

Chapter 2

A Philosophy of Open Digital Badges

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Abstract One of the most promising educational technology tools, open digital badges, is quickly changing curricula, job acquisition, and workforce credentialing. Learning data, assessments, and expert validation made accessible in social media create a transparency that may well be suited for critical questions in education. Operating from a framework of establishing how badges are currently employed in learning—the influential contexts of individuals and communities, and data aggregation—raises questions concerning the roles of instructors, badge providers, and learning management systems. This “philosophy” of digital badges addresses a variety of epistemological concerns including the intersection of challenges to conventional educational motivation, suggestions of how Platonic and modern models of education are complementary, and implications of how badges may represent postmodern credentialing systems. These concerns are framed around understanding how current work in digital badges can feasibly transform learning; this is both an acknowledgment of how badges are beginning to change ecosystems of informal and formal learning as well as an attempt to demonstrate how an epistemological philosophy of badges can change educators’ thinking and accelerate innovation.

Keywords Philosophy • Evidence • Epistemology • Learning • Democratic education • Knowledge

1 An Epistemology of Badges: Philosophy and Evidence

A demonstrable sense of “knowledge” in a multi-media infused, Internet-connected society may well present a number of challenges to its educational technology. Indeed, an emphasis on “...a conception of design epistemology that is not divorced

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from traditional epistemology, but one that emphasizes the dynamic, social, and creative aspects of knowing and knowledge construction” (Tsai, Chai, Wong, Hong, & Tan, 2013, p. 82) rightly positions knowledge and *critical evidence* of that knowledge in a natural tension. Open digital badges, functioning as a micro-credentialing system of sharable digital artifacts adhering to an accepted Open Badge Infrastructure-compliant (OBI) architecture, present a promise and a challenge to institutions privileging exclusivity of education, credentials, and evidence of learning. Though now several years removed from their introduction into the wider digital spectrum of available educational technology tools, and perhaps still several years prior to extensive adoption, badges are located at a critical epistemological juncture. This means that questions related to the future of badging practices, how badges intersect with business practices and education, and what functions are related to learner motivation and evidence are of importance.

Knight (2012) considers some of the limited thinking that surrounds badging discussions and posits that while badges and badge systems are not a solution in and of themselves, they do offer a significant contribution to an evolving ecosystem around credentialing, learning, teaching, and assessment. Knight warns of applying too much attention to the badge itself; this should be a caveat to any potential implementation of badging systems in education that a quality deployment focuses upon the learning design and evidence of learning rather than the badge that represents the learning. As Duncan (2011) explains, “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” (para. 13). Perhaps this function of badges, as a social driver for transformation in education, offers a framework for discussing the elements that are emerging and the directions that are flagging potential for change while acknowledging the journey thus far. What sorts of changes are possible and what modifications in our thinking about badges are likely to “press the accelerator”? Such knowledge-driven questions help situate a *philosophy of badges*, or in the simplest sense, a way to think about how badges might transform learning.

Three themes help situate the context of a philosophy of badges, drawn directly from current and on-going discussions in educational technology and digital badges. These include challenging paradigms of educational motivation, examining badges as a business practice, and proposing how badging culture informs deeper analysis. These themes are epistemologically contextualized with an intersection of ancient wisdom and modern educational practice, concluding with a postmodern approach to digital badges.

2 (Re)Framing an Ecosystem: Challenging Motivation

As the trajectory of educational technology development continues to arc upward, so, too, that of badges in their many uses. One of those uses is motivation: Goldberg (2012) discusses the links between viewing badging systems as almost exclusively

motivational tools (generally predicated upon a cautious suspicion that they posit the motivation extrinsically). Goldberg proposes that badges can be seen as way-points, or mechanisms for mapping progress and providing a platform for reaching out to new possibilities, effectively extending learning. Further, Goldberg asserts that badges are not intrinsically “behavioral lures,” that the design and implementation of the system issuing the badges is where expectation setting will occur.

The goal of reframing badge use from an extrinsic, and educationally negative (Abramovich, Schunn, & Higashi, 2013), “I want a badge” orientation towards a more intrinsic and critically informed “I want to present evidence of my learning and growth” should be a priority in any educational deployment. One report of the perception of badge use within a MOOC suggests that many learners find some enjoyment in being able to earn badges and valued the motivational aspect in terms of how badges assisted with “keeping on track” (Lokuge, Gregory, Salmon, & Pechenkina, 2014, p. 124). While the extrinsic motivation to learn and the use of badges more in tracking the progression of learning amidst the complex demands of modern life are seen to be complementary, what is not discussed is whether or not the badges were perceived as some form of formative or summative feedback.

Other recent studies (Cucchiara, Giglio, Persico, & Raffaghelli, 2014; Gamrat, Zimmerman, Dudek, & Peck, 2014) indicate that learners sometimes co-opt the use of badges to create their own personalized timetables and pathways for learning. The data systems that support badge issuance and acquisition often gamify the learning process; arguably, the concern here is not the use of markers of progress, but rather a concern with *who* decides on the learning pathways. If the badges are framed as dangling carrots that the teacher strategically positions to lure the learner through an externally motivated set of actions, then he/she is not offering much more than a token reward system. If, however, the learner has access to the data and can construct his/her own pathway, then the shift is towards a more intrinsically-defined motivation.

Such a pathway has important design implications for badges; epistemologically, the question shifts from how a learner may be compelled to learn with an incentive to how learning becomes deeply embedded in notions like individual freedom. Pathways themselves take on important implications of how knowledge is constructed, amalgamated, and synthesized in mapping.

2.1 Mapping Knowledge Through Badges: Beyond Motivation

Ingold (2005) considers mapping and way-making processes that are expressions of the experiential dimension of traversing a space. Ingold considers the process of way-making as an act of “coming into being” along lines that are “winding and irregular, yet comprehensively entangled into a close-knit tissue” (p. 47). In similar ways, the process of acquiring and collecting badges could be seen as a mapping process and the coming into being is a parallel of developing knowledge, skill, and capability. Ingold goes on to discuss external processes as a form of “occupation” and Flintoff (2007) blogged about teachers as colonizers (occupiers) of learners’

spaces. Questions arise about how teachers can provide badging opportunities that support learner autonomy and self-direction rather than excising student experience. Perhaps transparency of criteria and data holds the keys; the learner can construct or perhaps retrace the mapping he/she has already undertaken rather than simply rely on the reductive mapping of a teacher's previously installed markers.

Ingold also discusses the notion of “transport” in mapping—so that mapping is reduced to a series of known destinations and predetermined waypoints—whereas a true traveller (or active learner) engages in his/her own way-making and mapping processes through discovery and personal relevance. Can educational scholars conceive of badges in such a way that they elevate learning in formal contexts away from a simple transport system between prescribed learning outcomes?

Reflecting on game mechanics, the “gamification” of badging is not an end in itself. When engaged in desktop role-playing games like *Dungeons and Dragons*, the mapping of territory can facilitate a richer engagement in the game and create opportunities for discovery and review. Open-ended games like *Dungeons and Dragons* are similar to the open-endedness of a lifelong learning path, and as such there are mechanisms that keep participants aligned to individual goals. By tracking, scoring, and accumulating new abilities, participants are able to extend the scope of the game, play with more experienced and nuanced player communities, and prepare themselves for changes in the ways the game is played. When participant maps are shared with other players, it facilitates collaboration, team building, and expanded opportunity. To focus on the scoring and mapping as some simple form of external behavior modification system is to denounce individual agency as a critically informed participant and to ignore the broader context of the role of participation.

Perhaps there are ways to shift from this parallel of an education system being a transport system that can potentially remove the granularity of traversing a landscape towards something like Korzybski's (2005) notion that “the map is not the territory” (p. 750). To stretch the metaphor to education, the territory is the total experience of living and travelling across an educational landscape that has far more richness and relevance to the traveller than simply the symbolic reduction that is offered by a map. The map is useful and bears some similarity to the territory but is necessarily partial and distorted. How can a badging system accommodate a better representation of the territory? According to Halavais (2012a), “Badges, if done badly, just become another commodity; a replacement of authentic learning with an [sic] powerful image” (para. 18).

Poorly implemented badging systems also create an ethical (and possibly legal) quandary. Organizations that invite learners to engage with the promise of an achievement badge really must consider the implications of offering an essentially worthless, untrusted, or unrecognized marker of achievement. One of the key arguments for a standards-based open badging system is to mitigate against this type of damaging engagement. Internally, simple “motivational” badges and progress markers may be used in all sorts of ways to assist the learner, but when the badge becomes a credential then the issues of value, acceptance, and trust begin to arise.

The assumption that a learner's pursuit of a badge is its motivational strength takes a limited view of the possibilities; in fact, badges can be awarded without a learner having to pursue them. In a rich, authentic context for learning, the ability to "catch them doing it" is enhanced. In environments predicated upon experiential learning, the value of reflective practice is high. Novice learners are often unpracticed in reflection skills and this is maybe where badges can provide a capability to flag an experience. Formal contemplation can further prompt learners to review what they have just done by allowing them to "monitor their own learning process as well as provide a framework within which to compare and evaluate their goals and achievements with those of other participants" (Cucchiara et al., 2014, p. 141; Curran, 2014). This also suggests that beyond traditional motivational practices in education, an effective badge practice also acts as an intercessory "partner" alongside the learner, which can be of great value to educators who use badges for more than a mere prompt for action (or, in this case, reflection), and as an artifact after the learning is complete.

The latter, too, may also function as a different type of educational motivation. While a transcript may lead to and accompany a graduate into working life, it represents "completed" learning insofar as curricula demonstrates knowledge. Badges, however, may readily "travel" with an individual across social media platforms, job applications, and educational experiences, perhaps even prompting the individual to pursue badge-driven re-certification, professional development, and additional learning that may not have been available without the badge. Thus, the chronologies of learning are directly repositioned with the use of badges. Where traditional paradigms of motivation may well urge action ahead of learning, and perhaps sustain learners, badges have the capacity to reach into the future for learning that is not yet available.

Such capacity to affect learning in terms of present and future digital artifacts also suggests questions of the reach of business. With learning evidence and the ability to continue learning, businesses may too have an important stake in how knowledge is shaped.

2.2 The Educational Enterprise and Communities of Learners: Badges as Business

As open digital badging becomes more mainstream practice in educational assessment and evidence-driven cultures of learning, the intersection of educational enterprise and communities of learners becomes increasingly relevant for institutions and individuals alike. In outcomes-based assessment in a so-called "knowledge economy," badges represent not only a form of credentialism, but also a currency to demonstrate marketable skills and abilities, at least in theory (Ahn, Pellicone, & Butler, 2014). Educational technology entrepreneurs are poised to capitalize on such shifts; for example, many private badge providers offer a "freemium" model of

payment. Using OBI-compliant digital architecture, some companies allow users to build and issue badges, sometimes with limited functionality or numbers of recipients, for free (Lomas, 2013). As more functionality or more recipients are required, companies charge on a scaled rate. Such a business model is not unique to the educational enterprise, but it appears to be the most widely-used for badge companies currently.

Educational technology companies help learning in two distinct regards: learner-centrism and scalability. The former means that individual learners are empowered to take control of determining how their learning experiences can be validated and shared. The deeper sociological implication of this suggests that badges can alter what Michael Olneck refers to as a “regime” because they can reorient previously established hierarchies of instructor-student relationships (Olneck, 2015, p. 3). To the latter, badges contribute to the expansive reach of online learning, specifically with credentialing individuals with validated, sharable evidence. Like online learning, such systems can be scaled to the needs of a vast number of educational and professional development providers. Within existing “social structures” badges offer the possibility of critical engagement with educational frameworks such as learning, assessment, and achievement. Data liberation (Watters, 2012) becomes desirable in a culture where knowledge and information are valued and respected, and it also becomes achievable with an open data initiative. If educational thought leaders are truly interested in empowering learners with more than rhetoric, then framing a digital badge ecosystem as a personal data locker (Watters, 2012) becomes a viable strategy towards this intriguing ideal.

Ownership of the data that is embedded within a badging system is inherently linked to issues of trust, confidence, and ethics. Many proponents of digital badging in education assert the view that the ability of badge users to “filter, shuffle, sort, hide or display” (Fontichiaro & Elkordy, 2015, para. 8) contributes significant value to education and that when badge recipients (learners) have the capacity to shape the representation according to context they are empowered by the granularity and depth of evidence that they can control. Thinking about badges in the context of learning analytics and “student data” more broadly raises ethical questions around data usage. Who has the right to access, collect, manage, manipulate, and redistribute this data?

Potential problems that may affect learners include use of individual data for automation, re-ordering of credentialism, and recalculation of what autonomy means in a community of learners (Willis III, Quick, & Hickey, 2015). Badging companies, like other digital enterprises, generate and collect large amounts of potentially valuable data, both aggregated and individualized. There may be nothing unethical about culling and interpreting data to benefit future students (especially with transparent disclaimers and opting-in techniques), but as individual data becomes ever more commonplace, can the reliance on purported good intentions be sustained in practice? Data constitutes one of the most valuable assets in business in terms of monitoring, developing insights, strategic optimization, and, ultimately, monetization. This is normally conducted under some model of business intelligence. The personalization of service delivery almost necessitates using a client’s

data to inform operational decisions; in these contexts, privacy and trust issues seem to be paramount.

Similarly, as the regimes shift, the balance of knowledge and demonstrated competence has the potential to change greatly. For example, as competency-based education becomes *terra firma* in previously rigid educational structures, the need for individual assessment by an expert may be disseminated and automated to expand the validity of human agents. These developments may similarly affect how individuals relate to online communities, especially when such communities provide expert validation, socially-networked feedback about credentialism claims, and the transparency to secure jobs. Such autonomy within communities can turn into digital dependencies, of which companies may stand to profit.

Educators are increasingly able to access performance dashboards that display aggregated expressions, visualizations, results, and achievements related to student learning behaviors (Charleer, Santos, Klerkx, & Duval, 2014). Currently, many cloud-based software applications confined to the particular context in which the student-teacher relationship exists (school, university, etc.). Badges introduce the possibility of extending engagement to all aspects of a person's lifelong learning journey. It then becomes an ethical consideration as to whether or not students are properly informed about and aware of how such disclosures might be used by their teachers, school, university, and subsequently, future employers. It also raises the issue of whether or not teachers are adequately prepared to properly utilize the data that is available to them. Systems must begin to consider the responsibilities of data security and data management as a significant part of their organizational culture.

On one hand, teachers are charged with facilitating meaningful change in ability, belief, behavior, knowledge, and capacity of students, but they must balance this with a considered understanding of how and when the data provided by badging and other systems is within the scope of legitimate use. Current strategies employed by educators to bring about the expected changes in learners are not always transparent; assessment criteria, professional judgements, and learning design are often outside the scope of student awareness. Rich, open badging systems that properly and explicitly reflect the activity and achievement of recipients—particularly in alignment with transparent expectations and assessment criteria of issuers—have the potential to transparently render the mechanisms of teaching and learning.

Such claims, both positive and negative, are generally in the theoretical stage now, but the claims are not outlandish. The provocative question here is whether such innovation can be harnessed to benefit not only the companies themselves, but also (more significantly) the learners that could mutually benefit from such an evolution in digital micro-credentialing. The information provided in badges indeed has real value not only to badge companies, but also to those in the wider ecosystem of student-oriented artifacts like learning management systems, learning tools, and textbook cum content companies. Harnessing such data—and responsible use of it—becomes not only an abstract ethical concern, but also a commercial matter for those with a vested interest in promoting future hierarchies that promote learning and opportunities.

2.3 Badging Technology and Badging Culture

Fostering a learning culture where learners are predisposed to critical engagement is likely to diminish the perception of the badge as a desirable shiny thing and impact upon “critical learner motivations” (Abramovich et al., 2013, p. 217) and subsequently upon learning design more broadly by demanding greater adherence to constructive alignment of content, learning activities, and formative assessment tools (Cucchiara et al., 2014). Ito (2012) highlights the risks of over-dependency on technological solutions. Meaningful implementations of badges will simply reflect that a paradigm shift is occurring. The value of a badging system in education requires the establishment of trust and support across an ever-widening range of stakeholders involved. Educators have long questioned the quality of behavior that is the result of “incentivizing users to increase their activity” (Anderson, Huttenlocher, Kleinberg, & Leskovec, 2013, p. 104; Kohn, 1993) and yet token reward systems, praise, and other encouragements remain the basis of many learning engagement activities.

A badge carries metadata and has the potential to generate a far more expansive narrative than any individual element within a dataset. The technical specifications of the Mozilla Open Badge Initiative (Badges/Onboarding-Issuer, n.d.) describe how to “bake” a complex set of information used for validation and verification into what looks like a simple web-compatible PNG image. A badging system has the potential to identify when and where a person is engaged with learning, the attempts a learner has made, the outcome of those attempts, the relationship with the badge issuer, and much more. How readers of a badging profile interpret that narrative may be less transparent. As a result, a personalized badge collection has the potential to evolve into a significant indication of status. Social media profiles in personal and professional sites are already enabling the presentation of badges as social markers (Gibson, Ostashewski, Flintoff, Grant, & Knight, 2013).

Another common theme discussed in the debates around the value proposition of badges is the ability for badges to reflect the full scope of learning that anyone develops: “Digital badging recognizes learning and growth wherever it happens and helps people connect their accomplishments across institution types” (Fontichiaro & Elkordy, 2015, para. 5). It often goes without saying that while people have the potential to learn in every context of their lives, they often prioritize the formalized and certified contexts above the informal stuff of life. It is useful in a discussion of badges to explicitly reclaim the absences in acknowledgement of learning. Sullivan (2013) suggests that a digital badging system can enable the coding and recognition of learning across a broader learning ecosystem; by casting our net wider than the “traditional sites of learning” it is possible to “signal that any place can be a site for learning” (p. 5).

Reputation markers are arising in many online contexts; certainly in academic and professional sites like LinkedIn, ResearchGate, and others there are rudimentary endorsement systems that parallel badging systems. While there are many deficiencies with simply clicking to endorse a profile with a particular capability or attribute, it signals a move towards peer recognition and could become the basis of a more formalized system that asks the endorser to fill the evidence gap. Whether

formal or implied there is a tendency towards a taxonomy of educational contexts. Universities and schools are ranked, private providers are subject to industry and consumer perceptions, and much informal learning is currently ignored or, at best, treated with caution. What could emerge is a more transparent articulation of how these taxonomies are constructed and maintained, who is assigning value, and what contexts shape these meta-referents. In this way, badge recipients may be better able to determine how to package their badge collection to optimize their value in different contexts.

Badges have the potential to become the currency of educational experience. It has been suggested that ownership of a badge or a combination of badges could signify levels of privilege and access by way of advanced standing comparable to recognizing prior learning and result in exemptions from tasks, signaling readiness for complexity and exchange for other badges (Fontichiaro & Elkordy, 2015). As badges gain value, the issuers are charged with greater responsibility for confidence in that value and will need to foster increasing levels of trust, transparency, and openness about the mechanisms that accommodated the award of the badge. The “enforcement mechanisms” (Halavais, 2012b, p. 370) needed to drive this charge are yet to be fully negotiated and are likely to draw upon emerging social contracts as much as technological and legislative solutions.

3 Epistemology: Some Badging Narratives

The highlighted contexts of digital badges, namely the intersection of education and motivation, business and data, and badge culture and technology, help situate the discourse within possible philosophical approaches to current and future badge thinking. The approach of selecting two different philosophical frames is not comprehensive, but is rather a suggestive framework for future work describing philosophical intersections with badges in particular and educational technology in general.

Badges stand at the forefront of current credentialing systems: they represent traditional modes of presenting learning evidence, but they also serve as a pointer to connected learning that can transcend informal and formal modalities. Thus, it is important to address how an alignment of ancient wisdom to modern views of education and a “postmodern” epistemological approach to digital badging lends new insight into how badges can be understood.

3.1 *Badges, Democracy, and Plato: Connecting Ancient Education with Modern Practice*

With the proliferation of digitally-connected learning tools, institutional control of educational curricula has been democratized with free or low-cost tools like YouTube, Khan Academy, MOOCs, and many others. Nussbaum argues that higher

education (particularly in the United States) is “not simply pre-professional, but a general enrichment of and a cultivation of reasonable, deliberative democratic citizenship” (Nussbaum, 2002, p. 291). Could badges act as the glue in an increasingly interconnected global economy? Though Hanson (2007) points to the impossibility of moral neutrality when dealing with ideas, the OBI framework embodies democratic ethics that can facilitate innovation at an even a faster rate. Technological innovation fueled by the demographic ideals inherent in crowdsourcing such as Indiegogo and Kickstarter—and demonstrated by the rise in 3D printing, Maker spaces, and small-scale robotics—exhibits how projects like digital badging support and mirror the shift from the industrial age to what Anderson (2013) calls “desktop manufacturing” age.

While learning is now widely available online, formal credentialing still remains entrenched in traditional models of formal recognition. Badges may have a similar democratizing effect on the credentialing ecosystem, though. Such democratic ideals have familiar roots in Platonic thought because they bring together the power of education and human freedom. Some of Plato’s thought, coupled with modern educational theorists, suggests how open digital badging and credentialing systems are becoming more closely aligned with broader access to education.

In a general sense, what unites ancient and modern educational practice is that of whole person formation. This means that connecting the intellectual, physical, spiritual, and emotional selves is important in the development of a person. Russell’s essay “The Aims of Education” spells out that education cannot be ethically neutral. Russell clearly states, “We must have some conception of the kind of person we wish to produce, before we can have any definite opinion as to the education which we consider best” (Russell, 1927, p. 159). Though writing in a vastly different era from the twenty-first century model of education, Russell’s insight applies across chronological and socio-psychological differences because the essence of human development endures.

The notion that education is a universal human right is a recent ideological development. The ancient Greeks did not value individual rights *per se*; the education of individuals was in the service of a greater common good, and—in the case of Plato—often described in the context of utopian civilizations. Plato posits, “... assuming that there are men good and useful to the community, it is not only knowledge that makes them so, but also right opinion, and neither of these comes by nature but both are acquired...” (Plato, 1956, pp. 154–155). Indeed, Plato argues through the mouthpiece of Socrates that knowledge is a *recovery* of what is already known in the individual soul (Plato, 1956). Though these theoretical, albeit morally-infused, visions of education persist today, by the time Dewey and Addams were advocating for inclusive education in the context of early twentieth-century industrial America, the pragmatic method (Lake, 2014) had taken root in the philosophy of education. Pragmatism did not usurp the Socratic-Platonic view of education, but rather situated the intended outcomes of responsible citizenship, moral responsibility, and the like to economic factors like job attainment. In contemporary educational culture, badges are essentially a pragmatic tool, as detailed by Lake in “Working With: Expanding and Integrating the Pragmatic Method for a Wicked

World.” As a pragmatic tool, though, badges may also expand the Platonic notion of knowledge acquisition as an aesthetic ideal (Plato, 1982).

The milieu that surrounded and propelled Addams and Dewey at the turn of the twentieth century in Chicago has similarities to current socio-economic conditions; now, however, the ease of global communications allows growth and innovation to arise in virtual communities. Siegfried describes how Addams and the Hull House experiment “offered classes in art, music, drama, sculpture, philosophy, and literature to its immigrant neighbors” (Siegfried, 2007, p. 83). The immigrant learners were also industrial workers. Likewise, the OBI supports STEAM (Science, Technology, Engineering, Art, and Mathematics) initiatives that edify STEM (STEAM minus Art) learners in the twenty-first century. Addams’ philosophy makes the “startling claim that we are responsible for choosing our experiences,” (Siegfried, 2007, p. 85) which directly mirrors what could be named the mantra of the OBI project: “Pathways for Learning” (HASTAC, 2015). While the arguments for and against STEAM percolate, the social and economic reality of success stories in the Maker movement, which necessarily includes aesthetically pleasing design in order to succeed economically, trumps academic musings (Britton, 2014).

Nussbaum has championed traditional liberal arts education to prepare students for the increasingly global and “complex interlocking world” (Nussbaum, 2002, p. 292) of the twenty-first century. While not directly condemning the *de facto* career readiness focus of formal higher education institutions, Nussbaum expresses a strong conviction that higher education ought to enrich a person’s humanity, thereby reinforcing the reasoning powers of a democratic citizenry. Nussbaum reminds her readers that Socrates’ “examined life” not only bolsters a person’s critical thinking skills but also develops enough defiance of thought to create an innovative populous: “Like a gadfly on the back of a noble but sluggish horse, he [Socrates] said, he was waking democracy up so that it would conduct its business in a more reflective and reasonable way” (Nussbaum, 2002, p. 293).

What is educationally epistemological, then, has an aesthetic quality to it; beauty becomes the measurement and the outcome. This may appear at first to be in contrast to the recently accepted Common Core Standards (Conley, 2014) in the United States because direct learning toward career readiness is exemplified at the expense of personal and physical development. For example, the Common Core State Standards Initiative makes no mention of music or physical education.

The commerce-centric view of education would likely prompt Plato to ask how America’s youth can learn ethics and morality. However, badges operate in formal and informal educational spaces, so the complement of morality through democratic ideals like peer support, group projects, teammate cooperation, and completion, stands the possibility of recapitulating aesthetics through what is colloquially referred to as “soft skills.”

More significantly, Plato would perhaps wonder if badges could be awarded to and certify youth in musical and physical pursuits. In Plato’s *Republic*, the Philosopher-Kings received instruction in subjects that might be categorized today as language arts, mathematics, physical education, and music (Plato, 2000). Comparing America’s contemporary assessment standards against ancient views,

the Common Core is half empty. There is, however, great opportunity for badges to recognize and authenticate character-building activities outside of Common Core formal learning.

3.2 *Bridging Plato and Modern Education: Badges as Conversation*

For Plato, philosophy operates within a social network where teaching a single person does not suffice; the whole community must practice inquiry together. Similarly, badges operate within social digital networks when people share them with friends, employers, and institutions. Badges can create community around their usage and evidence-based sharing; additionally, they represent a political function insofar as they communicate claims of learning to others. The political function of badges creates a philosophical space for knowledge itself. For example, Plato's concept of *theoria* (or, contemplation) has to do with what is common rather than individual (Nightingale, 2004). Applied to badges, knowledge becomes decentralized and indicative of an entire educational ecosystem, or in other words, the collective knowledge demonstrable in digital emblems. This aligns with the Platonic idea that philosophical knowledge emerges in the individual soul thanks to the dialogue among people who share a given form of life and who are constantly in contact with each other (Plato, 1956). Further evidence of this would be Plato's documentation of Socrates' method of teaching: If targeted questioning can function as scaffolding upon which badge issuer and recipient develop and defend what is known, it can postulated that a digital badge can represent the earthly form of the Platonic form. Badges emerge from networks or systems of thought; as such, dialogue within a network is requisite to earn a badge.

Learners of all ages already participate in digitalized networks and communication systems via social media platforms like Facebook and Twitter, personal one-to-one applications such as text messaging, Snapchat, and email—all of which reside on mobile gadgets like smartphones and tablets. Open digital badges can be seen as another sort of digital conversation; instead of chronologically-limited applications, badges serve an archival function to formalize conversations that demonstrate learning. O'Byrne ruminates about Dewey and Friere's vision of schools as "the critical spaces where students could be empowered to interrogate and question social circumstances through the use of discourse about issues of high interest and relevance to their lives" (O'Byrne, 2014, p. 103). School is no longer a physical space only; the disembodied virtual spaces of a learner's digital life are the location of contemporary Socratic dialogue. It is entirely possible to integrate the ancient wisdom of Socratic questioning, Platonic aesthetics, and modern technology within the structure of open digital badges.

For example, Goldstein (2014) situates Plato directly in the concerns of the modern academy and technology in *Plato at the Googleplex*. On stage at the 92nd Street Y in New York City, Plato, billed as the "best-selling author of *The Republic*,"

diplomatically mediates between a “warrior mother” who advocates extrinsic motivation and a psychoanalyst who perceives academic grading as a “quick fix of achievement... pursued not for the sake of the excellent work achieved, but rather for the sake of being *regarded* as excellent, whether there is true excellence there or not” (Goldstein, 2014, p. 179). Plato (channeled through Goldstein) says, when directly asked about how he detects potential in a child, that “mere intelligence without mettle makes for a feeble material” (Goldstein, 2014, p. 193) and that he looks for *thumos*, the Greek word often translated as “boldness” (Gay, 1988, p. 259). He continues, “You cannot change human nature. You can only change the polis so that what it potentially dangerous is rendered innocuous or even, in the best-ordered society, beneficial” (Goldstein, 2014, p. 194). Contradicting yet empathizing with the psychoanalyst’s fears about Plato’s “hegemonic vision of reality” (Goldstein, 2014, p. 190), Plato offers an empathic yet conciliatory pronouncement: “Those who lack this vital spiritedness will never do much harm in the world, it is true, but they will not do much good either” (Goldstein, 2014, p. 194). The power of badges, then, is the bridging between the boldness of knowledge and assertion of excellence and the evidence to support such claims. The creation of dialogue, of communication between educational claim and demonstration, helps instantiate the Socratic-Platonic method of teaching and learning with the technological reality of modern-day badges.

3.3 *Digital Badges and Postmodern Credentialing System(s)*

The mid-to-late twentieth-century philosopher Lyotard offered perhaps the most succinct definition of “postmodern” when he posited the “incredulity toward meta-narratives” (1979, p. xxiv). Applied to the narratives of credentialism, digital badges may well be a postmodernist advancement against the metanarratives of a collegiate education and the culturally perceived value of that credential.

In knowledge-based economies, higher education becomes the gateway into social mobility, financial security, and advancement within workplaces. Further, education functions beyond the gateway because it signals the credentials of an individual. Universities, then, contain the narrative of educational attainment and potentiality for economic prosperity. Badges usurp this narrative in a variety of ways: From distributing traditional power structures of credentialism, to rerouting pathways to job attainment and advancement, badges are creating a new currency of educational power in domains like stackable credentials and competency-based education. The narrative established in codified evidence, held in perpetuity by the institution of graduation and distributed only by the alumni, remains dominant and prominent. However, the emergence of digital micro-credentials, held in perpetuity as an open learning artifact and consumed by no one and everyone, is quickly becoming an alternative means to demonstrate knowledge. The badge, therefore, becomes the apparatus of democratization that could well reform education in the coming decades.

In this emerging economy of credentialism, the value of a badge will hinge on the credibility of the issuer, the robustness of the evidence, and the direct applicability to rewards, advancements, or privileges earned by the learners. This credibility does not go far enough, though, because it operates in the same structures of the traditional transcript: A certificate of completion (albeit degree, professional development, etc.), validated exactly the same way, becomes no more than a token to substantiate a claim to learning in the modular scale. Rather, an effectual claim to reform is not only in the evidence, but also in the mechanisms of history, specifically aligned with the practical application of Foucault's "archaeology" and Derrida's "archive."

Foucault's terminology of "archaeology" allowed him to write history from the perspective of traces that constitute elaborate matrices of structures; in other words, history is not some flat presentation of events, but the strange curvature of processes that constitute a living structure of knowledge (Foucault, 2002). Applied specifically to badges, the "archaeology" presented as discursive claims to empirical knowledge can be re-written as the series of processes that form a totality of human learning. In other words, the transcripts of prior learning indicate the aggregated claims of understanding as delineated by some sort of evaluation; badges, however, can bypass conventional grading and instead show evidence of engagement, creations that challenge accepted norms, and other demonstrations of mastery over small domains. Coupled together, such small domains form an innovative way of writing the history of individual learning, and therefore the "archaeology" of what might be claimed as knowledge.

Similarly, Derrida also viewed history, or the possibility of history, with skepticism. His critique of history perhaps reached its apex in the comfort of the archive. Rather than a place that can embody the totality of known-ness of something, the archive instead serves as a sort of false awareness of the confines of what is epistemologically possible. Derrida was deeply skeptical of the ability to catalogue, sort, and organize any body of knowledge; thus, the archive becomes a place of paradox between the claim to embodied totality of knowledge and the evidence of incompleteness (Derrida, 1996). Applied to badges, skepticism of traditional transcripts, as a closed archive where learning is "complete" and embodied in some other credential like a degree, can lead to new ways of conceiving of the so-called "lifelong" learning and modularity of education. Instead of being a closed-off system of learning, badges can defy the possibility of archiving and solidifying knowledge and instead open it to improving opportunities and leveling to push the outer limits of personal capability. Rather than a specific summation of one's educational attainment, badges instead represent a continuum of accomplishments. In their incompleteness, granularity, and openness, badges are a digital form of Derrida's hesitation to capture knowledge in some form of finiteness.

As technology changes, so too will forms of credentialing. It may well be that badges are but a first step into a larger project of democratizing education. Viewed through a postmodern lens, badges demonstrate a possible future as well as a critique of the traditional values of educational attainment. Open digital badges stand as a reminder that knowledge is not easily suspended within a confined space; rather, it shifts and changes.

4 Conclusions

Open digital badges are a key component in the changing systems of education, credentialing, and evidence of learning. While the potential for perpetual influence is currently theoretical, badges have already exposed rapidly-changing demands for micro-credentials and curricular modularization, free or low-cost access to educational materials, and development of newer frameworks like competency-based education. To make sense of these changing systems, as well as to test the underpinnings of the technological development, establishing a philosophy within a particular context is necessary. The “problem” that unites technology and education is that of epistemology, or how it can be known that learning is occurring, that evidence supports claims of learning, and that badges are influencing other areas of education. Open digital badges, then, can serve to bring together the philosophical and empirical aspects of education in climates of innovative change. While traversing digital social networks, signaling claims and evidence of learning, badges can also challenge the barriers of static curricula by opening new pathways to continuous learning. The empirical evidence presented in and by badges, namely criteria, claims, and perhaps even professional endorsement, allow for the measurement of impact within social networks; such measurement also creates frameworks of knowledge helpful in philosophical discourse. As individuals’ credentials and workplace needs become increasingly global and inter-connected, the philosophical approach to (re)thinking the signaling of individual and collective abilities places badges in the middle of both empirical and philosophical measurement.

An epistemology of open digital badges addresses several pressing concerns currently in the broader dialogue. Often cited as a means to increase educational motivation, an epistemological approach helps address and challenge assertions that badges gamify learning. Within the larger narratives of education, badges help re-establish a democratized agenda to learning; by connecting badging efforts to ancient Platonic views of education, modern practices like re-evaluating outcomes within aesthetics demonstrates alternative value systems to education. Finally, a postmodern approach to badges shows how traditional power structures of educational attainment might be better conceived through a continuum of ongoing learning efforts.

Instead of the long-prescribed route of higher education as a gateway and a pathway to career possibilities, open digital badges may present a viable and visible demarcation of usurping the power structures of education. Rather than a totality of knowable evidence of learning, badges are a means to show how learning within quickly-changing educational and credentialing systems is both critical of some contemporary practices and affirmative of an aspiration for future educational opportunities.

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