

# Preface

Digital Badges represent a valid indicator of specific achievements, knowledge, skills, and competencies that can be earned in formal and informal learning environments. Digital Badges represent an opportunity to recognize such achievements through credible organizations that can be integrated in traditional educational programs but can also represent experience in informal contexts or community engagement. Furthermore, instructional designers can use badges to motivate and influence engagement by providing for example focused goals or challenging tasks.

Digital Badges are a relatively new technology and therefore acceptance depends on the level of quality control, the actual design, and implementation in learning environments. They offer a form of recognition of learning, with a focus on qualifications like problem-solving, self-management, flexible, and individual learning achievements, and provide information to relevant stakeholders when they are digitally linked with user profiles or shared in social networks. But implementing digital badges in learning environments can be challenging, because different forms of assessment require new forms of instruction and a clear understanding of learning outcomes.

This edited volume aims to provide insight into how digital badges may enhance formal and informal education by focusing on technical design issues including organizational requirements, instructional design, and deployment. It features current research exploring the theoretical foundation and empirical evidence of the utilization of digital badges as well as case studies that describe current practices and experiences in the use of digital badges for motivation, learning, and instruction in K-12, higher education, workplace learning, and further education settings.

We organized the chapters included in this edited volume into four major parts: (I) *Theoretical Foundation of Digital Badges*, (II) *Technological Frameworks and Implementation*, (III) *Learning and Instructional Design Considerations*, and (IV) *Case Studies: Practices and Experience*.

In Part I, chapters address theoretical perspectives (e.g., learning, motivation, assessment) relevant to the issues and challenges educators are facing when implementing digital badges and micro-credentials. In the first chapter, the authors

provide a historical overview and discuss motivational aspects, issues, as well as challenges of digital badges and micro-credentials to provide insight and clarity into the various uses and functions in the modern world (*Larry E. Ellis, Sandra G. Nunn, John T. Avella*, Chap. 1). The next chapter challenges the “philosophy” of digital badges by addressing 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 (*James E. Willis, III, Kim Flintoff, Bridget McGraw*, Chap. 2). Next, the ideas and aims of higher education and the needs of the sector to continually innovate to meet workforce changes and labor market demands are discussed in the light of micro-credentials and open badges as approaches to locate, measure, and validate learning (*Melinda J. Lewis, Jason M. Lodge*, Chap. 3). The following chapter explores drivers, affordances, and challenges for the use of digital badges by drawing on historical roots and influences such as lifelong learning, opportunities, and challenges (*Alison Lockley, Anne Derryberry, Deborah West*, Chap. 4). Then, ways in which micro-credentials’ public promises may be designed into the credentialing process are explored and a simple method for creating an evolving evaluation strategy is proposed (*Sharon L. Gander*, Chap. 5). The next chapter examines the different design challenges involved in building collective belief in badges to increase their perceived value (*Sheryl Grant*, Chap. 6). The final chapter of this part outlines three primary roles of digital badges for supporting learning journeys in higher education (*David Gibson, Kathryn Coleman, Leah Irving*, Chap. 7).

In Part II, chapters focus on insights into available technology for designing and implementing digital badges as well as organizational requirements for the deployment of digital badges. The first chapter of this part provides an insight into current features of badging platforms, and thus help one make more informed decision when choosing a platform for a specific application (*Sonja Dimitrijević, Vladan Devedzić, Jelena Jovanović, Nikola Milikić*, Chap. 8). Next, a university-based research team reports efforts to plan and launch badging systems at two levels: (1) individual course level; and (2) program level (*Brent G. Wilson, Crystal Gasell, Aysenur Ozyer, Len Scrogan*, Chap. 9). The argument of the following chapter is that designing instructional badges presents unique opportunities and challenges, and proper preparation and planning are necessary for the success of the badge (*Timothy Newby, Casey Wright, Erin Besser, Elizabeth Beese*, Chap. 10). The next chapter explores how badging programs can help organizations build and achieve learning culture (*Mark Aberdour*, Chap. 11). Next, the chapter suggests that structures must be in place to ensure transparency and confidence in the badging process, as well as trust amongst badge earners, issuers, and consumers (*Deborah Everhart, Anne Derryberry, Erin Knight, Sunny Lee*, Chap. 12). The final chapter of this part explains how badging can be applied in academic and nonacademic settings; however, the focus is on preparing a university to use a badging system that is linked to faculty development and mentoring (*Jordan Hamson-Utley, Errin Heyman*, Chap. 13).

In Part III, chapters suggest learning and instructional design scenarios. In the first chapter of this part, the authors attempt to develop a framework for designing digital badge systems to help address the issue of distributed learning across various domains and contexts (*Cameron Wills, Ying Xie*, Chap. 14). The next chapter discusses digital age classroom practices, design strategies, and issues of digital badges (*Barbara Fedock, Mansureh Kebritchi, Rebecca Sanders, Alicia Holland*, Chap. 15). The following chapter argues that digital badges offer an opportunity to go beyond a seat time paradigm to more accurately and vividly document professional learning (*Kristin Fontichiaro, Angela Elkordy*, Chap. 16). The subsequent chapter looks to the evolution of badging on video game consoles and its roots in the virtual persona profiles in tabletop gaming to draw on the parallel experience of design and cautionary tales of how early design decision may have later ramifications (*Scott Beattie*, Chap. 17). The next chapter discusses the use of achievements within commercial video game design and development and summarizes research designed around specialized learning games designed to test the effectiveness of badges on learner variables such as performance and motivation (*Rudy McDaniel*, Chap. 18). In the following chapter, the concepts of digital badges as parts of digital portfolios are explored and two digital design patterns for badges-portfolio integration are proposed (*Ilona Buchem*, Chap. 19). The final chapter of this part explores the relationship between creativity, digital portfolios, and digital badges (*Kathryn Coleman, Keesa V. Johnson*, Chap. 20).

In Part IV, chapters include case studies, empirical research findings, and examples from institutions adopting digital badges. The first chapter of this part discusses findings from a 1-year exploratory study of an online teacher professional development program, and an accompanying digital badge system (*James Diamond, Pilar Carmina Gonzalez*, Chap. 21). The next chapter reframes the question “do badges work?” to explore *when* badges work and presents three cases studied by the Design Principles Documentation project to demonstrate dynamic uses of digital badges (*Rebecca C. Itow, Daniel T. Hickey*, Chap. 22). In the following chapter, a case study describes the conceptual development of a practice analysis, the results of the criticality analysis, building the micro-credential series, development of governance and administrative processes for badge issuance, micro-credential marketing, and future directions (*Sharon L. Gander*, Chap. 23). The findings of the next chapter confirmed the hypothesis that university students primarily view digital badges as a way to promote their achievements to potential employers; however, further research is suggested to determine the extent to which potential employers understand and value badges as evidence of achievement (*Ian Glover*, Chap. 24). The next chapter explores digital badges as a form of motivation within an organization using three different psychology theories and showing the relationship between motivation and digital badges (*Elizabeth C. Metzger, Laura Lubin, Rochelle Patten, Janelle Whyte*, Chap. 25). The following chapter considers the implementation of digital badges within the Australian context and presents a model which draws together contextual elements and more technical considerations for a badge system (*Deborah West, Alison Lockley*, Chap. 26). The final chapter of this part investigates a content-agnostic, skills-based digital badge intervention demonstrating mastery learning in

select, age-appropriate, Next Generation Science Standards (NGSS) (*Angela Elkordy*, Chap. 27).

The edited volume closes with an *Epilogue* reflecting on different perspectives on digital badges and identifying future research of this emerging field (*Dana-Kristin Mah*, *Nicole Bellin-Mularski*, *Dirk Ifenthaler*, Chap. 28).

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Mannheim, BW, Germany  
Melbourne, VIC, Australia  
Potsdam, BB, Germany  
Potsdam, BB, Germany

Dirk Ifenthaler  
Nicole Bellin-Mularski  
Dana-Kristin Mah

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