] leadership, engagement, and drive in students."[4] It's also important to note that the badge program is designed as complementary to the formal degree, not as a replacement for it, a structure that allows UC Davis to recognize diverse achievements.[5]

The badges allow students to differentiate themselves and their strengths beyond a simple GPA. For students, the value of digital badges is tied to the competitive advantage they offer in the job market. For employers, the value proposition is rooted in their ability to identify and recruit students with the skills they need.

SUPPORTING PROFESSIONAL LEARNING

In keeping with the belief that learning is a lifelong process, digital badges may also offer a way to incentivize and recognize ongoing professional learning for formal and informal educators as well. Especially given the rapidly changing nature of educational technology, badges are one way to recognize the expertise required to effectively integrate a variety of new platforms, devices, and programs into everyday instruction.

Emerging examples of digital badges being used to recognize teacher credentials include those being created by the American Social History Project (ASHP) and Digital Promise. The ASHP developed a set of badges to align with its Who Built America Project, which provides free, online professional development for U.S. history teachers in grades seven through twelve. ASHP badges recognize and reward iterative lesson design, professional engagement, content expertise, common core proficiency, and effective technology use.[6] Similarly, the Digital Promise micro-credential initiative will provide a performance-based approach to assessing teaching practices, and use expert and peer reviews to ensure a rigorous standard.[7]

BADGES ARE ONE WAY TO RECOGNIZE THE EXPERTISE REQUIRED TO EFFECTIVELY INTEGRATE A VARIETY OF NEW PLATFORMS, DEVICES, AND PROGRAMS INTO EVERYDAY INSTRUCTION.

Unlike classroom teachers, who have access to schoolwide professional learning resources and a variety of accreditation and certification programs, informal educators often have limited access to professional learning and fewer ways to demonstrate competencies specific to working with youth in out-of-school spaces. Informal educators come from a variety of backgrounds with varying levels of expertise in different areas. While many are classroom teachers who work with youth during the school day, informal educators may also include professionals with subject-matter expertise, graduate students, librarians, and experienced mentors with youth development backgrounds.

On a local level, there are a number of statewide afterschool networks piloting innovative badge initiatives to help bridge the professional learning gap for informal educators. The Ohio Afterschool Network, for example, is working on integrating badges into the Ohio Professional Registry (OPR) in partnership with the Ohio Child Care Resource and Referral Association, Case Western Reserve University, and Mozilla. The OPR provides a common system for informal educators and early childhood professionals to document and quantify their professional growth and accomplishments.[8] By capturing education, training, experience, specialized credentials, and certifications, the OPR is working to better define and advance the out-of-school field.

DIGITAL BADGES IN ACTION: Young Adult Library Services Association (YALSA)

Libraries in particular can provide an out-of-school environment that offers young adults a growing number of new opportunities to engage with technology in both structured and unstructured ways. In many cases, the traditional role of librarians has expanded to include expertise in helping youth navigate and critically analyze the wealth of multimedia sources available online. Professional learning is critical to facilitating this ongoing shift in their role. In response, YALSA began using badges as a way to support professional learning for school and library administrators, specialists, training coordinators, non-library youth advocates and service providers, and other library staff.[9]

A division of the American Library Association, YALSA is a national association of librarians, library workers, and advocates whose mission is to expand and strengthen library services for teens ages twelve to eighteen.[10] YALSA's badge initiative is based on a set of competencies developed in 1981 and last revised in 2010.[11] The Competencies for Serving Youth in Libraries can be used as a tool to evaluate and improve service, a foundation for library school curriculum, a framework for staff training, and a set of guiding principles for use when advocating for the importance of services to teens in libraries.[12]

According to Linda Braun, one of the co-creators of YALSA's badge initiative, library professionals can earn badges by sharing evidence of competencies with a community of their peers. The community rates each of the original "artifacts" that are submitted to demonstrate competencies, and a badge is awarded when the artifact receives a positive rating from a predetermined number of community members. A number of schools have expressed interest in using the badge system to enhance professional learning among their school library staff. Although the original system was designed for public libraries, it is now being adopted and piloted in school libraries as well.[13]

BUILDING LEARNING NETWORKS

While formal K–12 schools and institutions of higher education remain the primary way of validating what students know, there is a growing acknowledgment that a great deal of important learning can and should take place outside of the classroom. It also is increasingly recognized that the skills it takes to succeed in college or the workplace go beyond the traditional core academic subject areas. Educators are being tasked with figuring out new ways to teach and assess deeper learning skills—such as critical thinking, creativity, collaboration, and communication—that require students to apply knowledge in meaningful ways. The challenge lies in finding ways to adequately track and synthesize learning across a large number of disparate settings. Digital badge systems can help support the notion of student-centered learning in a highly networked world.

The creation of student-centered learning networks is one way to facilitate the collaborative partnerships needed to build a culture of anytime, anywhere learning for all students. The goal of these learning networks is to connect formal and informal youth-serving learning institutions that are equipping young adults with the skills needed for

college and career readiness. Ensuring that digital badges have real value for those who are earning, issuing, and accepting them involves formalizing relationships with K–12 schools, colleges and universities, local businesses, youth-serving institutions, and an array of other partners. Each of these partners plays a key role in the process of identifying a set of competencies or indicators, and the appropriate methods of assessing them.

DIGITAL BADGES IN ACTION: The Chicago Summer of Learning (CSOL)

In an effort to curb summer learning loss among Chicago's youth, Mayor Rahm Emanuel developed the Chicago Summer of Learning initiative to explore how badges could help connect learning opportunities across the city. Soon after he took office in 2011, the mayor worked to increase learning time for elementary, middle, and high school students. The focus on extending the school day soon broadened into a more systemic approach to expanded learning that involved tapping into community resources to support student learning anytime and anywhere.

Through the CSOL, youth were able to earn recognition for engaging in learning during the summer, and teachers were able to track the skills gained from these experiences in the fall. The initiative began with three clear goals:

- Help every child in Chicago, or even visiting Chicago, continue learning over the summer and have evidence of that learning (i.e., issue badges).
- Provide pathways and encourage kids to learn more (i.e., discover and motivate more learning through the badges).
- Communicate the learning back to schools and local businesses in the fall (i.e., demonstrate that the badges are worth something).

The mayor began his work on the development of the CSOL in 2012 with the help of a public-private partnership between the city and the MacArthur and Mozilla Foundations. Together, they began the process of securing initial support and participation by reaching out to city agencies and large nonprofit organizations. Once they were able to secure high-level support, they recruited more than 100 smaller organizations to participate in the citywide badging effort.

Although each participating organization had different objectives and offered a wide range of youth programming, they shared a common theme designed around STEAM (science, technology, engineering, arts, and math) learning opportunities. This meant that all badges offered through participating organizations were mapped back to an overall theme. The mayor then worked with MacArthur and Mozilla to develop a set of city-level badges that were standardized and controlled.

As Chicago built its learning network through the CSOL, it was important that each of the participating organizations had the flexibility and freedom to design badges to reflect their program and the unique learning opportunities offered. Instead of attempting to develop a common framework for the standards and assessments behind the badges, participating organizations were encouraged to develop their own method of assessing student skills and STEAM learning. In most instances, the organizations had already established standards—including but not limited to Common Core State Standards—and the badges were simply a digital representation of those skills.

Since most of the badges were designed independently of the others, Mozilla was asked to provide technical assistance to each of the organizations and oversee the citywide badge development process. In addition to ensuring that all badges aligned to STEAM skills, Mozilla developed a taxonomy of badge levels to categorize and quickly identify student requirements for earning badges.

- **Participation badges** are earned through attendance and do not involve any types of assessments to measure what students learn. These types of badges are intentionally designed to be relatively easy to earn, with the hope that students will pursue further badges that increase in difficulty and engagement.
- **Skill badges** are aligned with particular skills and/or competencies and require students to demonstrate learning through informal assessments. Similar to project-based learning models, these assessments typically involve students applying the skills they've gained to real-world problems. For example, one of the skill badges offered through the CSOL was a scientific research badge. To earn this badge, youth were required to design, complete, and present a controlled research project through the Chicago Botanic Garden's family drop-in programs.
- **Achievement badges** typically require students to demonstrate several different skill sets related to a particular topic. Chicago's youth were able to earn city-level achievement badges by collecting a combination of skill and achievement badges aligned to STEAM skills.

By the end of the summer, students across the city of Chicago earned more than 100,000 badges. In response to the widespread participation and interest in the CSOL, Chicago is currently working on the next iteration of the Chicago Summer of Learning, called the Chicago City of Learning. The City of Learning will be focused on reaching young people ages four through twenty-four and will include more than 215,000 free learning opportunities. The citywide learning network will be expanded to include activities at parks, libraries, schools, museums, colleges, and universities. It will also incorporate jobs and internships for teens through city and county departments, as well as sister agencies.

Going forward, city officials are exploring ways to use badges for academic credit and opportunities to incorporate them into the admissions process at local institutions such as DePaul University. City officials are also focused on creating more visible pathways for the city's youth that help them better understand how to navigate and leverage the citywide learning network. Particularly for underserved populations, exposing youth to the wealth of opportunities in their community and providing alternate ways to recognize skills gained in informal settings are key to helping them along the path toward college and career readiness.

The early success of the CSOL has led other mayors and city officials to express interest in piloting similar badge systems in major cities across the country. Plans to replicate and build on Chicago's citywide initiative are under way in Dallas, Pittsburgh, Los Angeles, Boise, Columbus, and the District of Columbia. While each "city of learning" will be uniquely adapted to support local needs, they are designed with common goals such as increasing workforce readiness, preventing summer learning loss, and leveling the playing field between youth from varying socioeconomic backgrounds.

UNDERSTANDING THE POLICY ENVIRONMENT

One of the factors impacting the ability of schools and community partners to build successful learning networks is the extent to which local policies support the growth of these partnerships. As an example, many leading districts around the country are transitioning away from seat time in favor of more flexible competency-based policies that allow students to earn credit based on mastery of academic content, regardless of the time, place, or pace of learning. Similar to the goals of competency-based learning, digital badge systems can support the notion of multiple rigorous pathways to graduation that are aligned with college- and career-ready standards.

Naturally, the districts and states that have made the most progress with amending policies in favor of competency-based learning are ideal environments for digital badge systems. Already the majority of states allow schools to opt out of seat-time requirements, and at least forty-two states have removed policy barriers that restrict the spread of competency-based learning models.[14] Yet despite the considerable flexibility at the district level to implement competency-based strategies in innovative ways, it is not yet a reality for most students. In fact, New Hampshire is the only state so far that has formally redefined credit hours into competencies.

SIMILAR TO THE GOALS OF COMPETENCY-BASED LEARNING, DIGITAL BADGE SYSTEMS CAN SUPPORT THE NOTION OF MULTIPLE RIGOROUS PATHWAYS TO GRADUATION THAT ARE ALIGNED WITH COLLEGE- AND CAREER-READY STANDARDS.

However, there are a number of districts currently working toward implementing competency-based learning models at scale. Notably, the Providence Public School District has received much acclaim for partnering with the Providence After School Alliance to incorporate digital badges into their competency-based learning model.

DIGITAL BADGES IN ACTION: Providence After School Alliance (PASA)

The Providence After School Alliance (PASA) is a public/private intermediary agency that builds systems of support to help shape and strengthen the complex relationships between afterschool programs, public schools, community organizations, policymakers, and funders. In partnership with the Providence Public School District and local community partners, PASA created an afterschool system for high school youth called the Hub.

The Hub is a citywide approach to building sustainable, high-quality expanded learning opportunities (ELOs) for high school–age youth in Providence.[15] Through partnerships with Providence public high schools and local community partners, the Hub provides high school students across the city with high-quality ELOs. PASA's ELOs undergo ongoing program evaluation to ensure that they support twenty-first-century skills aligned to Common Core State Standards and Massachusetts's Career/Technical Education Standards. Not only do ELOs allow students to earn credit toward graduation, they also provide flexible hands-on learning activities grounded in relevant, real-world skills and professional experience. Accordingly, the Hub addresses the developmental, academic, and employment-related needs of students.[16]

PASA's ELO initiative was made possible due to state law changes. In 2003, the Rhode Island Board of Regents passed regulations that required high school students to "graduate by proficiency" by demonstrating achievement in standards-based content as well as applied-learning skills.[17] Rhode Island also revised its Basic Education Code to require all school districts to develop and implement ELOs to fulfill academic and graduation requirements.[18] Through the partnership with the Providence Public School District, PASA has worked with high schools to offer students a half credit for ELOs. Once completing an ELO, students have the opportunity to earn a badge that is primarily evaluated by mentors, community instructors, and industry leaders. There are also opportunities for self- and peer assessment.[19]

PASA's success was also due in part to a strong partnership with Rhode Island College. Digital badges can currently be submitted as part of the application process, providing another incentive for students and instructors to participate in and encourage ELO experiences.

PASA is working on expanding their badge initiative to serve middle school students and enhancing the badge infrastructure to include measurement tools, additional badges tied to various skill sets, and links to a shared management information system. Similar to the Chicago Summer of Learning, PASA's goal is to strengthen partnerships with colleges and industry leaders to build out learning pathways, and add STEAM competencies.[20]

EQUITY AND PRIVACY CONSIDERATIONS

As digital badge systems and competency-based learning models gain momentum, it will be exceedingly important that students be provided with the necessary supports to progress at a rate that keeps them on track to graduate within the standard number of years. One of the concerns about competency-based learning raised by civil rights and special education advocacy groups is the potential for at-risk students to fall behind their peers. In response to these concerns, a number of states have safeguards in place to identify students who are not on track with graduation requirements and respond with a variety of early interventions. According to CompetencyWorks, a collaborative project led by iNACOL, these interventions must be grounded in assessments, shorter learning cycles, opportunities for immediate feedback, and a variety of ways for students to demonstrate evidence of learning.[21]

It is also important for policymakers to ensure that digital badges do not exacerbate existing opportunity and achievement gaps. One way to minimize these gaps is to ensure that strong support exists for enrichment programs for all students. Research has shown that high-income families spend over $8,000 more on child enrichment activities than low-income families each year.[22] This gap in enrichment spending—which has nearly tripled since the early 1970s—can be a contributing factor in the achievement gaps observed between students from varying economic backgrounds.[23] Federal grant programs, like 21st Century Community Learning Centers, that support academic enrichment opportunities during non-school hours for students attending high-poverty, low-income schools mitigate the effect of such inequity and offer the opportunity for these students to earn credentials that recognize additional skills and knowledge they have acquired.

The growing use of digital badges also raises sensitive issues about "big data" and privacy. As with the use of any student data, it is critical that there be clear protocols around what data will be collected, for what purpose it will be used, and how student privacy will be maintained.

AS DIGITAL BADGE SYSTEMS AND COMPETENCY-BASED LEARNING MODELS GAIN MOMENTUM, IT WILL BE EXCEEDINGLY IMPORTANT THAT STUDENTS BE PROVIDED WITH THE NECESSARY SUPPORTS TO PROGRESS AT A RATE THAT KEEPS THEM ON TRACK TO GRADUATE WITHIN THE STANDARD NUMBER OF YEARS.

THE FUTURE OF BADGES

The initiatives implemented by PASA, YALSA, UC Davis, and the city of Chicago demonstrate the growing momentum surrounding the use of digital badges to support deeper learning, college and career readiness, and professional development. They also demonstrate ways in which digital badges are being used to offer a more complete and nuanced representation of skills and abilities than what can be conveyed through a test score, letter grade, or GPA alone. They connect to a student's identity and capture his or her unique set of interests. With thousands of digital badges available—and new ones being developed every day—there's quite possibly an unlimited combination of digital badges to be earned.

Like digital DNA, the set of badges earned by any given individual can reflect the interests and experiences that make the student unique. Take, for example, a high school student who earns average scores on standardized tests but excels in her afterschool robotics program. Not only can digital badges help to qualify that student's above-average understanding of engineering and computer programming, they also could help give teachers better insight into strengths that could be leveraged in the classroom.

When implemented on a large scale—with the support of a strong and diverse learning network of schools, youth-serving institutions, and organizational partners—digital badges are proving to be an effective way to facilitate connected learning opportunities. Although it is much too early to render a verdict about the effect of digital badges on youth outcomes, the speed with which new badge systems are being developed is contributing to a fast-growing body of evidence about their value. If these early badge systems are any indication, they have the potential to transform the way learning is assessed and recognized in the twenty-first century.

Additional information about the badge initiatives discussed in this report and other efforts to expand digital badges can be found at http://dpdproject.info.

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This paper was written by Kamila Thigpen, digital learning policy and advocacy manager at the Alliance for Excellent Education.

*The **Alliance for Excellent Education** is a Washington, DC–based national policy and advocacy organization dedicated to ensuring that all students, particularly those traditionally underserved, graduate from high school ready for success in college, work, and citizenship. **www.all4ed.org***

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