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Articles

Digital Badges: A Pilot Study of Employer Perceptions

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Digital badges are becoming increasingly popular as a way to document both formal and informal learning. For badges to be valuable, employers must recognize them as such. As individuals consider working towards badges to document their training and learning, there is a need to determine their current value and worth in the current job market and their application to human performance technology. This research will discuss the results of a survey of employers in Northwest Ohio, who were asked their opinions on their current practices and perceptions in recognizing employee's professional development and performance authenticated by a digital badge. The survey conducted in 2020 found that more than half of the human resource directors felt digital badges would play an important role in hiring in the future.

Introduction

Technological shifts, coupled with a labor shortage, the need to continually upskill employees, and/or reinforce employee behaviors has resulted in cataclysmic changes to training and development in the workplace. Two performance technology trends that have emerged over the past decade include the use of gamification and digital badging within the learning space. The concepts overlap as digital badges incorporate an important aspect of gamification - the use of an extrinsic reward to encourage someone to invest in building their knowledge and skills on a subject (Delello et al., 2018).

Digital badges (DBs) are, in effect, electronic symbols of competencies or experiences an individual has obtained. DBs are commonly referred to as micro-credentials (Gamrat et al., 2014). There are multiple examples of digital badges gaining traction in the workforce. IBM, for example, developed an internal digital badge program with its employees, linking the badges to company-defined knowledge, skills and experiences, and professional certifications. Over 223,000 employees earned almost 500,000 badges, resulting in higher employee engagement (Fyfe-Mills, 2018). Other organizations that use digital badges include NASA, the U.S. Department of Education, the Smithsonian, and post-secondary institutions MIT, and Yale University (Opperman, 2015).

While digital badges are surfacing across multiple industries, this type of credentialing is not without criticism. Since digital badges often utilize motivation techniques based on video game elements such as points, badges, and leaderboards, some critics express dismay that these tools are exploitative. Because gamification is based on fictional incentives rather than real ones, and does not provide any monetary rewards, it is very different from other workplace incentives. Workers sometimes obtain badges by competing with other workers, tracking their progress, and comparing them against each other, thereby stimulating competition. In addition to concern over how possible competitiveness created by gamification can negatively impact employee culture, there is a lack of research on employers' perceptions of digital badges as authentic credentials that demonstrate mastery of experience or knowledge (Cumberland et al., 2023).

The purpose of this study is to explore the perceptions of digital badges amongst human resource professionals using the lens of gamification theory. First, we will briefly review the literature on digital badges, followed by a review of how skilling and reskilling are conducted in an organization. Next, we review the literature on gamification and its application within the workforce as it relates to DBs. We then report on a pilot study conducted with HR professionals to garner their opinions on digital badges as a method to authenticate an employee's professional development. We conclude with a discussion of the results and, finally, a series of recommendations for performance technology practitioners.

Review of the literature

Digital Badges in the Workplace

Digital badges are a type of alternative credential. Alternative credentials have been defined as "any micro-credential, industry or professional certification, acknowledgment of apprenticeship...or badging that indicates one's competencies and skills within a particular field" (Society of Human Resource Management, 2022, p. 2). Alternative credentials are *not* traditional education degrees such as a bachelor's or master's degree. In 2021, the Society of Human Resource Management (SHRM) conducted a survey of U.S. executives, supervisors, and human resource (HR)

professionals to learn how employers and employees view and value alternative credentials (Society of Human Resource Management, 2022, p. 5). The results showed the most common type of alternative credential U.S. workers hold was a training certificate (52%), followed by course completion certificates (48%) and industry or professional certifications (38%). Overwhelmingly, the majority (90%) of participants in the survey said they value alternative credentials. Participants in the SHRM study ranked the most compelling alternative credentials during the hiring process to be training certificates and course completion certificates – the top two most common types of alternative credentials in the U.S. workforce. The third most compelling alternative credential was virtual (digital) badges that required a passed exam as well as registered apprenticeships.

Much of the research, however, on digital badges is focused in both K-12 education and higher education. There is limited research on digital badges in the workforce and for workforce development (Cumberland et al., 2023). In their scoping review of the empirical research on digital badges, Cumberland et al., 2023, found only a small number of empirical studies -six - focused on the impact of alternative credentials or micro-credentials, such as digital badges offered by employers. The earliest study was Raish and Rimland's (2016), which used data from 133 surveys from U.S. employers who had recently hired college graduates. The employers felt it would be useful to have a more specific representation of their new hires' skills, but when asked if a digital badge could be an option for this representation, only 33% were interested, and 62% said maybe. Digital badges for documenting specific skills and professional development are increasingly considered a disrupter in job acquisition and education by enhancing the transparency of what has been learned (Bell et al., 2022). While college transcripts show a list of classes taken, digital badges are more than just an image showing a skill or knowledge; they are verifiable through a set of metadata (Gibson et al., 2015), allowing a potential employer to verify in more detail the individual's skills (Bell et al., 2022).

Open badges, a format for issuing DBs, are touted as easy to authenticate and traceable because each badge is encoded with "metadata about the badge as well as the skills and evidence that were demonstrated to earn the badge in the digital badge image file" (Liyanagunawardena et al., 2017, p. 2). This is leading to a shift away from credentialing achievement towards validating and recognizing learning (Hickey & Chartrand, 2020). While validating learning is useful, receivers of DBs can be unsure how to use them – other than listing them on a resume or social media profiles. For a digital badge to have workplace value, it must be acknowledged by others outside the recipient (Carey & Stefaniak, 2018).

Reskilling, upskilling

Technology and digitalization are rapidly advancing. In some fields, the need to redevelop skills is required at an unprecedented rate. As early as 2017, software engineers needed to reskill themselves every 12 to 18 months, and the average shelf life of college graduate skills was reported to be five years (Gurchiek, 2017). One billion jobs are expected to be radically transformed by technology in the next decade (World Economic Forum, 2023). While the World Economic Forum is predicting an overall net positive between job growth and decline, outdated learning programs will impair a skills mismatch in the future as only .5% of global gross domestic product (GDP) is invested towards adult lifelong learning.

An ever more common way for adults to complete training and learning is electronically or through e-learning. E-learning is defined as technology-enhanced learning or as digital learning (Wheeler, 2012). E-learning has been found to be an appropriate solution to meet the need for continuous and life-long learning (Beller & Or, 1998). As the need grows for employees to update their skills and knowledge continuously, companies will have to decide on how to best prepare their workforce, often by the most economical means. Some employees may pursue skill development on their own, while others may be resistant to further development. Kapo and Mujkic (2021) aimed to identify the relevant factors for employees who used e-learning in the past year at their workplace. Their study found that e-learning opportunities provide a cost-effective method to deliver workplace learning, and e-learning is particularly significant for adults with limited time for learning. Kapo and Mujkic's (2021) findings offered practical implications for HR managers to consider when exploring what motivates employees to continuously seek performance improvement. While their study did not specifically address digital badges, it could be useful to contemplate for companies requiring continuous learning for their employees in a manner of reskilling and upskilling, and as companies need to decide the appropriate methods to deliver and document employees' training and development. Human performance technologists should also be interested in digital badges, considering that performance technology in the workplace identifies factors that enable workers to perform their jobs and ultimately produce desired results (Pershing, 2006).

Since digital badges are often affiliated with e-learning (Rigole et al., 2017) because they can be earned electronically, they may be a preferred way to document additional learning in the workplace. Employers should be cautious about how much e-learning and reskilling is necessary for employees as there is a dispute on whether using technology extensively at work causes more harm (Yener et al., 2020; Tarafdar, 2011). Yener et al. (2020) considered the effect of technostress on work performance and burnout in relation to time management. They found that employees who had more computerized work had greater levels of work exhaustion, positing that even though the technology is designed to make work easier, it has the potential to create stress "that is equal to, or perhaps greater than, its benefits" (p. 22). Earlier studies, such as the one by Tarafdar et al. (2011), found that exposure to stress from work-related technology influences organizational commitment, job satisfaction, and employee outcomes, such as absenteeism and turnover. Employers are encouraged to provide tools for individuals to deal with this type of stress and to evaluate the

tasks and technology context so that their employees experience lower levels of technostress (Bondanini et al., 2020).

Given that most of the studies on digital badges in Cumberland et al.'s (2023) scoping review lacked a theoretical foundation, and the few studies that were grounded in theory were mostly focused on motivational theories, our review of the literature will explore the use of digital badges in the workplace through the lens of gamification theory.

Gamification

Since the 1970s and early 1980s and the introduction of the Atari Video Computer System console (Booth, 2012), video games continue to engage both young children and adults. Initially used for entertainment, video games and their properties eventually entered the workplace to engage and train employees (Draper, 1999). The term "Gamification" emerged in the early 2000s and is defined as the "use of game design elements within non-game contexts" (Deterding et al., 2011, p. 1). Badges are considered a game design element and an essential gamification component. As an individual progresses through a virtual environment, accomplishing tasks, attaining levels, or winning and achieving goals, badges and sometimes leaderboards visually represent these achievements (Werbach & Hunter, 2012).

Games and simulations continue to be more common in learning and training as game development has become cheaper, simpler, and more socially acceptable among older ages and as companies have adopted game-oriented cultures (Oliveira et al., 2018). Major brands, including Target, Disney, Google, and Amazon, embed methods of game design in their day-to-day operations, which is thought to make work more enjoyable and encourage friendly competition.

Gamification is often connected with motivation theory. In motivation theory, badges represent a psychological need for competence that contributes to feelings of efficiency and success (Rigby & Ryan, 2011). Some view gamification as a powerful motivator as it can provide an element of drive for a person to do better (Rigole et al., 2017). Sailer et al. (2016) discovered that incorporating badges into simulations increased the perception of task meaningfulness, positively impacting competence need satisfaction. When applied to learning or work environments, this type of gamification design element may more effectively address motivational challenges that industries often face. By using essential gamification elements, companies could foster a more engaging and fulfilling atmosphere to boost productivity, employee satisfaction, and overall success (Sailer et al., 2016). In performance improvement, gamification elements should be used only if learning goals call for it (Berge & Berge, 2019).

While gamification theory is more apparent within a single company setting, its application becomes complex when applied to broader contexts. In today's interconnected world, employees can earn digital badges not only from their own companies but also from other organizations. Education and healthcare are two fields where cross-organizational gamification has been used and explored. The integration of game elements like points, leaderboards, and badges can motivate not only students to achieve higher performance levels but also build collaborative environments beyond their educational institutions (Minzi & Siyu, 2023). Gamification is also utilized in sectors like healthcare, where it can improve patient engagement and adherence to treatment plans by making the processes more interactive and rewarding due to its focus on goal-oriented outcomes (Hammedi et al., 2017).

The psychology behind gamification

A more accurate title of this section might be, is there a psychology behind gamification? A review of data suggests that much of what science knows about this field is quite limited. Yet gamification is expanding in education, healthcare services, and corporate environments. Are there data points driving this push of continual enhancement and promotion, or is gamification simply someone's passionate idea?

A review of the literature in psychology indicates interesting ideas surrounding the foundations of games in the helping professions. Behind the notion of games comes the presence of *fun*, however, that may be defined. Morris et al. (2013) suggest that games could be used in scientific thinking by implementing the key features of gamification that make them so popular with younger generations. These aspects include visual motivations, graphics, sounds, and interactivity. But is this advance toward constant learning via enjoyable games built on sound science? Oprescu et al. (2014) support the view that gamification in learning and psychology is in its infancy yet should not be avoided. The authors ruminate that our society is plagued with stress, faltering communities, and the end of loyalty in the workplace. Perhaps games, with their societal popularity, could be transitioned into a motivator to engage people in their work again.

Dicheva et al. (2019) further explore the idea, suggesting that the motivation to learn is advanced by pairing it with enjoyable behaviors, such as games. This concept surfaces in the literature of gamification. Stansbury and Earnest (2017) note that while gamification is increasingly used in industry, it is relatively new and lacks sound foundations to demonstrate that games have anything to do with productivity, happiness, or achievement. However, the same study notes that while the science might not be behind gamification, it places the user in a central position within learning and doing. The authors note that perhaps gamification is more prevalent than tested.

Gamification and psychology

If gamification is becoming so prevalent in industry and education, should consumers know its effects on our psychological well-being? Lee (2016) completed a far-reaching study of gamification and mental health practices such as counseling and supported previous findings in the field. While popular and prevalent, the efficacy of games in mental health lacks long-range and long-term results. The study concludes that games do give us a measure of digital connectedness. Unfortunately, digital connectedness is an-

other focus that has been understudied and lacks scientific weight as a theory.

The literature does agree on the praxis of gamification and psychology in the realm of motivation. Long studied in the West, motivation has been an essence of industrial/organizational (I/O), health, and sports psychology. The idea is to discover a method to motivate people to perform either better or at a faster rate with fewer complaints or stoppages. Stansbury and Earnest (2017) went on to complete an experiment where students rated learning in an I/O psychology course with and without gamification measures. The results demonstrated that the students rated games as effective in bringing them together in collaboration above other benefits. This is an interesting outcome that seemingly could be achieved through group work, team teaching, or community engagement.

Psychological motivation and gamification

In their experiment detailing gamification and work duty satisfaction, Sailer et al. (2016) found that effective game design may be more modeled on what is effective in entertainment games rather than work-related designs. While educationally focused, this study includes ideas on how gamification intersects and could cross over into work-related activities. They report that effective gamification includes points, badges, leaderboards ("high scorer" and rankings), performance graphs, meaningful stories, avatars, and teammates. The authors then relate gamification to the self-determination theory of motivation. This theory rests on the idea that humans are motivated by three needs: Competence, self-determination, and social relatedness. Their study's outcome details that respondents see how the elements of sound game design can meet these needs. However, this study only involved motivation and does not attempt to describe the intricacies of feelings, employee aspirations, inter- and intrapersonal issues within the work environment, sicknesses and downtime, and economic stressors. Each aspect of the human condition could be seen as a variable affecting how employees view gamification, advancement, and their perceived position within the institution.

Both DBs and gamification continue to emerge in the literature as technology has transformed how learning occurs and how learners are rewarded. Motivation theory has been at the forefront of DB discussions (Facey-Shaw et al., 2020; Hanus & Fox, 2015), but a more nuanced perspective suggests gamification may be a component for future consideration specifically, since gamification can have harmful components and future studies should explore that. To address some of these lingering issues, an exploratory study was conducted to determine employer perceptions surrounding DBs in the workplace.

Methodology

Participants

From a population of human resource directors and those with work experience in the performance improvement field, such as talent development specialists and organization development professionals, the researchers used nonprobability sampling to select participants (N = 15) in a convenience sample. The participants represented manufacturing, healthcare, communications, and technology companies. An informed consent form, approved by the Institutional Review Board at a midwestern private university, was obtained electronically from each participant.

Questionnaire

An electronic questionnaire asking 10 questions (see Appendix) was developed to determine the employer's knowledge and perception of digital badges. The questions included both closed-ended and open-ended. The survey was delivered in February 2020 using SurveyMonkey's electronic online survey tool.

Results

Close-ended questions

Table 1 displays the results of the close-ended questions. When asked if they had experience earning digital badges in their current or past position, the majority of respondents answered yes, $n = 9$ or 60%, compared to $n = 6$ or 40% who answered no. The same number of respondents also considered digital badges a legitimate credential when evaluating applicants for positions. This was slightly higher than the number of respondents who earned digital badges to gain knowledge and credentials in the workplace, yes, $n = 7$ or 46.67%.

Likeliness of promoting an employee

Table 2 shows the frequency and percentage of likeliness of respondents who reported that they would promote an employee based on the employee having a digital badge.

Qualitative Analysis

Four of the survey items had open-ended question response options. Table 3 lists the questions and the responses.

Discussion

This study explored the use of digital badges by investigating the literature on digital badges in the workplace through the lens of gamification and its impact on workers. The pilot study examined the perceptions of human resource directors, performance improvement, and talent development specialists in Northwest Ohio in early 2020, from manufacturing, healthcare, communications, and technology companies. This descriptive survey study, conducted before COVID-19, found that the majority of participants had some experience with receiving digital badges but not necessarily to gain knowledge or credentials in the workplace, with slightly less answering no.

Interestingly, the participants felt that digital badges would play an important role in hiring and even perfor-

Table 1. Results of close-ended questions

Close-ended items	% Yes	% No
Have you earned digital badges in your current or past positions?	60 (*n* = 9)	40 (*n* =6)
Have you earned digital badges to gain knowledge in the workplace?	46.67 (*n* = 7)	53.33 (*n* = 8)
Have you earned digital badges to gain credentials in the workplace?	46.67 (*n* = 7)	53.33 (*n* = 8)
When evaluating applicants for positions do you consider digital badges as a legitimate credential?	60 (*n* =9)	33.33 (*n* = 5)
In the future, do you think digital badges will play an important role in hiring?	80 (*n* = 12)	20 (*n* = 3)
In the future, do you think digital badges will play an important role in performance evaluations of current employees?	53.33 (*n* = 8)	46.67 (*n* = 7)

Note. N = 15.

Table 2. Promote an employee for having a digital badge

	%	*(f)*
Very unlikely	13.3	(*n* = 2)
Not likely	13.3	(*n* = 2)
Somewhat not likely	13.3	(*n* = 2)
Somewhat likely	40	(*n* = 6)
Likely	0	(*n* = 0)
Very likely	20	(*n* = 3)

Note. N = 15.

mance evaluations and promotions in the future. So even though at the time of the study, some of the participants were not familiar with digital badges, and some had not earned digital badges or used them as a factor in hiring decisions, there was an awareness that digital badges were gaining in popularity.

The growing significance of digital badges in industry has been noticed by both the workforce and hiring administrators, as noted in this study. The expanded use of these badges could usher in ways to solidify certain aspects of work for human resource directors, performance improvement, and talent development specialists such as:

1. Consistent skill representation: Digital badges can provide a uniform way of representing skills and qualifications, allowing for a more accurate comparison between the workforce (both existing and incoming). This could help make hiring decisions and promotion allotments as the majority of the participants in our pilot study noted they were somewhat likely or very likely to promote an employee for having a digital badge.
2. Verification of skills: Because digital badges may contain data regarding the issuer, the criteria to achieve the badge would become more transparent. This digital record can be easily verified, ensuring that the credential is genuine and potential users of badges can see at the outset what will be their expectations. Using these badges gives employees a greater sense that their advancement and work are based on standard

Table 3. Open-ended responses

Survey Item	*Responses*
When reviewing applicants for positions do you consider digital badges as a legitimate credential?	"Need original hard copy." "Most of my hires are external. Badges don't come up as a topic, nor are we ready to consider them part of our hiring criteria." "I've never heard of these." "I view digital badges as a nice addition to other pursuits."
When evaluating applicants for positions do you consider digital badges as a legitimate credential?	"If 100% of candidates would not be internal transfers for the position, then after all competencies are met, then maybe. But definitely not the leading data points." "Nice addition."
In the future, do you think digital badges will play an important role in hiring?	"It will be faster and easier." "Their importance will increase if the market accepts standardized approach to badges." "With more accreditation to support badges, they could replace traditional certifications."
In the future, do you think digital badges will play an important role in performance evaluations of current employees?	"It depends on if the badge is linked to the performance goals." "I will need more info on this." "With more accreditation to support the badges, they could replace traditional certifications."

assessments instead of subjective reviews by leadership. Additionally, digital badges could readily become an element of data analytics in an organization. Human capital analytics helps organizations manage and develop workers to achieve organizational success (Lunsford & Phillips, 2018).

3. Digital badges are customizable and flexible credentials, which may appeal to the workforce by gaining "buy-in." Employees may feel more apt to participate in these types of endeavors if they can be done on their own time and in their own location.

Limitations

Small sample sizes can be useful for testing the feasibility of research designs and exploring initial trends - something that is applicable to our study. However, small sample size studies have several limitations. A small sample size can make generalizing findings across populations, such as in a different region, difficult. Since our study used a convenience sample, there can also be sampling bias, which may not represent the diversity within a population or different regions. Even though convenience sampling can be useful for answering questions, in convenience sampling, the participants are selected because they are willing and available to be studied, which limits researchers' ability to make conclusions about the entire population (Creswell, 2008). Therefore, the study should be replicated with a larger sample to provide generalizable results.

Conclusion

Since this study was conducted before the COVID-19 pandemic, the use of digital badges by individuals and organizations may have increased dramatically due to the heightened reliance on digital tools for work. Since the pandemic, a noticeable focus has been on work-life balance and making time for personal growth. This has led to a shift in the narrative around continuous improvement, never-ending work cycles, and "extras" like badges and certificates. However, upskilling and reskilling for employment have become even more crucial as the workplace rapidly digitalizes and automates. This may result in a type of industry cognitive dissonance where workers juggle the desire for self-improvement with the need to spend time with friends, family, and community.

In this evolving landscape, workers face the threat of job skills becoming obsolete, and new competencies (e.g., artificial intelligence, virtual interactions) are increasingly necessary to remain competitive in the workplace. Some employees may opt to further their education by returning to school and obtaining a degree. Still, statistics from the National Center for Education, as reported by the Education Data Initiative (2022), reveal that this is a declining trend in the United States, as college enrollment peaked in 2010. Digital badges may emerge as an alternative to formal degrees, potentially contributing to a further decline in degree attainment. Consequently, badges could signal the beginning of a new trend, focusing on fast, targeted education that equips workers with relevant skills while allowing more time for their personal lives and well-being. Therefore, the presence of badges should be studied against the evolving ideas of work, personal happiness, and staying relevant in emerging fields.

Digital badges and micro-credentials are an opportunity for individuals to gain knowledge. Still, they are also a risk if the provider of the digital badge is not considered a credible source. The Higher Learning Commission (HLC), which accredits over 1,000 colleges and universities in the U.S. (Higher Learning Commission, 2024), explored the rapid explosion of credentials in their thought paper on *Accreditation and the Credential Landscape* (Higher Learning Commission, 2022) and suggested that institutions would benefit from improving and expanding quality standards that are consistent across the wide and growing range of providers, credentials, and skills. The increase in digital credentials offers an opportunity for institutions to explore the value of a credential based on the quality, cost, and time investment required in earning the credential. Since institutional accreditors are the gatekeepers of quality, institutions using digital badges will need to ensure that the digital badges granted by their institution or used by their institution meet quality standards as established by the accrediting body.

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Appendix

Questionnaire

1. What is your title?
2. Are you in a position to hire or evaluate employees?
3. Have you earned digital badges in your current or past positions?
4. Have you earned digital badges to gain knowledge in the workplace?
5. Have you earned digital badges to gain credentials in the workplace?
6. When reviewing applicants for positions do you consider digital badges as a legitimate credential?
7. When evaluating current employees, do you consider digital badges a legitimate credential?
8. How likely are you to promote an employee based on a digital badge? (Likert-type question)
9. In the future, do you think digital badges will play an important role in hiring future employees?
10. In the future, do you think digital badges will play an important role in performance evaluations of current employees?