"Can I still earn a badge by the way?": Challenges and badges in an online course

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Abstract: This paper reports a graduate-level course design case in which a digital badging system was integrated into class activities. The design process involved both conceptual and technological tasks with a careful consideration of badge types and corresponding challenges, platform functionality, and tracking learners' badge related activities. The badging system was implemented in an online course. The results indicated that students were more motivated to earn challenge and easter egg (hidden) badges compared to level and mega challenge badges. Issues such as the role of badge system design on student motivation and overall course design were discussed.

Introduction

Digital badges are a type of micro-credential which acknowledges individual's learning achievements in a more granular way than a degree or diploma. The digitized image of badges provides a record that can be linked to information about the evidence of the achievement, the entity that validated the achievement, and so on (Ash, 2012; Buckingham, 2014). Digital badges can be integrated into formal courses as a form of motivational strategy that encourages students to engage in learning activities (Facey-Shaw et al., 2020; Pothier, 2021; Reid et al., 2015). However, in order to be successful students must perceive badges as worthwhile and not redundant or busy-work. Challenges are one way to make badges appear worthwhile. In challenges, an instructor encourages students to engage in an independent learning activity with a specific outcome. Upon successful evidence of completing a challenge, students can earn a badge. Some students may be motivated by the challenge itself (intrinsic motivation) whereas others will be motivated by the badge (extrinsic motivation).

This paper shares student perceptions of digital badges in a graduate level online course and the role of challenges and badges in student motivation. The research questions guiding the design case are:

1. How was the challenge and badge system designed, developed, and implemented?

2. How did students engage in challenges and badges in the course?

Through these questions, we seek to determine whether student engagement met design expectations and to improve the instructional unit in the course.

Method

This design case focuses on a class consisting of an instructor, teaching assistant, and 26 students. Challenges and badges had previously been used in this graduate level instructional design course at a large research university in the United States, but only on an *ad hoc* basis. In this study, the challenge and badge system was carefully designed to offer opportunities to earn varied types of badges while completing a variety of optional challenges situated in the course.

The study was approved by the researchers' Institutional Review Board. Data collection consisted of design notes and documents; communication between the instructor and teaching assistant; course artifacts; badge counts; and survey data. Data analysis focused on reconstructing the design and development process (Research Question 1) and counting challenge and badge participation levels (Research Question 2).

Results

Design and Development Process

The core design and development team for this project was the lead course instructor, a designer, and a teaching assistant. The design process involved both conceptual and technological tasks. The first conceptual task was to decide how the overall badging system would work. Based on Horstman et al.'s (2020) study, which analyzed badge components, we identified badge types and functions. Table 1 outlines the types of badges that we integrated into the course and their functions.

Table 1.
Badge types and functions

Badge type	Function
Challenge	Badges that earned upon the completion of a challenge and submission of corresponding evidence. Eighteen challenges were offered.

Easter egg	Badges that were hidden in different course spaces, waiting for learners to find them and complete the associated challenge. Four easter egg challenges were offered.
Level	Badges that reflect levels of course activity over an extended period of time. For example, learners used Twitter and could receive badges for their first, 10th, and 20th tweet.
Peer awarded	Badges that were based on peer nominations for contributions made to the course. Four types of peer awarded badges were available: (1) community builder, (2) networker, (3) thought leader, and (4) tech helper.
Mega challenge	Badges earned by completing 5 challenge badges. Mega challenge badges could be exchanged for participation tokens to excuse students from required participation activities.

Once badge types were determined, the challenges and badges had to be designed. Designing the challenges was the second conceptual task. We examined *ad hoc* challenges issued in previous iterations of the course and used those as inspiration. For each challenge, we identified a tool to be used, a skill to be developed and practiced, and an outcome to be demonstrated. The objective was to have students practice using tools and developing skills in ways that would both support peer interaction in the course space and help students prepare for completion of graded course assignments.

Designing the actual badges was a technical task. Each badge needed a name and a visual element, and it was important to have consistency in visual design. In other words, the overall badge system needed visual coherence, and all badges of a particular type should look similar. Figure 1 provides an example of each badge type. Additionally, we developed visuals to promote each badge to the students. These visuals were created using Canva.com's design tools and an Instagram post template.

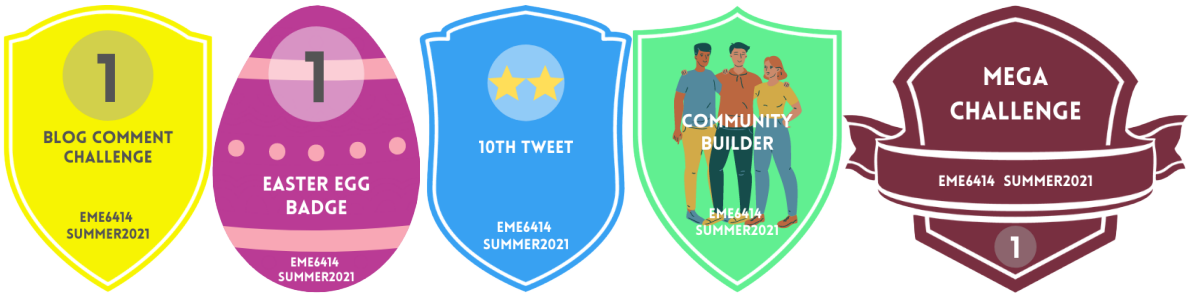

Figure 1. Sample badges

Once challenges and badges were designed, we focused on the badge awarding process. We sought a badge platform that would make it easy to track and award badges. We also needed an option that was free. We explored badgr.com, which offered integration with the Canvas learning management system. However, this tool connected badges to module completion in Canvas and was not sufficiently flexible and complex for our needs. Next we tested badgelist.com. This option did not have Canvas integration, but it had a free version that allowed us to flexibly create badge criteria and award badges.

Although badgelist was the central location for badges, it did not provide us with a comprehensive overview of badges that were awarded. We maintained a separate tracking system in a spreadsheet. This allowed us to easily see how many badges were being awarded and who was receiving them. With this data, we could effectively award the mega challenge badges and evaluate how the system was working.

Badge Implementation

At the start of the term, 9 students indicated that they were already familiar with the concept of badging, and 16 were not. A webinar was held to explain the course badge system, and it was recorded for students who would not attend the session live. The final badging system included 35 opportunities to earn badges across 12 weeks (see Table 2).

To implement the badge system, we created a group in badgelist.com and shared the group link with the learners from the course Canvas site. Students were told to sign up for this group if they wished to earn badges, but that it was entirely optional. 23 students signed up with badgelist. As the course progressed, challenges were posted and students could submit evidence in badgelist.com if they wished to earn a badge. We awarded badges to the learners on this platform and they would receive an email alert when a new badge was noted on their account.

Challenge and Badge Participation

Only five students did not engage in any of the challenges and as a result did not earn corresponding badges. The rest of the students ($N = 21$) earned 158 badges in total. Table 2

shows how many unique badges were offered and how many were earned by badge type. Additionally, students received peer awarded badges. There were four opportunities to nominate peers for badges during the course, and 9 students nominated peers to receive badges. A total of 35 peer badges were awarded (see Table 3), with some students receiving the same badge on multiple occasions.

Table 2.
Summary of Badge Offered and Badges Earned

Badge type	Unique Badges Offered	Badges Earned
Challenge	18	91
Easter egg	4	12
Level	9	46
Mega challenge	4	9
Total	35	158

Table 3.
Summary of Peer Awarded Badges

Badge type	People Nominated	Badges Earned
Community builder	7	12
Networker	3	7
Thought leader	5	8
Tech helper	4	8
Total	19	35

Students who completed the survey at the end of the course (*N = 7*) reported on their motivation to earn different types of badges. As indicated in Table 4, all the students (*N = 7*) were very motivated to earn a challenge badge. The majority of the students (N = 6) were also very motivated to earn an easter egg (hidden) badge. Level, peer awarded, and mega challenges were not as compelling to all students. Some of the students did challenges partially but did not earn badges as they did not meet the badge criteria. For instance, a student who did not complete the digital detox challenge made a blog post about her experiences and asked “Can I still earn a badge by the way?”. She did not earn the badge as she did not meet the badge criteria. Although

3 of the students completed some of the initial challenges issued by the instructor and were awarded with badges on badgelist group, they did not join the group.

Table 4.
Student motivation by badge types

Badge types	Not all motivated	Somewhat motivated	Very motivated	I was not aware of these badges
Challenge	0	0	7	0
Level	1	5	1	0
Peer awarded	0	3	4	0
Mega challenge	0	3	3	1
Easter egg (hidden)	0	1	6	0

Discussion and Conclusion

In this study the design, development, and implementation of a badging system provided an opportunity to reconsider how students meet course learning objectives and offer a variety of practice activities. As indicated by Horstman et al. (2020), the badge design and development process helped research team reflect on course design as well as the overall learning experience. Conceptually, the challenges need to be compelling for students to complete them. In other words, students need to consider them a worthwhile use of effort. Technically, the system needs to be efficient and effective for both the instructional team and students to use. The badge system encouraged students to practice course related concepts and tools, supported peer-to-peer interaction as students recognized each other's contributions to the overall learning experience by nominating peer awarded badges, and facilitated student-initiated informal learning and personalized learning.

The research team aims to examine the primary source of student motivation (intrinsic or extrinsic) and the role of badge system design in this process. Based on the survey data, which showed greater interest in the badges that were associated with concrete challenge tasks, it appears that completing a challenge may be the more motivating element of the system, and perhaps the intrinsic value of knowing that one has completed a challenge is sufficient motivation for some students.

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