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## Employee Skill Tracking With Open Badges

Kyle Clements  
kylelclements@gmail.com

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# Employee Skill Tracking with Open Badges

**Kyle Clements**

**Design & Development Project Report  
Instructional Psychology & Technology, Brigham Young University**

# Report Structure

This report describes the design and implementation of an employee badging program for the Brigham Young University (BYU) Library Multimedia Lab. A brief overview of the program and context for which it was designed are followed by a description of the design process. The design narrative portion of this report is formatted as an article for the *International Journal of Designs for Learning* (P.16-24). The next portions of the report describe additional details surrounding the implementation of the training program and its evaluation. The report concludes with a critique of the program and a reflection on lessons learned. Further details regarding the project timeline, its implementation, and evaluation are provided in the appendix.

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## Product Introduction

The Harold B. Lee Library (HBLL) multimedia lab at BYU serves university students and employees by checking out library equipment, providing technical assistance for various software products, and teaching patrons how to use these products in library software courses. The goal of this project was to create a training program to guide multimedia lab employees in obtaining the skills necessary to fulfill these roles and provide multimedia lab management with a means of tracking employee skills. Open Badges are used to define and recognize specific competencies for each skill within this program.

## What are Open Badges?

In 2012, the Mozilla Foundation released the first public beta of the Open Badge Infrastructure: a verifiable, evidence-based digital credential. Since that time, millions of Open Badges have been earned by hundreds of thousands of learners throughout the world (Open Badges, 2016).

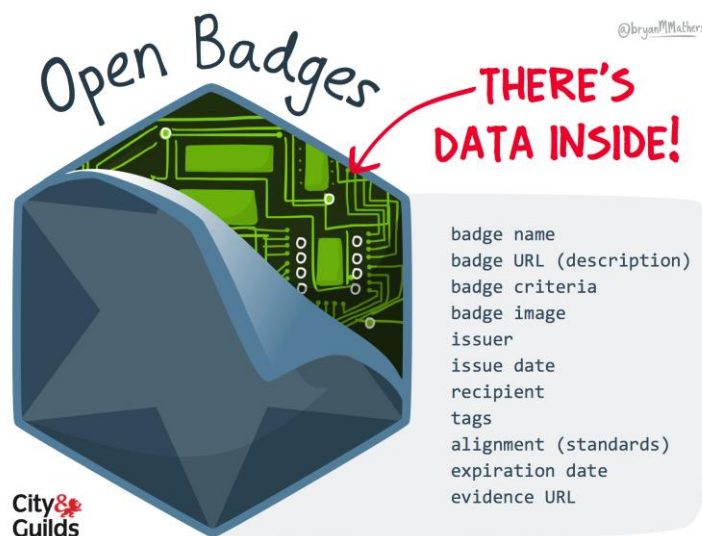


Figure 1. Open Badges (P.S. there's data inside...) by @bryanMMathers is licensed under CC-BY-ND

Open Badges are image files embedded with metadata providing additional information about the credential (Figure 1). This information includes who issued the credential, what was required to earn it, and evidence demonstrating that the requirements were met. After an Open Badge has been issued and accepted by the earner, they control how, when, and to whom their credential is displayed.

Open Badges can be stored and shared on a personal device, website, or with Open Backpacks (tools built specifically for storing and sharing Open Badges). These virtual backpacks allow learners to set their Open Badges as public or private and organize them into various collections.

In 2017, version 2.0 of the Open Badge Infrastructure was released. This update included accessibility features, support for multilingual badges, and the ability to issue badges to individuals without requiring an email address. The Open Badges Alliance, the organization spearheading the development of Open Badges, was also integrated into the Instructional Management Systems (IMS) Global Learning Consortium. The IMS Global Learning Consortium has a proven record of developing interoperable standards that make it possible to integrate a variety of educational technologies.

Open Badges have been issued in a variety of settings: universities, massively online open courses (MOOCs), K-12 schools, and informal learning groups (McDaniel, Lindgren & Friskics, 2012; Cross & Galley, 2012; Pellicon & Butler, 2014; Abramovich, Schunn & Higashi, 2013). Open Badges have been used in these settings for several purposes including as a tool to motivate learners, guide learning, increase engagement, and promote specific brands (Dewi & Gleeson, 2014; Jovanovic, Devedzic, 2015; Leaser, 2017).

Employee training is one application for Open Badges that has caused industry leading organizations such as Adobe, Autodesk, Microsoft, National Instruments, and International Business Machines (IBM) to begin developing Open Badges (Harris, 2015). Although these programs have seen success, questions remain as to whether or not similar success can be achieved by smaller scale Open Badge employee training programs. The goal of this project was to successfully implement an Open Badge training program for student employees learning a variety of technical skills.

## **Product Overview**

The training program (see Appendix A) was designed around the process of qualifying for various digital credentials. The employee experience of this process (Figure 2) can be divided into three stages: (1) View, (2) Learn, and (3) Earn.

1. **View.** During this stage, employees select a badge relevant to their learning needs and review the associated requirements. Employees chose which badges they will earn; however, a recommended learning pathway is provided to direct students to learn the most commonly used tools.

2. **Learn.** After reviewing badge requirements, employees qualify for those requirements using any available resources. An internal wiki provides employees with a list of recommended resources including relevant Lynda.com courses and other online tutorials.

3. **Earn.** Every badge in our program requires the submission of qualifying evidence to be evaluated by a fellow employee. Evaluators are selected based on their skill level with specific tools. Badge earners may submit evidence multiple times and refine their submissions based on the evaluator's feedback.

A more complete description of the program is provided in the journal article below and the design specifications (Appendix B).

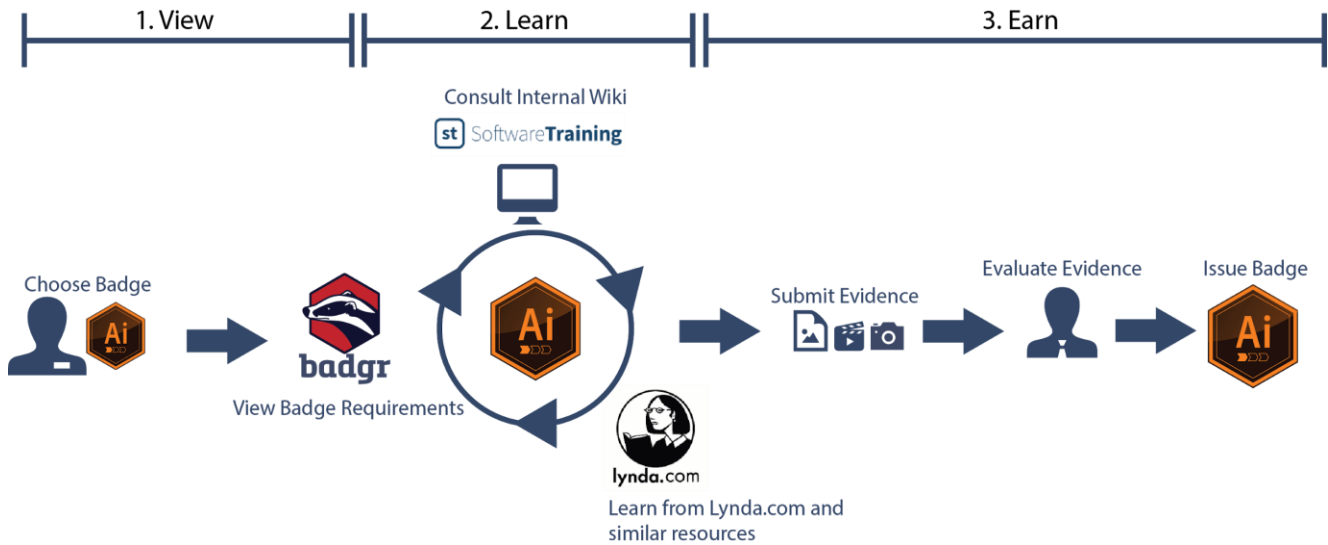


Figure 2. Diagram illustrating the process to earn multimedia lab badges.

## Front-end Analysis

### Evidence for Need of Training Program

The initial analysis of the multimedia lab's needs involved multiple discussions with management and a group meeting with employees. From these interactions, the following needs were identified.

**Lack of Formal Training Program.** Two departments were recently combined to create the multimedia lab. One of these departments was responsible for troubleshooting software issues and providing software workshops. The other department was responsible for equipment check out, managing the production studios, and managing a sound booth. Prior to combining, each of these departments had differing means for tracking employee training. The merge left the multimedia lab with no formal training program or means for management to track an employee's progress. Open Badges was identified to help solve these issues by providing clear learning targets for employees and a systematic process for tracking employee training for managers.

**Diverse Employee Skills Needed.** There are several software tools that multimedia lab employees are expected to know. As employees gain experience, it is also expected that they gain specialized knowledge of a few specific tools. Open Badges facilitate this training by indicating various skill levels such as beginner, intermediate, and advanced.

**Verify Employee Skills.** At the end of each semester, the multimedia lab manager has an interview with each employee. During this interview, they discuss what tools the employee learned and how they are progressing in their positions. The manager then determines whether or not the

employee should be made eligible for a slight raise in payment based on their progress. This process is largely unstructured, and the manager expressed struggles to discern how much progress employees have actually made. The ability to view and discuss an employee’s earned badges allow this meeting to focus on concrete examples of an employee’s progress.

**Prepare for Expansion of Open Badges.** Finally, the multimedia lab has plans to potentially issue digital badges to those who enroll in their software training courses. This internal training program is viewed as an opportunity to test implementing Open Badges on a smaller scale before rolling them out to the general student body.

## Constraints

**Time.** The multimedia lab needed a more structured training program as soon as possible. Thus, management requested that prototypes of the training program be implemented immediately. It was expected that throughout the remainder of the school year, refinements to this initial design were implemented based on employee and management feedback.

**Resources.** The principal designer for this project (myself) was paid 10 hours a week for this project. In addition, multimedia lab management asked that current employees assist with creating badge competencies. Beyond compensation for employee time spent earning and reviewing badges, there is no recurring cost to the multimedia lab.

**Scope of Content.** There are several software tools (see Table 1) that multimedia lab employees are expected to have a basic understanding of. Additionally, employees are expected to understand multimedia lab policies surrounding the checkout and proper use of various equipment and resources. A training program was needed that supported learning with both broad and specialized skill sets.

Table 1

### *Software Tools*

Adobe	Microsoft	Web	Research	Other
Acrobat Pro	Access	BYU Domains	Electronic Theses and Dissertations	3D Modeling
After Effects	Excel	WordPress	Note Taking Software	Geospatial Training
Illustrator	OneNote	Google Apps	Qualtrics	Camera Skills
InDesign	Outlook		Refworks	Mac OS
Muse	PowerPoint		EndNote	Custom Class

Photoshop      Word

Premiere Pro

A variety of equipment is available for checkout at the multimedia lab (see Table 2). Employees are expected to understand the policies, checkout procedures, and proper uses for each tool.

Table 2

*Equipment*

Camera	Audio	Lighting
DSLR	Shotgun Mic.	LED Lights
GoPro	Boom	Light Reflectors
Camcorders	Lavalier	
Accessories		
Tripods		
Lense		
Mounts		

## Client Expectations

The primary client for this project was the manager of the multimedia lab. He outlined the following as expectations for this project and acknowledged that these changed as the project progressed through various iterations.

**Open Badges for Most Commonly Used Technologies.** This project needed to result in Open Badges that would at least guide employees as they learned the most commonly used technologies: Photoshop, Word, Electronic Theses and Dissertations, Premiere, InDesign, Illustrator, Excel, and Wordpress.



**Uniform Assessment Process.** The process by which applicants for Open Badges would be evaluated needed to be similar for all badges. Specifically, the goal was to ensure that training badge experts on the assessment process would not take significant time.

**Self Sustaining Training Program.** Necessary components, such as instructions documenting best practices for designing Open Badges, outlining the assessment process, and onboarding new employees, would need to be created to ensure the program continues beyond the timeline of a single thesis project.

**The Legend of Zelda.** Prior to contacting the multimedia lab regarding the development of an Open Badge training program, their management had been planning to update their current new-hire to-do list with a Legend of Zelda theme. The goal of this update was to make the to-do list more engaging and encourage employees to complete the full training. Some of the imagery and wording associated with the training program would hold to this theme.

## **Learner Analysis**

The multimedia lab employs 15 to 20 student assistants at a time and each works about 20 hours a week. There were 16 employees with seven females and nine males at the start of this project. Most employees were in their early or late 20s, and were typically hired in their second year at the university. Experienced employees tended to be juniors or seniors.

These employees came to the multimedia lab from a variety of backgrounds. The multimedia lab team represented at least 10 different majors at the university: Advertising, Photography, English, Psychology, Linguistics, Biology, Information Systems, Theatre, Technology Education, and Instructional Psychology and Technology. Employees pursuing technical careers anticipated that the skills they gained through the multimedia lab would be directly applicable to their future careers. Those pursuing less technical careers appreciated the additional skill sets and recognized the advantages of having technology skills throughout their careers. Work schedules were adapted to fit each employee's current course schedule.

Generally, those who were hired had at least some experience with one or more of the products the multimedia lab offered. No one has ever been hired with experience using all of the tools. Employees often spent their first several weeks learning the basics of the products offered.

The multimedia lab management tends to focus on customer service, teaching, and digital literacy skills when they hire. It is not expected that employees will learn everything about a given tool, but that they will have the capability to solve problems if a patron requests help. Typically, those who are hired are comfortable learning new things, have basic computer skills, and know how to use search engines to find what they need.

At the start of the project, the employees' only previous experience with badges consisted of video game achievements and scouting programs. None of the employees had heard of Open Badges previously; however, many had completed the requirements for Lynda.com certificates as they had completed courses on specific software.

Typically, the multimedia lab replaces five to six employees every fall semester, and one to two employees every other semester.

## Existing Resources and Training

Though a formal training program had not yet been implemented, a variety of resources existed within the multimedia lab.

**Employee Expertise.** Given the technical nature of positions within the multimedia lab, the students hired have typically demonstrated an ability to learn new technologies and know how to use at least a few of the software products effectively. The manager specifically stated that employees typically are good at using software and troubleshooting problems.

**New Hire To-Do List.** The multimedia lab used a To-Do list for new employees that was divided into three sections: "On your first day," "In your first couple days," and "Within your first week or two". This checklist outlined the various resources, tools and processes employees became familiar with in their first few weeks at the multimedia lab. The list provided no direction as to how much employees should learn or specifically what they should know to check each item off of the list.

**Lynda.com.** Technology courses through Lynda.com are available to every student enrolled at the university. Multimedia lab employees often enroll in these courses to learn specific software products. Training courses through Lynda.com can be found for all of the software products the multimedia lab covered, as well as many courses related to using specific equipment. The Open Badge program leverages these courses to provide the content for training on various software products.

**Internal Wiki.** The multimedia lab utilized an internal wiki (Figure 3) to provide employees with information related to Human Resources and lesson plans for teaching software courses. Although the lesson plans were not designed for the purpose of training employees, many have used them as a guide for determining which features they should learn for using a particular program. The wiki was used throughout the project to provide direction to employees and share links to recommended resources for learning various tools.

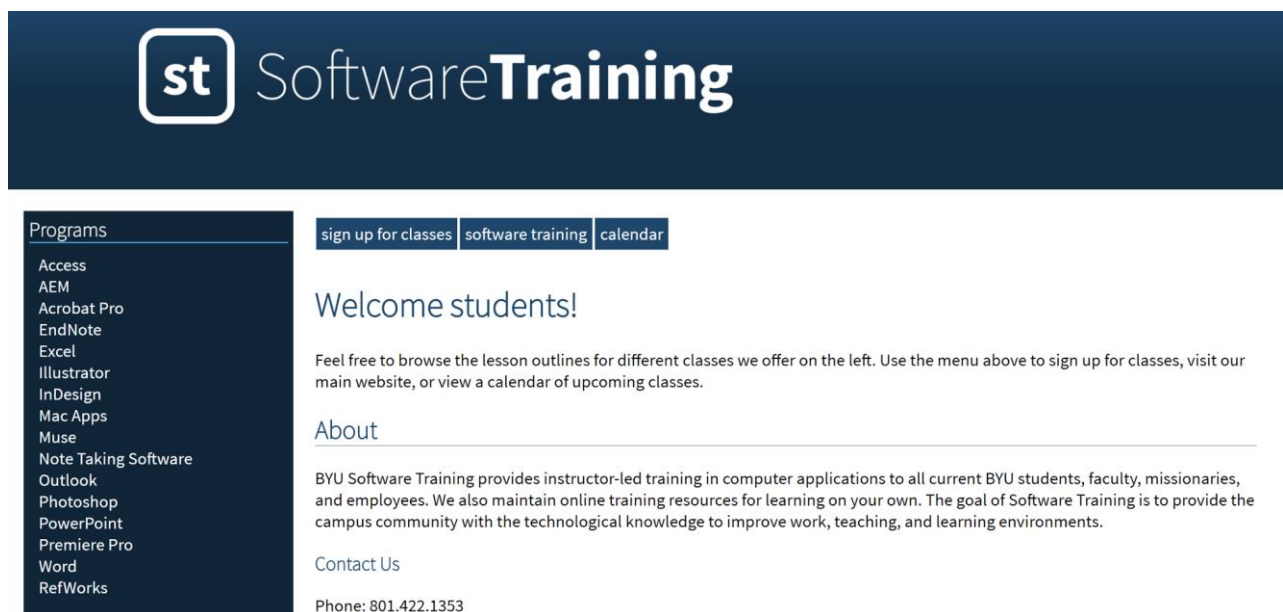


Figure 3. Screenshot of the multimedia lab wiki.

**Pay Incentives.** Each semester, multimedia lab employees received an increase in pay. Multimedia Lab Management connected this increase in pay to participation in the badging program.

## Design Precedent

Since Open Badges were introduced in 2012, a number of organizations have begun issuing them for professional training. Open Badges have been particularly influential in technical skills training and teacher professional development. Similar technologies, such as digital certificates, have also been used to facilitate self-directed training programs. I will now discuss various examples of badging programs with the insights from their unique examples.

**International Business Machines Skills Gateway.** The potential of Open Badges and similar technologies to reinvent employee training programs has led industry leaders such as International Business Machines (IBM), Oracle, Microsoft, National Instruments, and Adobe to begin issuing Open Badges. IBM’s training program is a particularly extensive implementation of an Open Badge technical training program. IBM introduced Open Badges as part of their IBM Skills Gateway employee training program. The Open Badges issued through this program recognize a variety of skills and achievements. Employees earn these badges for completing internal online courses, demonstrating particular traits such as leadership, and successfully passing objective assessments.

IBM has also expanded their program by making certain Open Badges available to anyone in the world (Leaser, 2017). The success of this program has shown that 87% of earners feel more engaged with IBM, a 70% increase in course completion rates, and most earners returning to earn multiple badges (Leaser, 2017).

**Criteria and Assessments.** Instead of relying on a single form of assessment, IBM utilizes a variety of practices to verify diverse sets of skills. These assessments range from formal qualitative exams and quizzes to subjective evaluations by mentors and management. The multimedia lab’s program also covered several different skill types that a varied approach to assessment could achieve.

**Badge Image Design.** The design of an Open Badge image can impact how a badge’s meaning and value are communicated to others. IBM’s Open Badges provide a variety of examples for how badge images can be designed to convey meaning to both internal and external audiences. For example, IBM uses color to indicate the type of badge being issued (Figure 4). Adding meaning to the color of a badge can increase the usefulness of the credential by helping earners recognize the breadth of their skills. Managers familiar with the color schemes can identify the skill sets they are looking for more quickly.



**Figure 4. IBM Badge Styles.** This figure shows how IBM badges are styled based on the type of skill or accomplishment they represent.

IBM also uses symbols such as stars to indicate varying levels of expertise within specific badge groups (Figure 5).



**Figure 5. IBM Mastery Exam Developer Badges. IBM uses stars to indicate the level of skill a particular badge represents.**

**Teacher Professional Development.** Open Badges have been used at all levels of public education. This includes using Open Badges for teacher professional development. For example, in 2015, the Houston Independent School District (HISD) implemented an Open Badge training program for school teachers in their district (Grier, 2015). This program assists teachers in learning and implementing various pedagogical concepts. Additional examples of teacher professional development programs can be found on [badgelist.com](http://badgelist.com). Badgelist is an Open Badge issuing tool that markets to teacher development programs specifically. Devedžić and Jovanović (2015) have noted the adoption of Open Badges at the teacher level is an effective strategy for encouraging the adoption of Open Badges at other levels throughout the district.

**Earned to Reviewer.** A common element of the Houston district-wide training programs implemented using Badgelist is the progression from earner to reviewer once a teacher has earned a badge. This allows for the training program to scale as more teachers throughout the district begin participating. The number of employees involved in the multimedia lab training program was limited; however, a path to progress from earner to reviewer was necessary to ensure the continued success of the program after more experienced employees have graduated.

**Multifaceted Assessments.** Teachers in the HISD program must complete several tasks before earning the badge representing a specific skill. These tasks include studying a module's content, participating in a formal discussion about the topic, creating and implementing a lesson plan, and submitting evidence with a reflection of the implementation. A similar strategy could be employed for multimedia lab employees desiring to learn pedagogical techniques before teaching software courses.

**Lynda.com Certificates.** Although Lynda.com does not issue Open Badges, its digital certificate program is widely used to recognize the completion of professional online courses.

**Automatic Issuing.** Lynda.com certificates are issued automatically based on course completion. This method allows employees at hundreds of organizations to obtain digital credentials without the added cost of a face-to-face assessment. Because these certificates are not competency-based, they do not fulfill the multimedia lab's need for employees to demonstrate mastery of specific skills. However, awarding badges for the non-competency-based components of the training program, such as the new hire to-do list, were done automatically to save time.

**Social Media Integration.** Upon earning a Lynda.com certificate, learners are prompted with options to print the certificate or share it on social media. This includes the ability to post the accomplishment directly to the individual's LinkedIn profile. Although the technical specifications of the multimedia lab training program were dependent on the selected Open Badge issuing tool, additional instructions were provided to guide employees in adding their badges to relevant websites.

## Implications

Based on the analysis, the following implications were necessary to consider throughout the design process.

**Flexibility.** Varying student schedules and availability means the training program cannot rely on regularly scheduled meetings. This also decreases the feasibility of utilizing face to face assessments because the schedule of an employee and mentor employee may never overlap. Flexibility was also required in defining competencies for each tool. The tools offered by the multimedia lab varied widely in their function and capabilities. Thus, the badges developed for certain tools were significantly different from others.

**Sustainability.** The training program was designed to continue beyond the scope of the current project. All employees were previously unfamiliar with the concept of Open Badges. Because of this, it was necessary to include content explaining the concept of Open Badges, Open Badge design principles, and recommendations for ensuring badge criteria is kept up to date.

**Use of Open Badges.** As outlined above, Open Badges were well suited to meet the training needs of the multimedia lab. Because none of the employees had previous experience with Open Badges, introductory resources about the purpose of Open Badges, the value of Open Badges, and the design principles surrounding Open Badges were included within the training program.

## Design Process

We selected the Successive Approximation Model 1 (Figure 6), also referred to as rapid prototyping, as the primary design process that would guide the creation of the training program. This model was chosen for two reasons: (1) Multimedia lab management indicated that even a prototype of a training program would be an improvement to their current status and wanted an initial version implemented immediately, and (2) An iterative approach would allow us to incorporate feedback from both employees and management, possibly ensuring a more sustainable final product.

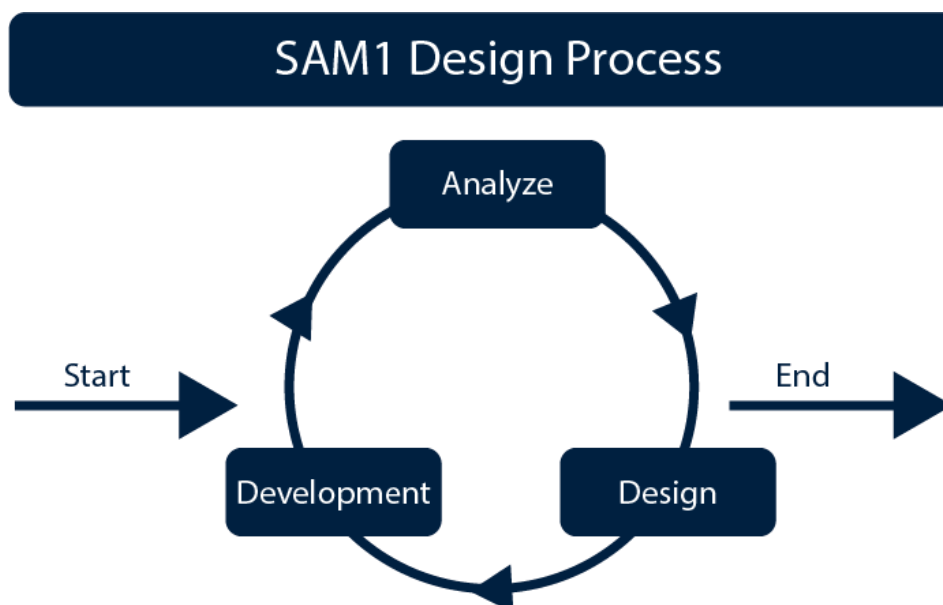


Figure 6. A diagram outlining the SAM1 Design Process.

## Phases

Initially, I anticipated our design process would include distinct phases in which multiple changes to the training program were implemented at the same time. In reality, the process included many smaller iterations in which smaller changes were implemented immediately following employee feedback and user testing. Retrospectively, I recognized the major milestones that represent distinct phases of the design process: (1) Initial Design, (2) Initial Rollout, (3) Badge Expansion, and (4) Transition to Badge List.

**1. Initial Design.** This phase consisted of working alongside employees identified as content experts for each of the essential badges. This phase also included working alongside management to design the workflow (Figure 7) and process for earning badges. This stage resulted in the creation of several badges, badge creation templates (Appendix C.1 and C.2), spreadsheets for tracking the badge creation process (Appendix C.3), and updating the internal wiki with relevant material. Another essential activity of this phase included reviewing several open badge issuing tools and considering the design constraints each could bring to the training program. Finally, each of the essential badges were formatted in Badgr, our chosen badge issuing tool.

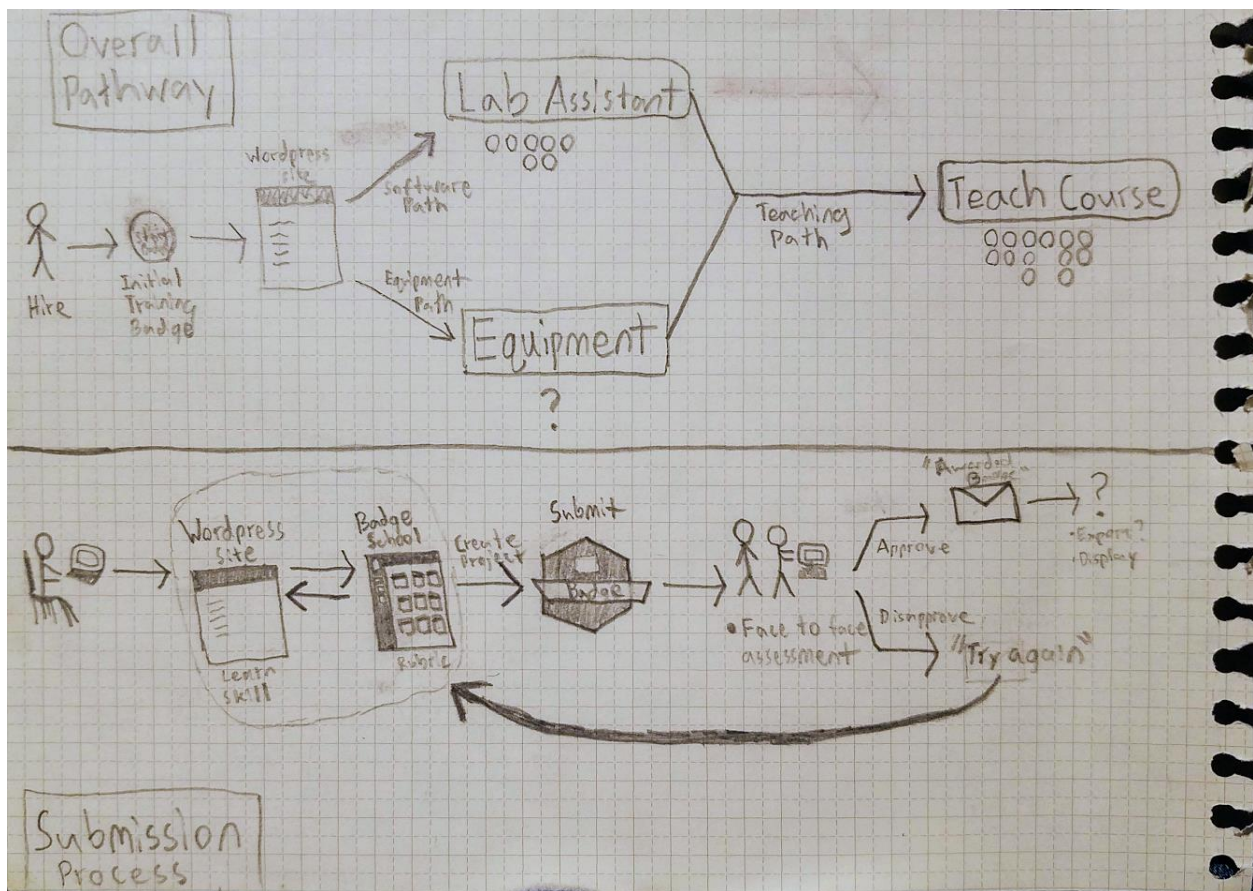


Figure 7. Two sketches drawn while planning the concepts of learner pathways (above) and the badge earning process (below).

**2. Rollout.** This phase began with an employee meeting officially introducing the badging program to those who were not directly involved in its design. A major portion of this phase included refining the earning criteria for specific badges. To facilitate this process, the form employees used to apply for specific badges included a field to provide feedback on the earned badge. These suggestions were evaluated by myself and the badge experts and were gradually used to improve the design of the badges.

This phase also involved creating a *Learner Resources* wiki page listing each software product and available resources (Figure 8) for learning about it. Initially, these recommendations consisted solely of links to Lynda.com courses; however, over time it was anticipated that they would be updated with additional helpful resources specific to each tool.



Figure 8. A screenshot of entry for Adobe Indesign on the Learner Resources page.

**3. Badge Expansion.** The rollout phase allowed us to gather feedback and refine the structure of our initial badges. These badges were then used as examples for designing new badges covering additional tools. Each of the initial badges represented an Adobe product. Some changes to the structure of these badges were necessary as non-Adobe products were included. For example, the Electronic Theses and Dissertations badge required employees to complete specific activities commonly used while aiding patrons.

The evaluations at this stage impacted the direction of the project in a variety of ways. For example, during the rollout phase, it became apparent that the skill-specialization pathways we originally planned to create would be unsustainable. This was because it was difficult to ensure there was a mentor for every badge given the breadth of tools. Additionally, management needed employees to gain a broad skill set because only a few employees were available to help patrons at a given time.

**4. Transition to Badgelist.** None of the badge issuing tools we reviewed during our initial design phase included the full set of features the original design would have required. Given these constraints, we chose to issue badges using Badgr and created a custom badge application process utilizing Google

Forms and the Multimedia Lab's internal wiki. User testing revealed that despite several updates to this process, employees were confused by the design.

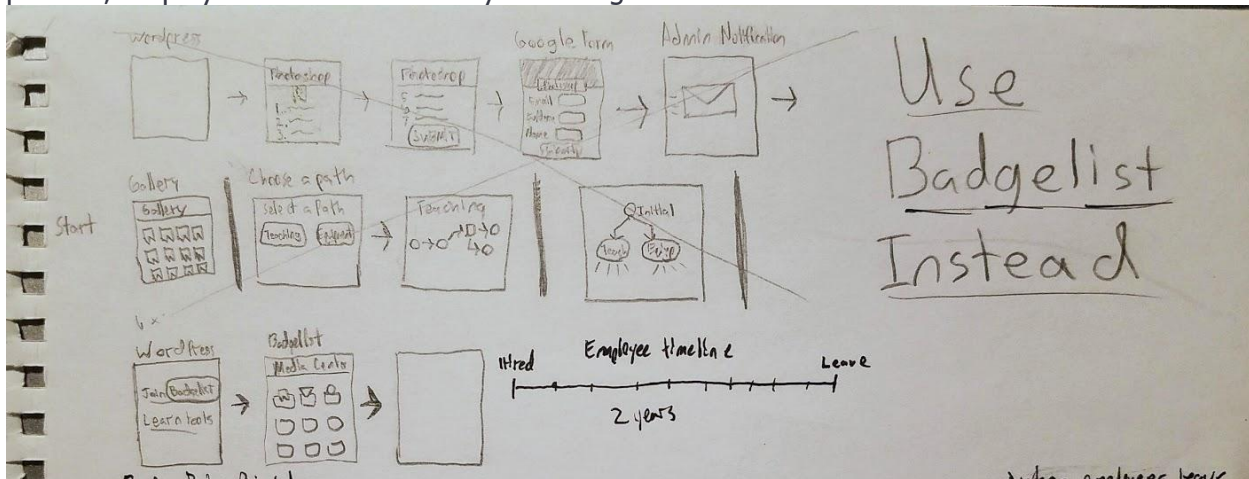


Figure 9. A sketch capturing the moment a decision was made to switch to Badgelist. The squares in the upper left were a frustrated attempt to redesign the badge earning process based on employee feedback.

Working with Multimedia Lab management, we decided that consolidating the badge application process to a single website would significantly enhance the usability of the program for employees (Figure 9). Badgelist provided a user-experience that was most aligned with our original program design. For this reason, all of the Multimedia Lab badges were moved to that platform (Appendix D). This transition involved extensive user testing to help refine badge criteria, update the onboarding process (Figure 10), and streamline communication between badge earners and experts.

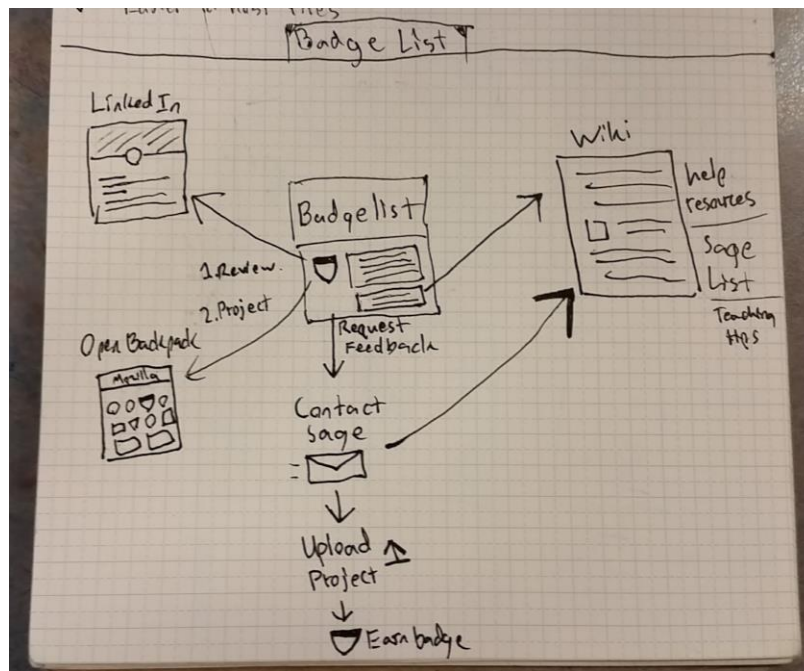


Figure 10. A sketch made while considering the implications of switching to BadgeList.



## Open Badges for Employee Skill Tracking

Kyle Clements, Richard E. West, & Sam Jackson, *Brigham Young University*

This case explores the creation of an open badge student-employee training program. Utilizing competency-based learning, we created nearly 40 digital credentials for technical skills related to various software products. We specifically share the decisions we made related to the process of defining competencies, formatting badge criteria, and flexible learning system.

**Kyle Clements** is a graduate student in the Instructional Psychology and Technology department at Brigham Young University. His research interests include location-based learning, digital credentials, usability, and informal learning.

**Sam Jackson** is a masters student in the Instructional Psychology and Technology department at Brigham Young University and employed at the Harold B. Lee Library Multimedia Lab. His research interests include educational museum design, open education, and learning theory.

**Richard E. West** is an associate professor who teaches courses on instructional technology foundations, creativity and innovation theories, and academic writing and evaluation. He researches how to evaluate and design environments for fostering collaborative innovation, as well as the development of online learning communities and open education/credentials. His research is available at <http://richardewest.com> and <http://bit.ly/rickwestscholar>.

### INTRODUCTION

The Harold B. Lee Library Multimedia Lab at Brigham Young University serves students and employees by offering access to media production equipment, providing technical assistance for software products, and teaching workshops on how to use these products.

The goal of this project was to implement a program that would guide multimedia lab employees in obtaining the skills necessary to fulfill their responsibilities and enable managers to keep track of which employees have specific skill sets.

Our solution involved the creation of a competency-based training program in which employees earn digital microcredentials representing their ability to use various tools.

### THE DESIGN CONTEXT

The multimedia lab employs 15 to 20 student employees at a time. Those who are hired are typically familiar with at least one or more of the products the multimedia lab helps with. These include software products from Adobe, Microsoft, Google, and other providers. Multimedia lab employees are also responsible for maintaining and renting out multimedia equipment such as cameras, tripods, lighting equipment, and other tools.

Managers do not expect employees to gain advanced knowledge regarding every tool; however, it is anticipated employees will develop the ability to solve common issues a patron may face with the most popular tools. Prior to this project, employee training on each of these tools was primarily self-directed and inconsistent.

## OVERVIEW: THE TRAINING PROGRAM

We designed the training program around the process of qualifying for various digital credentials. The employee experience of this process can be divided into three stages (Figure 1): (1) View, (2) Learn, and (3) Earn.

1. *View*. During this stage, employees select a badge relevant to their learning needs and review the associated requirements. Employees may choose which badges they will earn; however, a recommended learning pathway is provided to direct students to learn the most commonly used tools first.

2. *Learn*. After reviewing badge requirements, employees may qualify for those requirements using any available resources. An internal wiki provides employees with a list of recommended resources including relevant Lynda.com courses and other online tutorials.

3. *Earn*. Every badge in our program requires the submission of qualifying evidence to be evaluated by a fellow employee. Evaluators are selected based on their skill level with specific tools. Potential badge earners may submit evidence multiple times and refine their submissions based on the evaluator's feedback.

## GUIDING DESIGN PRINCIPLES

Several design principles guided this project. These principles were established based on input from multimedia lab management and the constraints for this project.

### Competency-Based Learning

Competency-based learning (CBL) is an instructional strategy that emphasizes learner achievement over time spent learning. Instead of requiring all students to progress at the same pace, these strategies allow students to progress once specific competencies have been achieved (Donoghue & Chapman, 2013). Other titles for this approach include mastery-based, performance-based, and proficiency-based education (Brodersen et al., 2017). These strategies enable learners to proceed at their own pace by skipping course content entirely if they can demonstrate mastery of the criteria (Wolfe, 2012). Our decision to use a competency-based approach was based on the following factors.

#### *Skills-based Criteria*

The manager of the multimedia lab was interested in understanding an employee's skills and not dictating how those skills are obtained. Many employees joining the multimedia lab have experience with one or more of the tools offered. A CBL approach allowed us to integrate employees of varying skill-levels by allowing

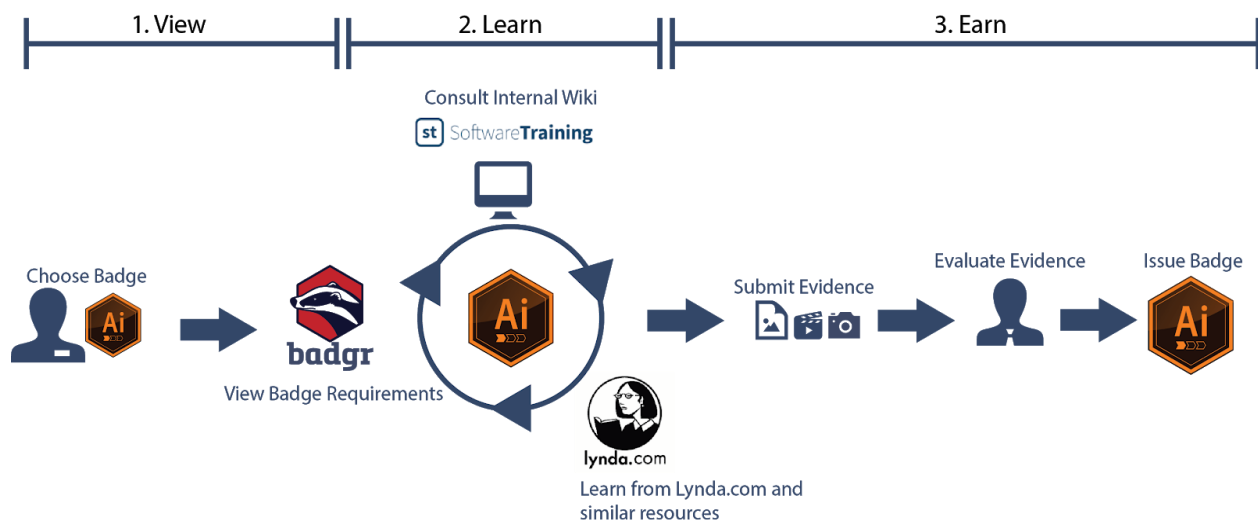


Figure 1. Diagram illustrating the process to earn multimedia lab badges.

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more employees with specific experience to pass beginner-level criteria quickly.

#### *Schedule Flexibility*

Employees' availability varies each semester based on their course schedule that semester. This limits the ability to hold regular training meetings where all or most employees can attend.

#### *Cost-efficiency*

Due to the number of tools available for employees to learn, we assumed that establishing and refining competencies would be more sustainable and cost-efficient than maintaining tutorials on every topic. We chose to rely on resources such as Lynda.com to provide students the necessary knowledge to use each tool.

### **Open Badges**

In 2012, the Mozilla Foundation released the first public beta of the Open Badge Infrastructure, a verifiable, evidence-based digital credential. Open Badges are image files embedded with metadata providing additional information about the credential. This information includes who issued the credential, what was required to earn it, and evidence demonstrating that the requirements were met. After an Open Badge has been issued and accepted by the earner, they control how, when, and to whom their credential is displayed. We included Open Badges in our design for several reasons.

#### *Open Badges and CBL*

Open Badges have frequently been associated with CBL (Soares, 2012). One reason for this association is the ability to embed evidence within Open Badges that can communicate what the learner accomplished in order to receive the badge. We included Open Badges in this project in part because they provide a useful means for packaging together an employee's efforts to learn a specific tool.

#### *Portable*

Open badges can be exported and transferred between systems. This enables learners to control how, when, and to whom their credentials are displayed. Potentially, this could allow employees to use these tokens as additional recognition of skills when applying to new jobs and opportunities.

#### *Future Projects*

Finally, the multimedia lab plans to utilize Open Badges to recognize the skills of students enrolled in their technology courses. These badges will then represent meaningful achievements to job opportunities located on campus. Providing these credentials to their own employees allows multimedia lab management to experiment with the concept of using badges.

### **Gamification**

The manager of the multimedia lab specifically requested that the final solution we designed contain gamified elements to promote an enjoyable atmosphere and engage employees in the training program.

### **DEFINING COMPETENCIES**

A fundamental component of designing the training program was establishing competencies. We decided to utilize the current employees, who teach courses on these competencies, to assist in developing these standards for the specific tools where they were most expert. To support these employees, we created a competency template and example badge for them to refer to.

### **Competency Template**

The competency template we created was a google document containing five labeled boxes for subject matter experts to complete (Figure 2). We could have created the badges directly in our chosen issuing tool; however, a google document format facilitated collaboration and feedback as we worked with subject matter experts to refine each competency.

## Multimedia Lab Badge Template

**Name**

**Image URL**

**Description**

**Requirements**

**Submission**

- Show your finished project(s) to an Illustrator [evaluator](#) and explain how each of the required tools was used.
- Once approved, apply for the Illustrator badge [here](#).

**Figure 2: A screenshot of the blank badge creation template. View the template [here](#).**

In order to create a more consistent experience throughout the training program, we also chose to provide subject matter experts a completed sample template (Figure 3).

**Badge Example**

**Name**

**Image URL**

**Description**

Individuals who earn this badge can use the essential tools of Adobe Illustrator to create basic projects.

**Requirements**

Create one or more project(s) with the following tools:

- Selection tool
- Direct Selection tool
- Pen tool
- Fills and Strokes
- Shape tools (rectangle, rounded rectangle, ellipse, polygon)
- Swatches panel

**Demonstrate the following:**

- Create new files
- File navigation

**Submission**

- Show your finished project(s) to an Illustrator [evaluator](#) and explain how each of the required tools was used.
- Once approved, apply for the Illustrator badge [here](#).

**Figure 3: A screenshot of the example badge creation template. View the example template [here](#).**

## Competency Criteria

The goal of our program was to guide employees in obtaining the technical skills necessary to fulfill their work responsibilities. Because of this, we designed each competency

to highlight the most common features employees use within each product while on the job. Most of the badges we created have two basic requirements: (1) a skill demonstration and (2) a creative project. Exceptions to this format included tools with limited creative function (E.g. Microsoft Outlook) or essential non-creative knowledge (E.g. helping students properly format a thesis document).

*Skill Demonstration.* This requirement involves a badge earner meeting with a badge evaluator and in the meeting the earner demonstrates they understand how to use the features listed in the competency. For example, an employee attempting to complete this requirement for the Adobe Photoshop badge would need to demonstrate an ability to use the tools listed in Figure 4.

## Demonstrate skill with:

- Image navigation (zoom and pan shortcuts)
- Layer system
  - Duplicating layers
  - Destructive vs. Non-destructive editing
- Crop tool
- Straighten
- Spot Healing Brush
- Clone Stamp tool
- Red Eye tool
- History panel
- Burn/Dodge tools
- Adjustment Layers
  - Brightness/Contrast
  - Hue/Saturation
  - Color Balance
  - Black & White
  - Vibrance
- Masks
- Brush tool

**Figure 4: A screenshot of the requirements for a Photoshop badge.**

Students complete this demonstration in person or by recording a screencast demonstrating the required skills. We chose this arrangement to foster personalized feedback between earners and evaluators.

*Creative Project.* The project portion of the competency requires employees to create an artifact using some or all of the features listed in the previous requirement. Initially, we required employees to use *all* of the listed features in their projects; however, this requirement led employees to focus primarily on using every feature instead of creating a meaningful project. We chose to rely on performance assessments such as this to promote meaningful engagement with the tools as opposed to simply memorizing what specific features are available.

#### *Tiered Competencies*

Early in the design process, we recognized it was not necessary for every student to learn all of the features for every product. For example, an employee assisting patrons with Adobe Photoshop at the help desk does not require the same level of knowledge as an employee teaching a photoshop workshop. In order to facilitate the attainment of various skill levels, we divided the competencies for most tools into three stages (Figure 5): (1) Beginner, (2) Intermediate, and (3) Expert.



**Figure 5: Three images representing each level of the Photoshop competency.**

1. *Beginner.* Employees who earn badges at this level understand the essential features of a tool and can use it to create simple projects. We chose to design this stage to help indicate which employees have a general understanding of a tool and can assist patrons at the help desk.

2. *Intermediate or Teaching.* Employees who earn badges at this level can use all the features taught about a specific tool in multimedia lab workshops. We chose to create this stage to assist management in identifying employees with the knowledge necessary to provide workshops.

3. *Expert.* This final stage indicates the employee has completed several projects using the specific tool and has an advanced

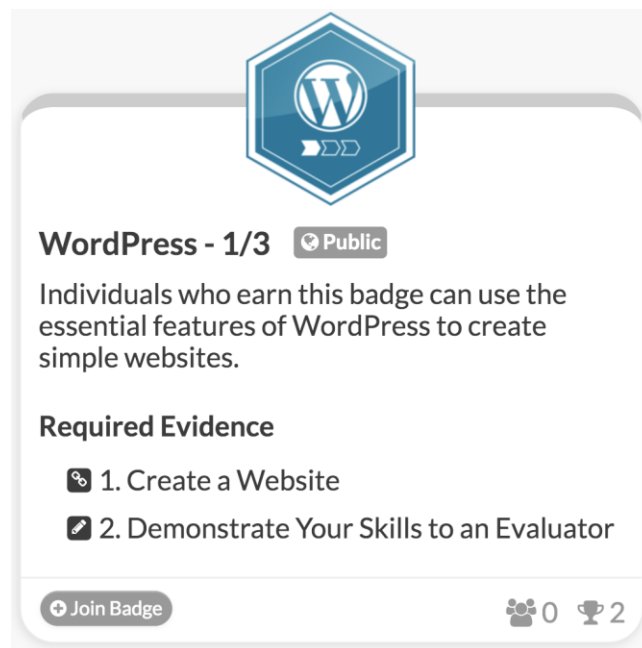
understanding of its features. One reason we chose to include a third level badge for most products was to help management recognize which employees may be capable of serving as evaluators for each tool.

#### *Software Specific Competencies*

We designed our competencies around specific tools (e.g. Wordpress) instead of broader skills (e.g. Web Design). We chose this format because the responsibilities of multimedia lab employees are typically tool specific. The drawback of this decision is that individual tools are often updated, and essential features may change over time. These changes could require more frequent updating of competency criteria than if our competencies focused on broader skill-sets. Badge evaluators are responsible for updating competencies to represent a tool's current features.

#### *Badge Images*

Badge images were designed to reflect the software product or skill they represented. We chose not to include the title of the badge on the image for two reasons. (1) Our naming conventions for each competency level changed throughout the project, and (2) the issuing tools we reviewed nearly always display the name of the badge alongside the image (Figure 6).



**Figure 6: A screenshot of the beginner-level WordPress badge. The badge image is always displayed next to the title of the badge.**

## Recommended Earning Pathways

One of the main goals of the badge program was flexibility. We initially made no recommendations for the order in which employees should earn badges. However, after several new employees mentioned feeling confused and unguided we chose to prepare a list prioritizing the most essential badges. Employees' quarterly raises were dependent on their progress along this path. Each semester, each employee was required to earn at least three badges: two of these essential badges (especially Adobe Photoshop, Microsoft Word, and Adobe Premiere), and one of their choice.

In early phases of the design, we intended to develop separate learning paths (Figure 7) and have employees specialize in either workshop training or equipment checkouts after their first semester. This plan was abandoned after a summer of particularly high employee turnover made it impossible to staff the range of positions with only experienced employees. Instead, all employees were trained to manage the equipment soon after being hired, and to teach workshops beginning in their second semester.

## DESIGNING BADGES

Representing competencies as digital credentials brought a variety of unanticipated challenges related to selecting a badge issuing tool, formatting badge content, and designing badge images.

## SELECTING AN OPEN BADGE ISSUING TOOL

We did not anticipate the extent to which our design would be influenced by our chosen issuing tool, but the tool's affordances ended up driving other design decisions. Many platforms are available for issuing Open Badges. We reviewed several issuing tools based on their ability to support our intended badge reviewing process, cost for implementation, and usability.

- Acclaim: <https://www.youracclaim.com/>
- Accredible: <https://www.accreditable.com/>
- Badge List: <https://www.badgelist.com/>
- Badge School: <http://badgeschool.org/>
- Badgr: <https://badgr.io/recipient/badges>
- Credly: <https://credly.com/>
- Open Badge Factory: <https://openbadgefactory.com/>

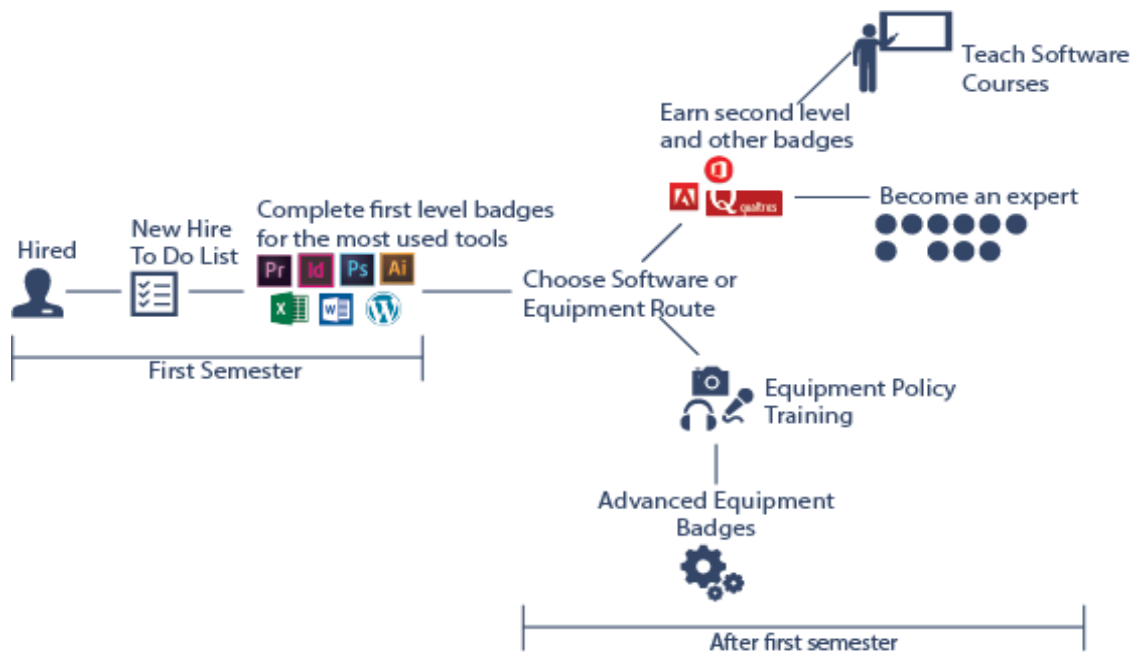


Figure 7. A diagram outlining the initial design for skill pathways throughout the badging program.

- OpenBadges.Me:  
<https://www.openbadges.me/>

None of the tools we reviewed fully satisfied each of our criteria. Unexpectedly, we found that none of the existing tools offered permissions to allow an employee to be a reviewer for specific badges and not others. This was problematic as our badge reviewers were also meant to be badge earners. We eventually limited our decision to badge issuing tools that one or more of the designers had prior experience with.

We initially selected Badgr, an issuing platform created by Concentric Sky. The greatest drawback of this decision was Badgr's issuer-centric interface. Badgr accounts can issue badges but do not allow badge earners to apply for badges within the Badgr interface. We attempted to circumvent this issue by using google forms for the submission process; however, this setup confused employees and complicated the badge earning process.

For this reason, we recreated our badges with BadgeList.com. The functionality of this website aligned better with our intended process; however, specific features were limited based on a paid subscription model.

#### *Getting Started Badge*

Another challenge we faced conforming our program design with selected badge issuing tools was usability. User-testing with multiple employees revealed that attempts to apply for and earn specific badges were often prone to error. To address this issue, we created the Getting Started badge (Figure 8) which introduced employees to the training program and guided them through the badge application process.



### **1. Getting Started** Public

The goal of this badge is to introduce the badge training program. Join the badge and click "More info" to view each requirement's details.

**Figure 8: A screenshot of the Getting Started badge description.**

## **Gamification and Professionalism**

The manager of the multimedia lab requested gamified elements be included in the program. As a team, multimedia lab employees had voted to include elements inspired by Nintendo's *The Legend of Zelda* in the program.

Early on, however, we recognized these gamified elements could potentially detract from the professional value of the microcredentials employees earned. For this reason, the gamified elements we designed for the training program were limited to internal facing aspects of the training program only.

For example, although employees who review submitted evidence are referred to as *sages* internally, all references to this role within badge requirements refer to them as *evaluators*. The badges themselves similarly have two names, sometimes being referred to as *medallions* internally.

#### *Additional Incentives*

Our initial iterations revealed the training program was particularly engaging for employees with a year or less experience. Employees with more experience, however, tended to be less motivated to apply for and earn badges for the skills they had already obtained.

In order to motivate employees such as this to participate in the badging program, we connected the achievement of badge-related goals to quarterly raises in employees' pay. This change successfully motivated all employees planning to work the following semester to participate in the program.

#### *Physical Representation*

To help employees celebrate their badge-earning successes, we created physical representations of their digital progress in the form of *Legend of Zelda* inventory sheets and lanyard pins (Figure 9). These physical credentials are distributed and celebrated at weekly team meetings.

The inventory sheets were created to display each employee's badges in the office in a form

that more fully embraced the *Legend of Zelda* theme. They were designed to look like the equipment screen from the pause menu in *The Legend of Zelda: Ocarina of Time*. These sheets also became useful places to mark any employee progress which wasn't represented digitally, such as their new hire training or certification to teach workshops.



**Figure 9: A picture of a gamified employee progress chart and lanyard.**

Pins on employees' name tag lanyards further display their progress and make it easier for library patrons to tell which programs a particular employee has skill with. Originally, we created these pins by borrowing a button maker from another office on campus but found that the large size of the buttons (almost a 2" diameter) looked strange and weighted nametags oddly, so employees were reluctant to put their earned pins on their lanyards. After discovering that another office in the library had a much smaller button maker, we recreated the pins (now 0.75" in diameter) and they have been much more widely adopted.

Following the implementation of the physical badges, the Multimedia lab manager began formally recognizing those who had earned badges in a monthly team meeting. This procedure includes playing dramatic music as each employee's name is announced. This manager commented, "[The badging program] helps me give recognition to my employees, which is something I am not good at doing naturally as a manager".

## CONCLUSION

Our goal was to create a competency-based employee training program that was skills-based, cost-efficient, and flexible to a myriad of employee schedules.

We faced a variety of challenges related to defining competencies and representing them as Open Badges. In order to cover a breadth of tools, we relied on employee expertise to define our competencies. We assumed designing the badge earning process independent from a specific badge issuing tool would allow us to design a more optimal experience, however, we found the rigidity of existing issuing tools forced us to alter our initial design.

We attempted to design our badges to be interpretable by a variety of potential audiences. The portability of open badges limits the ability to design the user-experience for this process; however, we wrote badge description and content with such audiences in mind.

We found our design was engaging for newer employees, but more experienced employees required additional incentives to participate in the program. We are encouraged by the initial results of the training program and the supervisor of the software training department is now looking into expanding the badge program beyond employees to any student on campus attending the software training workshops.

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## Product Implementation

Multimedia lab management requested that an initial version of the training program be implemented as soon as possible. We decided to launch our initial iteration once badges were designed for six of the most commonly used products: Illustrator, InDesign, Photoshop, Lightroom, Refworks, and EndNote. Employees responsible for designing badge criteria were provided a blank badge design template (Appendix C.1) and a completed example template (Appendix C.2). The initial implantation occurred in August 2017, with successive iteration occurring throughout the remainder of the school year.

Employees were notified of the new badging program via employee training meetings and follow-up emails. Several employees were also included in the badge creation process. These employees were useful in promoting the program as they discussed their role with fellow employees. Finally, user tests were conducted with 16 of the Multimedia Lab's 20 student employees. These meetings inadvertently became opportunities to address employee questions and ensure they understood the process of applying for and earning new badges.

Successive iterations of the onboarding process resulted in the creation of an (1) introductory email template (Appendix C.4) and a (2) Getting Started badge (Appendix C.5) which walks new employees through the badge earning process.

## Evaluation

The goal of the training program was to ensure employees had the skills necessary to fulfill the responsibilities of their position. The evaluation process included both formative and summative procedures. Initially, I anticipated the course of the project would include distinct iterations of updates to the program followed by an evaluation phase. Throughout the project, however, I chose to implement changes much more rapidly and gather employee feedback more consistently.

There were four primary questions guiding my evaluation of the project:

1. Are employees actively participating in the training program?
2. Do employees feel the training program prepares them to fulfill their responsibilities?
3. Are the badges an accurate indicator of employee skill-level?
4. Do employees feel participating in the training program is a good use of time?
5. Does management feel the program has enhanced the organization's effectiveness?

## Procedures

Both formative and summative procedures were used to evaluate the training program (Table 3). Formative evaluation procedures included 16 usability tests (Appendix E.1), multiple manager interviews, and one employee survey (Appendix E.2). Summative evaluation procedures included three employee interviews (Appendix E.3), one manager interview, and an

additional employee survey. Data regarding employee participation was also gathered using the BadgeList platform.

All employees were contacted to participate in formative usability testing. The three summative evaluation interviews, however, were specifically chosen to represent various levels of participation in the program.

Table 3

*Data Collection for Evaluation Questions*

Questions	Formative Evaluation	Summative Evaluation
Are employees actively participating in the program?	Website Data Manager Interview	Website Data Manager Interview
Do employees feel the training program prepares them to fulfill their responsibilities?	Employee Surveys	Employee Interviews
Are the badges a useful indicator of employee skill-level?	Employee Surveys Manager Interview	Employee Interviews Manager Interview
Do employees feel the training program is a good use of time?	Employee Surveys	Employee Interviews
Does the manager feel the program has enhanced the effectiveness of the organization?	Manager Interviews	Manager Interviews

**Data Analysis.** Qualitative data during the formative evaluation stage was analyzed by coding for themes within each evaluation question. We looked for significant insights to inform the development of the project, rather than simply tallying the most popular responses. For the summative evaluation, we identified the most common responses in order to understand the overall effectiveness of the program.

## Evidence

This section provides a summary of the key insights gathered from our final interviews and survey.

**1. Structure Gives Direction.** Several comments from both students and management indicated that the badging program has helped provide employees clear directions regarding what they should learn and how they can be spending their time.

- Employee Comments:

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- “Nice [the training] was all in one place.”
  - “When I [was hired], it was intimidating that I would have to master every tool. The nice thing about the badges is it prioritizes what you need to know.”
  - “The badges have helped keep me on task while at the desk.”
  - “I would have gotten good [with Adobe products] a lot quicker than I did if we had [the badging program] when I started...there used to be a culture of just learning whatever you want. But not to do better on the job. Now there is a mindset to learn to improve on the job.”
  - “[The badging program] is helping people (myself included) use time better at work and keep learning and be prepared for questions and classes.”
  - Manager Comments:
    - “Having to master 10 different programs used to be overwhelming for new employees. Now they have clear direction on where to start and how to break each of [the tools] down.”

**2. Incomplete Training.** The intended focus of the badging program was to motivate and guide employees to learn how to use various software. Feedback from employees demonstrated that while these skills were necessary, training outside the program was necessary to ensure students developed all the skills they needed.

- Employee Comments:
  - “[The program] does not have any training on *how* to do the job. Just the tools.”
  - “You have to know photography concepts to use photoshop proficiently. You have to know design principles for illustrator and indesign, as well as typography and layout principles for indesign. These badges do nothing to require the learning of concepts along with software.”
  - “I can follow a tutorial for illustrator and make an amazing picture. But outside of that tutorial I can't really illustrate anything except maybe some logo designs.”
  - “I think it would be better to pick a project they actually like instead of just using all of the tools.”

**3. Gamification motivates some, annoys others.** Many employees indicated they enjoy the gamified aspects of the program. A couple employees, however, indicated those elements seemed meaningless.

- Employee Comments:
  - “It’s a fun way to show what you are learning.”
  - “You feel like your making progress when you can see it.”
  - “I like it because I’ve earned the most.”
  - “There is a bunch of t-shirts and hearts....I think all of that is stupid. Just a waste of paper.”
- Manager Comments:
  - “New employees love it. Other than that, it comes down to personality. Some don't like the [gamified] structure, but at least some people will get mild enjoyment.”
  - “It helps me give recognition to my employees, which is something I am not good at doing naturally as a manager.”

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**4. Retroactive Badging Viewed as Busy Work.** For experienced employees in particular, the process of applying for badges they were already qualified for felt redundant.

- Employee Comments:
  - "I'm not a fan of busy work. [My manager] had to set a deadline to get the [pay] raise. It took me 15 minutes to get four [badges]."
  - "I got checked off in the past, so it has been a little weird re-doing the basics."

**5. Improved Goal Setting.** Prior to the badging program, multimedia lab managers had struggled to help employees set meaningful learning goals. Feedback from both employees and managers indicated the badges have aided in this process.

- Employee Comments:
  - "[The program] helps me keep me on task while at the desk."
  - "The requirements for each badge are really clear and I know how to earn it. The program is flexible, so it doesn't take long to earn a badge for something I already know."
  - "You feel like you're making progress when you can see it."
- Manager Comments:
  - "My employee interviews have improved a lot. It is easier to set goals and talk about what they have done."
  - "We talked about what badges they earned. What they want to earn."
  - "It has helped clarify the terms we use around goals and goal setting."

**6. Uncertain of Badge Value.** As the program currently stands, however, there are no formal opportunities connected with the badges employees earn beyond progressing in their positions within the Multimedia Lab. Several employees indicated they were skeptical of the badges value for these reasons.

- Employee Comments
  - "It's the project, not the badge, that indicates skill level."
  - "Maybe I could use the badges to get my job back here when I return. Or if I got a job that was software related."
  - "I haven't interacted with it much because it doesn't feel like there is a reason to. It's not too complicated or anything, it just doesn't feel worth it. The badges won't be worth anything outside of this job, even though that is how they are designed to work."

## Evaluation Outcomes

The overall feedback from employees indicates the badging program has improved employee training; however, there are many issues that can improved upon. Each of the key insights gathered through this evaluation process will inform continuing iterations of the badging program.

**1. Structure Gives Direction.** This positive aspect of the program will continue to be refined by providing more explicit recommendations and guidance for new employees entering

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the program. This will include badge pathways that indicate which badges will help prepare employees for future positions.

**2. Incomplete Training.** The original plan for the training program included badges for both software and hardware products. Pedagogical badges guiding employees seeking to teach courses were also planned. These badges could focus on specific tools (E.g. teaching Photoshop) or be generic. Badges emphasizing specific tools could focus on ensuring employees are aware of keyboard shortcuts and best practices associated with the specific tool.

**3. Gamification motivates some, annoys others.** The gamification aspects of the program will continue to be included; however, care will be taken to ensure these elements do not interfere with the badge earning process. For example, students do not need to participate in any gamified aspect of the program to earn any badge beyond the initial training badges.

**4. Retroactive Badging Viewed as Busy Work.** Although this issue was amplified by having every employee begin earning badges all at once, the multimedia lab will continue to face this issue as employees are hired with prior skills. One solution going forward is to allow new employees to submit prior work as evidence of their skill level with a given tool. Although their prior evidence may not include every badge requirement, the assigned badge expert should determine whether or not the employee is qualified for a given badge.

**5. Improved Goal Setting.** Although the feedback concerning goal setting was positive, the creation of badge pathways should assist students in setting more long-term goals for their employment at the Multimedia Lab.

**6. Uncertain of Badge Value.** Future phases of the multimedia lab's badging program could allow non-employee university students to earn software badges. These phases should also include linking students who earn specific badges to campus-jobs utilizing those skills.

## Reflection and Critique

I have learned many lessons throughout the process of designing the Multimedia Lab Badging Program. I have categorized these lessons as follows: (1) Insights from the Design Process, (2) Advice for Badging Projects, (3) Instructional Design Insights, and a (4) Project Reflection.

### 1. Insights from the Design Process

**Pragmatism Versus Process.** Design process diagrams such as the SAM1 Model presented previously illustrate neat conceptual models of what the design process can theoretically be. In the case of this project, the stages of the design process were much less distinct. For example, many changes to the program based on employee feedback or usability testing were implemented immediately following their recommendation. This led to much smaller iterations of the program than the larger design phases I originally anticipated. The decision to make these changes immediately rather than waiting to implement several at once was largely a matter of pragmatism.

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**Organization Saves Time.** Organizing your process for documenting design decisions and insights can save hours of time. This is especially true if you plan to write about your design process or explain design decisions to current and future stakeholders. Initially, I recorded design decisions and insights in several different locations. Unfortunately, the side effect of this habit was to delay or fail to implement important design changes. As I became more organized, I found progress on the project became more consistent and it became easier to pick up where I had left off.

**Start Small.** We originally implemented the badging program with about 10 badges. Beginning with a pilot this small number allowed us to make significant changes to the structure of the badging program before we had committed the time and resources necessary for creating the breadth of badges we eventually wanted to include.

**Culture Change Takes Time.** It is one thing to implement a new program, and it is another to gain employee buy-in. I underestimated the amount of effort it would require prompting employees to begin participating in the program. Even employees who expressed enthusiasm about the project took time to change work habits and begin regularly working on earning badges. For similar future projects, I recommend planning extra time for onboarding and adoption.

## 2. Advice for Badging Projects

**Determine Issuing Tool Early.** Every badge issuing tool brings with it a unique set of features and user workflow. Most tools also come with subscription models for unlocking additional features such as usage reports. I do not believe the selection of an issuing tool should drive the entire design of a given badging program; however, making this choice as early as possible provides useful constraints for how the program will be designed and implemented. Switching badge issuing tools after our initial pilot was a time intensive process. The format of BadgeList required updates to each badge's requirements and structure. Had this decision been made later in the process when all 36 badges were part of the program, it would have taken a significant amount of time.

**Utilize Existing Content.** As the software tools covered by the program continue to evolve, employees will be required to update the criteria of each badge in the program. While these updates will require employees to maintain an awareness of each tools' capabilities, the process will only require editing the text of the requirements. Had we chosen to develop our own instructional materials for the program, there would be another layer of work required for each update made to a specific program. By utilizing existing resources such as Lynda.com, we were able to save resources and ensure a lower maintenance cost for the ongoing program.

**Difficulty Scaling Peer Review Systems.** Peer review systems are a useful tool for scaling the evaluation of various skills. Unfortunately, scaling such programs requires enough employees to have adequate skills for each category. Although our program successfully sustained peer review systems for more popular programs such as Adobe Illustrator or Photoshop, we were unable to reliably fill evaluator positions for specialized tools such as Adobe Lightroom. In these cases, criteria was created for lower-level badges, and it is anticipated higher-level badges will be designed when an employee with higher skill-level is available.

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**Design Badges Outside of Issuing Tool.** Making program-wide updates to badges once they have been added to a chosen issuing tool can be time intensive. For this reason, I highly recommend designing badges and major updates to badges outside of the chosen issuing tool until all stakeholders have approved of those changes. Using Google Docs for our badge design allowed for collaboration and streamlined the feedback process as each badge was created.

### 3. Instructional Design Insights

**Engaging Learners.** Many educational programs share the challenge of motivating students who have a wide variety of interests, challenges, and needs. We used several strategies to ensure each employee participated in the badging program. This included letting employees participate in the design process, adding gamification elements, and encouragement from coworkers and managers to participate. Even with these efforts, however, there were still a few employees who did not participate. For this reason, we decided to link badge progression to employee's pay raise schedule. This incentivized all employees to participate and highlighted the lesson that all students are not motivated by the same things.

**Content Curation as the Future of Elearning.** While every content area will not have the level of resources available for learning technical skills such as Adobe products, utilizing existing resources where possible can save significant time and resources. Over time, the development of third-party instructional materials will become more sophisticated as they utilize technologies such as machine learning and big data. This project has taught me that instructional designers can benefit from using such resources when the learning outcomes of both align.

### 4. Project Reflection

The current iteration of the training program has performed well; however, there are many ways this implementation can be improved upon.

**Strengths.** When this project began, there was no formal process for Multimedia Lab employees to continually learn and improve their skills. Our implementation of this program has led to full-employee participation, broader skill-levels for all employees, and been particularly effective at engaging new employees in building their skills. Another strength is that since transitioning the maintenance of the program entirely over to Multimedia Lab employees, they have continued to expand the program by adding new badges and pathways.

**Weaknesses.** There are many ways the current program could be improved upon going forward. A major way the program could be improved is better facilitating interactions between badge experts and earners. Currently, this process is conducted entirely via email. Providing feedback regarding specific details of submissions is time consuming and emails occasionally lack the level of clarity the learner needs. This interaction could potentially be improved upon by utilizing screencasts or asynchronous video chat services such as VoiceThread for facilitating discussion about learner submissions.

Another weakness of the current implementation is in the limited issuing permissions allowed by our chosen issuing tool. BadgeList allows group managers to give specific accounts badge issuing permissions. Unfortunately, these issuing permissions cannot be tied to specific badges,

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but allow the user to issue all badges within the group. BadgeList has indicated this feature will be updated in the future; however, currently badge experts are not given issuing permissions. Instead, when an employee has been approved for a badge, their name is added to a list of badge recipients and a manager issues the actual badge.

Finally, the current program will be improved as the number of available badges grows to cover all technical skills required of Multimedia Lab personnel. Currently, the program covers nearly all software skills required by employees, but provides no guidance for learning to use the physical equipment available to borrow from the Multimedia Lab.

## Appendix

### Guide to the Appendix

- A. **Actual Product** - A link to the multimedia lab's Badgelist page.
- B. **Design Specification** - A detailed description of the badging program. This section also includes descriptions of elements that did not fit the design case format.
- C. **Implementation Instruments** - Various tools used to implement the badging program. These include artifacts created for multimedia lab managers to facilitate further development of the badging program.
- D. **Assessment Reports and Instruments** - An example of the badge rubric used to evaluate an employee's project.
- E. **Evaluation Instruments** - Survey instruments, usability scripts, and interview guides used to evaluate the badging program.
- F. **Annotated Bibliography** - A selection of articles that informed the design of the badging program.
- G. **Budget and Timeline**

### Appendix A. Actual Product

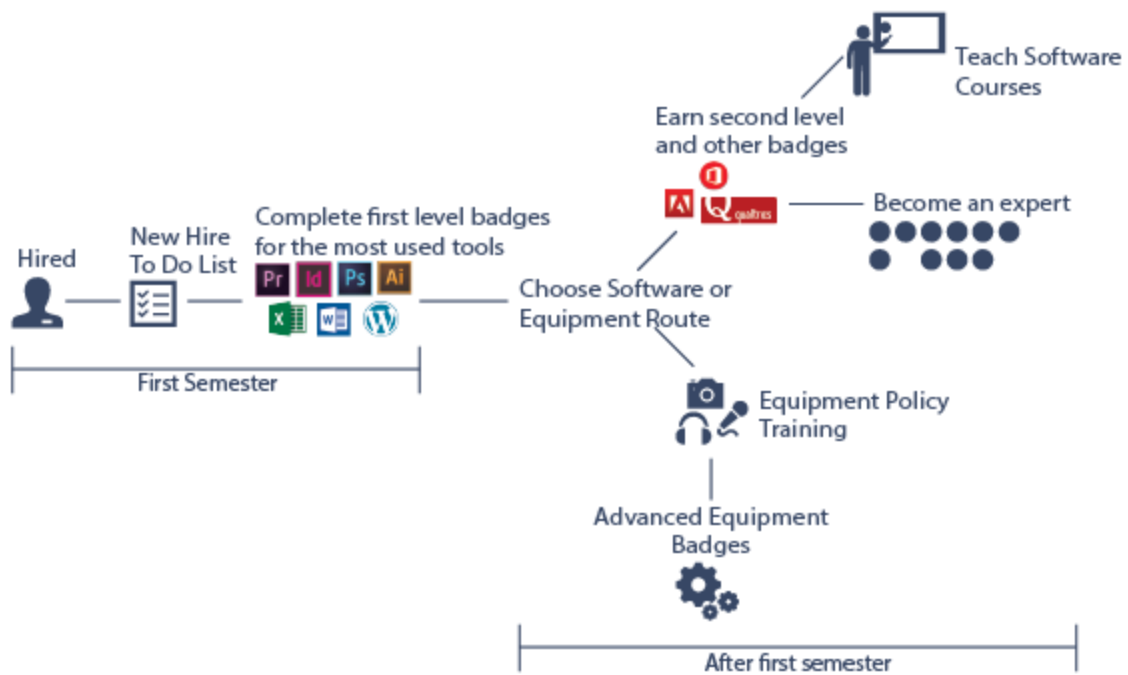
A live version of the Multimedia Lab training program can be accessed here:  
<https://www.badgelist.com/BYU-Multimedia-Lab>

### Appendix B. Design Specifications

The proposal for this project consisted of two main segments. (1) Employees' experience in the badging program during their first semester with the multimedia lab and (2) their experience after the first semester (Figure 11).



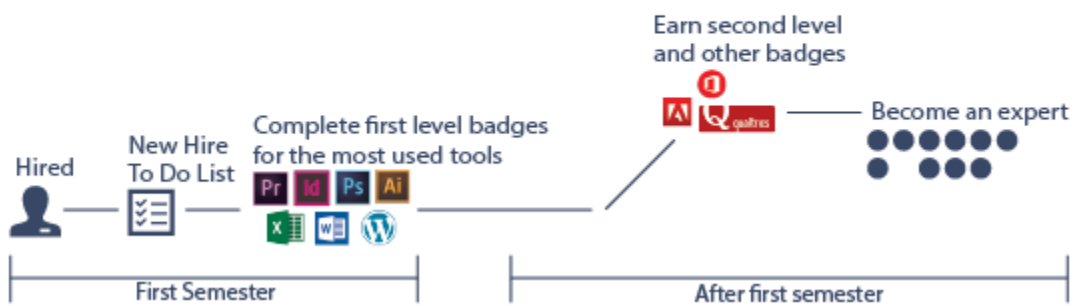
## Multimedia Lab Open Badge Training Program



**Figure 11. A diagram outlining the original pathways planned for the badging program.**

As the project began, I consulted with my stakeholders, and it was determined that my work would prioritize building out the first semester experience. Although the remaining portions of the program have not yet been completed, multimedia lab staff have continued to expand and build out the program based on the original plan. Figure (12) illustrates the portions of the design plan that I helped create.

## Completed Portions of the Multimedia Lab Badging Program

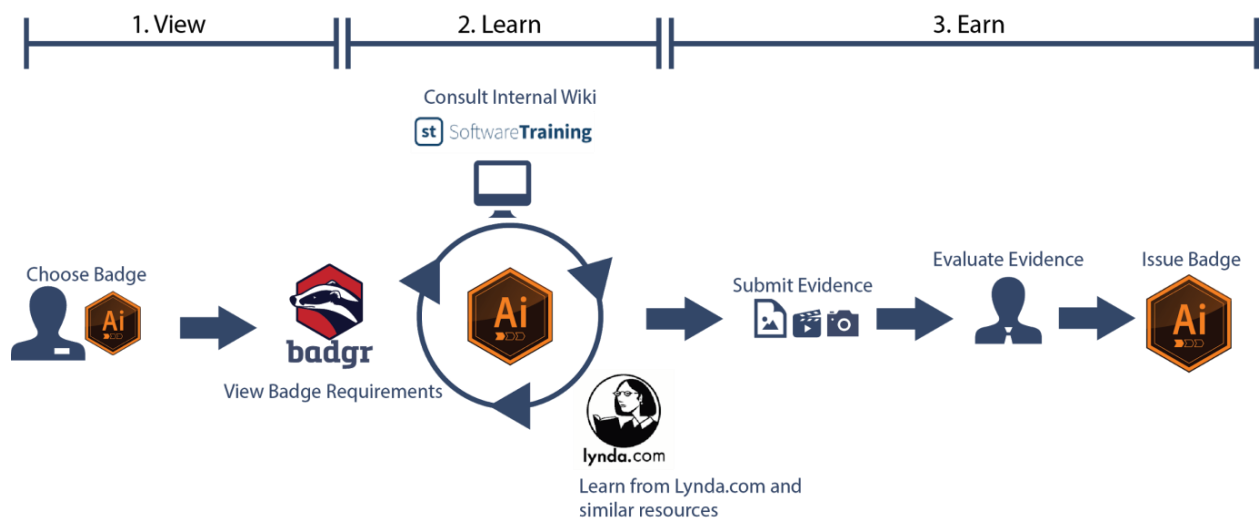


**Figure 12. A diagram outlining the completed portions of the pathways.**

Missing from the current program are the equipment training pathway and the teaching skills portions of the program. These portions of the program are currently under development by multimedia lab staff. The current version of the program focuses on helping employees develop their skills from beginner-level for various software programs.

**1. The First Semester.** When an employee joins the multimedia lab, they are given a tour of the lab and provided a new hire to-do list. A portion of this to-do list includes earning their first badge. New employees receive an email (Appendix F.1) providing directions for signing up at Badgelist.com and earning the Getting Started badge (Appendix F.2). The requirements for this badge walk the learner through the process of starting a badge and submitting evidence for approval.

Upon earning the Getting Started badge, employees are instructed to begin earning the beginner-level badges of the seven most common tools: Adobe Photoshop, Adobe Premiere, Adobe InDesign, Adobe Illustrator, Microsoft Word, Microsoft Excel, and Wordpress. Employees earn these badges by following a three stage earning process (Figure 13): (1) View, (2) Learn, and (3) Earn.



**Figure 13. Diagram illustrating the process to earn multimedia lab badges.**

1. View. During this stage, employees select a badge relevant to their learning needs and review the associated requirements. These requirements are viewed in Badgelist (Figure 14). Employees may choose which badges they will earn; however, a recommended learning pathway is provided to direct new employees.

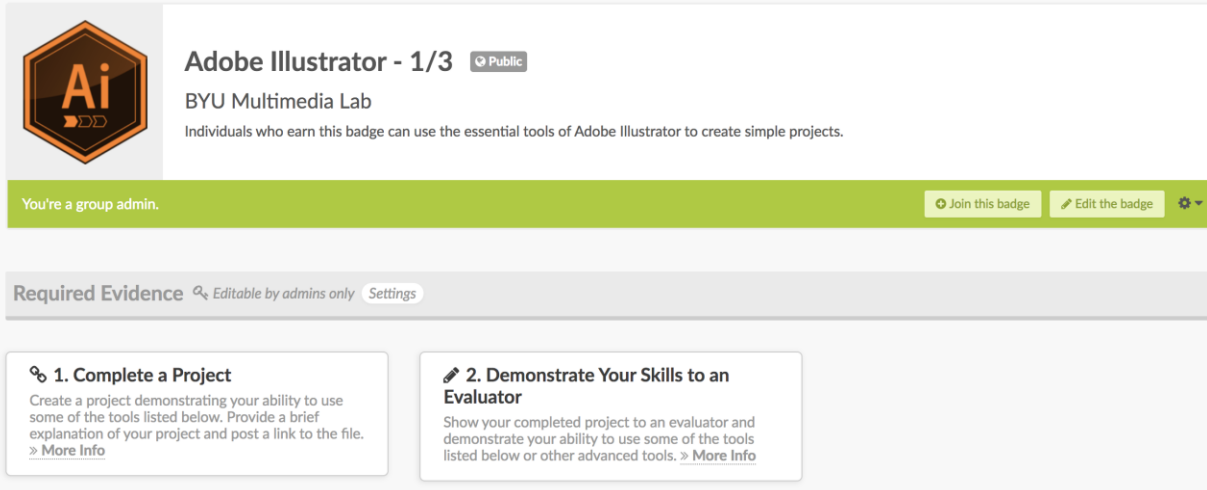


Figure 14. A screenshot showing Badgelist page for an Adobe Illustrator badge.

2. Learn. After reviewing badge requirements, employees may qualify for those requirements using any available resources. As recommended by Hatcher et al. (2013), an internal wiki is regularly updated with tips from fellow employees for earning specific badges. Additionally, this wiki contains a list of recommended resources including relevant Lynda.com courses and other online tutorials.

3. Earn. Every badge in our program requires the submission of qualifying evidence to be evaluated by a fellow employee. Evaluators are selected based on their skill level with specific tools. Potential badge earners may submit evidence multiple times and refine their submissions based on the evaluator’s feedback. A current list of the evaluators for each program is maintained on the multimedia lab’s internal wiki (Figure 15).

## Current Sages

The current sage assignments are:

- > Acrobat: Stirling
- > AEM: Stirling
- > EndNote: Ben
- > ETD: Stirling
- > Excel:
- > Garageband/podcasting: Tyler
- > Google Forms and Sheets:
- > Illustrator: Sam
- > InDesign: Naomi
- > Lightroom: Sylvia
- > Muse: Jennifer
- > Note-taking software: Ben
- > Outlook: Chase
- > Photoshop: Sylvia
- > PowerPoint: Ben/Chase
- > Premiere: Kayla
- > Qualtrics: Kayla

## Programs

- Access
- Acrobat
- EndNote
- ETD
- Excel
- Illustrator
- InDesign
- Lightroom
- Muse
- Outlook
- Photoshop
- Podcasting

Figure 15. A screenshot of the wiki page displaying current evaluators, internally referred to as “Sages”.

---

**2. After the First Semester.** After employees have completed their first semester with the multimedia lab and have earned the initial badges, they are given the option to choose how they will specialize their skills. Future iterations of the training program will include the options for students to specialize in using specific equipment and teaching workshops. Currently, this phase consists of students choosing which of the other 28 badges they will begin earning.

O'byrne, Schenke, Willis, and Hickey (2015) suggest using digital badges to enhance goal setting. To facilitate this process, employees meet with their manager once a semester to discuss what they have learned and which badges they intend to earn next. As not all learners are motivated by the gamification aspects of the program (Abramovich, Schunn, & Higashi, 2013), a policy was developed giving employees a semesterly raise if they earn at least three badges a semester. Future iterations of the program will likely personalize this requirement based on an employee's level of experience.

## **Appendix C. Implementation Instruments**

The implementation of the training program included instruments for employees participating in the program as well as those responsible for its ongoing maintenance. The implementation instruments designed for employees participating in the program include the (1) Onboarding Email and the (2) Getting Started Badge. The instruments only available for employees responsible for the program's ongoing maintenance include the (3) Open Badge Design Template, (4) New Badge Template, and the (5) Badge Development Progress Chart.

**1. Open Badge Design Template.** A blank badge creation template (Figure 18) was designed to facilitate the formatting and design of new badges for the training program. This document was created as a Google Doc to enhance collaboration and feedback prior to entering each badge's information into Badgelist.

---

## Open Badge Design Template

Name

Image URL

Description

Requirements

Submission

- Show your finished project(s) to an [program] [evaluator](#) and explain how each of the required tools was used.
- Once approved, apply for the [program] badge [here](#).

Figure 18. A screenshot of the Open Badge Design Template.

**2. New Badge Example.** A completed badge template (Figure 19) was created to assist those creating each badge. Descriptive comments explain each textbox.

## New Badge Example

### Name

Adobe Illustrator - Basic

### Image URL

<https://drive.google.com/open?id=0B2IELHyChc27dFNnUGZ2Q09ZNFk>

### Description

Individuals who earn this badge can use the essential tools of Adobe Illustrator to create basic projects.

### Requirements

**Create one or more project(s) with the following tools:**

- Selection tool
- Direct Selection tool
- Pen tool
- Fills and Strokes
- Shape tools (rectangle, rounded rectangle, ellipse, polygon)
- Swatches panel

**Demonstrate the following:**

- Create new files
- File navigation

### Submission

- Show your finished project(s) to an Illustrator [evaluator](#) and explain how each of the requirements was met.
- Once approved, apply for the Illustrator badge [here](#).

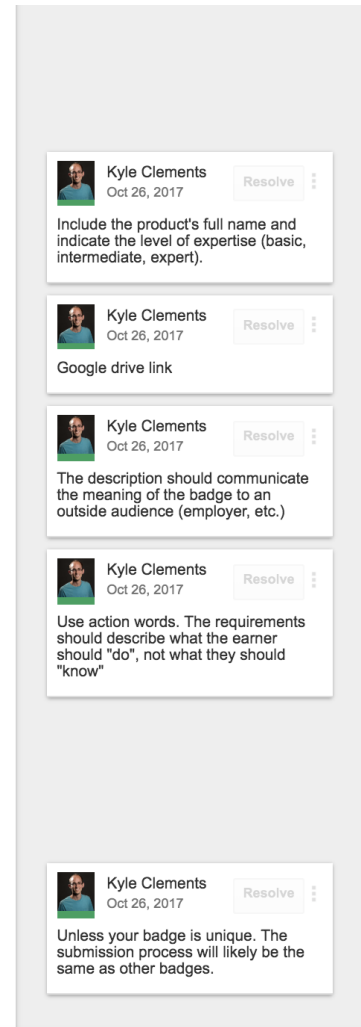


Figure 19. A screenshot of the New Badge Example document.

**3. Badge Development Progress Chart.** A progress chart was created to help managers oversee the badge creation process (Figure 20). This chart will continue to be used to facilitate the creation of new badges.

	Beginner				Intermediate				Advanced			
	Wiki Format	Template (URL)	Badgr (URL)	BadgeList	Wiki Format	Template (URL)	Badgr (URL)	BadgeList	Wiki Format	Template (URL)	Badgr (URL)	BadgeList
<b>Adobe</b>												
Acrobat Pro	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
After Effects	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
Illustrator	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
InDesign	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
Muse												
Photoshop	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
Premiere Pro	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
Lightroom	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://docs.goo">https://docs.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>				
<b>Microsoft</b>												
Access												
Excel	<a href="https://wiki.learns">https://wiki.learns</a>				<a href="https://wiki.learns">https://wiki.learns</a>				<a href="https://wiki.learns">https://wiki.learns</a>			
OneNote												
Outlook	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
PowerPoint	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
Word	<a href="https://wiki.learns">https://wiki.learns</a>				<a href="https://wiki.learns">https://wiki.learns</a>				<a href="https://wiki.learns">https://wiki.learns</a>			
<b>Web</b>												
BYU Domains												
WordPress	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
Google Apps												
<b>Research</b>												
Electronic Theses and Note Taking Software	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>				
Qualtrics												
ReWorks	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
EndNote	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>	<a href="https://wiki.learns">https://wiki.learns</a>	<a href="https://drive.goo">https://drive.goo</a>	<a href="https://badgr.io/p">https://badgr.io/p</a>	<a href="https://www.bad">https://www.bad</a>
<b>Other</b>												
3D Modeling												
Geospatial Training												
Camera Skills												
Mac OS												
Custom Class												

Figure 20. A screenshot of the Badge Development Progress Chart.

**4. Onboarding Email.** New employees receive the following email within their first week. The specific instructions and process by which students are introduced to the program was refined through several user tests. Initially, these instructions were provided by a page on the wiki; however, students often failed to complete all the steps. User testing revealed that delivering these instructions via email led to higher rates of completion.

Welcome to the Multimedia Lab! The following steps will introduce you to our employee training program.

1. Go to the Multimedia Lab group here: <https://www.badgelist.com/BYU-Multimedia-Lab>
2. Click **Join Group**.
3. Create a BadgeList account.
4. Navigate to the **Getting Started** badge.
5. Click **Join Badge**. The goal of this badge is to introduce you to the badge earning process.
6. Complete the listed requirements.
7. Click **Request Feedback** to submit your finished badge.
8. Start earning other badges! For additional tips and tricks, go to <https://wiki.learnssoftware.org/badge-onboarding/>

Let me know if you have any questions!

**5. Getting Started Badge.** Part of the onboarding process includes earning the Getting Started Badge. The goal of this exercise is to help students familiarize themselves with the Badgelist interface and the process of submitting evidence for badges.

Getting Started Badge: <https://www.badgelist.com/BYU-Multimedia-Lab/Getting-Started>

**Getting Started with Multimedia Lab Badges** Public

**BYU Multimedia Lab**

The goal of this badge is to introduce the badge training program. Join the badge and click "More info" to view each requirement's details.

You're a group admin. Join this badge Edit the badge Settings

**Required Evidence** Editable by admins only Settings

**1. Review Learning Resources**  
The goal of this badge is to introduce you to available resources. For this step, review the list of learning resources. Click "Post your evidence" and submit one of the listed resources you might use to learn Adobe Illustrator. [» More Info](#)

**2. View Evaluator List**  
Submit the name of an evaluator (sage) and indicate which product they are an expert over. [» More Info](#)

**3. Submit a Question (Optional)**  
What questions do you have about the badging program? [» More Info](#)

Figure 17. A screenshot displaying the requirements for the current version of the Getting Started badge.

## Appendix D. Assessment Reports and Instruments

Badges were awarded based on performance assessments in which employees demonstrated their ability to use specific features of a chosen product to an evaluator. This was typically done by creating a project that demonstrated their knowledge of specific features and explaining to an evaluator how each feature was utilized. The criteria listed within the badge served as a guide for these interactions; however, whether or not employees demonstrated adequate skill was decided by the evaluator. See Figure 16 for an example.

**Adobe Photoshop - 1/3** Public

Individuals who earn this badge can use the essential tools of Adobe Photoshop to create simple projects.

**Required Evidence**

**1. Complete a Project**

**2. Demonstrate Your Skills to an Evaluator**

Join Badge 2 4

**Demonstrate skill with:**

- Image navigation (zoom and pan shortcuts)
- Layer system
  - Duplicating layers
  - Destructive vs. Non-destructive editing
- Crop tool
- Straighten
- Spot Healing Brush
- Clone Stamp tool
- Red Eye tool
- History panel
- Burn/Dodge tools
- Adjustment Layers
  - Brightness/Contrast
  - Hue/Saturation
  - Color Balance
  - Black & White
  - Vibrance
- Masks
- Brush tool

Figure 16. Screenshots displaying the criteria for an Adobe Photoshop badge.



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## Appendix E. Evaluation Instruments

Both formative and summative procedures were used to evaluate the training program. Formative evaluation procedures included 16 usability tests (Appendix E.1), multiple manager interviews, and one employee survey (Appendix E.2). Summative evaluation procedures included three employee interviews (Appendix E.3), one manager interview, and an additional employee survey. Data regarding employee participation was also gathered using the BadgeList platform.

**1. Usability Test Script.** The usability test script was referred to as a guide for all 16 usability tests. While the primary script was the same, the tasks varied based on the specific session's goal.

### Multimedia Lab Usability Test Script

Adapted from [Steve Krug's Usability Test Script](#)

#### Introduction

[Web browser should be open to Google or some other "neutral" page]

Don't worry about reading this word for word, but make sure that each point is covered (Based on [Steve Krug's Usability Test Script](#))

- **Thank you!**
- The first thing I want to make clear right away is that **we're testing the site, not you.** You can't do anything wrong here.
- Please **think out loud.** Say what you are looking at, say what you're trying to do, and what you're thinking. This will be a big help to us.
- **Don't worry that you're going to hurt our feelings.** We're doing this to improve the site, so we need to hear your **honest reactions.**
- Do you mind if we record the screen and audio? This will only be viewed by members of our team to help improve the website.
- If you have any questions as we go along, just ask them. I may not be able to answer them right away, since we're interested in how people do when they don't have someone sitting next to them to help. But if you still have any questions when we're done I'll try to answer them then.

#### Scenario

[Start recording. Hand them a copy of Task #1 and read it aloud]

#### Conclusion

Thank you! That was very helpful.

Do you have any other thoughts about the program or the tasks you've completed?

#### Round 1

Task #1

---

Your manager mentioned they would email you a link to the employee training program. Follow the link and apply for a certification you have qualified for.

Task #2

View the badge(s) you have earned and indicate how you would share a badge to a social media profile such as LinkedIn.

**Round 2**

Task #1

You were recently hired and your manager mentioned they would send you an email about the training program. Check your email and follow the instructions.

**Round 3**

Task #1

You were recently hired and your manager mentioned you would receive an email to join the training program. They also mentioned you should start by earning the “Getting Started” badge.

Task #2

Explain the requirements for earning a technology badge you are interested in.

**2. Survey.** This survey (Figure 21) was used to collect both formative and summative feedback on the training program.

Section 1 of 2

## Open Badge Training Program - Feedback

Thank you! This survey should only take a few minutes. Your feedback is important to the ongoing development of the badge training program. Your comments will remain anonymous.

How would you rate your experience in the badge training program? \*

1 2 3 4 5

Very Poor      Very Good

Briefly explain the rating you selected. \*

Long answer text

Section 2 of 2

## Pros and Cons

Description (optional)

How could your experience with the Open Badge program be improved?

Long answer text

What does the Open Badge program currently do well?

Long answer text

If you have earned any badges, do you feel they are a useful indicator of your skill-level? If not, do you have any suggestions for how this could be improved?

Long answer text

Any additional comments?

Long answer text

**Figure 21. Screenshots of the survey items used to evaluate the badging program.**

---

**3. Student Semi-Structured Interview Guide.** These questions provided a template for each student interview.

1. Describe your experience in the training program.
2. Tell me about your experience earning the \_\_\_\_\_ badge.
3. How comfortable were you with the technologies you learned prior to participating in training for your current position?
4. In what ways did the training program differ from those you have participated in in the past?
5. How well do the badges you have earned indicate your current skill level?

## Appendix F. Annotated Bibliography

### Digital Badging and Open Badges

There are many case studies and other research articles outlining best practices regarding the use of digital and open badges. The articles described here provide specific examples of badging programs that helped inspire the ideation phase of the multimedia lab badging program. Additionally, these articles helped me design for potential challenges such as learner motivation and varying levels of content-knowledge.

Abramovich, S., Schunn, C., & Higashi, R. M. (2013). Are badges useful in education?: It depends

upon the type of badge and expertise of learner. *Educational Technology Research and Development*, 61(2), 217-232. doi:10.1007/s11423-013-9289-2

These authors demonstrate that the gamification aspect of digital badging is only motivating for certain students. Specifically, they indicate that students with lower levels of content-knowledge express greater interest in earning badges. Thus, our design will prioritize outlining badge criteria for more basic skills first.

Devedžić, V., & Jovanović, J. (2015). Developing Open Badges: A comprehensive approach. *Educational Technology Research and Development*, 63(4), 603-620. doi:10.1007/s11423-015-9388-3

Among other subjects, this article outlines the use of badges as both goal setting devices and a means to scaffold the learning process. The multimedia badging program was designed to utilize badges for both of these objectives.

Obyrne, W. I., Schenke, K., Willis, J. E., & Hickey, D. T. (2015). Digital Badges Recognizing, Assessing, and Motivating Learners In and Out of School Contexts. *Journal of Adolescent & Adult Literacy*, 58(6), 451-454. doi:10.1002/jaal.381

The authors describe the fundamentals of digital badging and outline several examples. These examples help illustrate the potential of utilizing Open Badges in contexts beyond the traditional classroom. Specifically, they suggest the value of using badges to motivate personal achievements.

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Randall, D. L., Harrison, J. B., & West, R. E. (2013). Giving Credit Where Credit Is Due: Designing

Open Badges for a Technology Integration Course. *TechTrends*, 57(6), 88-95.  
doi:10.1007/s11528-013-0706-5

Much of the multimedia lab program was patterned after the program outlined in this case study. Specifically, this case outlines how to design a badging program that supports a variety of pathways at the level of the earner.

### **Competency-based Learning**

Although competency-based learning allows for greater flexibility in the learning process, there are many challenges with this approach for learning. These are some of the articles that helped inform our decisions regarding when and when not to utilize a competency-based approach for the training program. For example, we chose to focus the program on hard skills that could be easily measured rather than attempting to create measures for the various soft skills required of employees.

O'Donoghue, T., & Chapman, E. (2010). Problems and prospects in competencies-based education: A curriculum studies perspective. *Education Research and Perspectives*, 37(1), 85.

These authors provide a general introduction to competency-based learning. They specifically point out the potential of competency-based learning to provide learners credit for learning that occurs outside of formal education. This approach was a core component of the multimedia lab badging program.

Hatcher, R. L., Fouad, N. A., Campbell, L. F., Mccutcheon, S. R., Grus, C. L., & Leahy, K. L. (2013).

Competency-based education for professional psychology: Moving from concept to practice. *Training and Education in Professional Psychology*, 7(4), 225-234.  
doi:10.1037/a0033765

This article addresses several aspects of successful competency-based learning programs. Specifically, they suggest the development of support that guides students in achieving particularly challenging aspects of competency criteria. This concept was the basis for utilizing the multimedia lab wiki to curate badge earning resources.

Rotherham, A.J. and Willingham, D.T. (2010). "21st-century" skills. Not new, but a worthy challenge.

*American Educator*, 34(1): 17-20.

These authors point out the difficulty of measuring what have been defined as "21st-Century-Skills", such as creativity, collaboration, and communication. Although employers indicate these skills are essential for success in the workplace. For the multimedia lab, we determined that training for such skills would not be represented via badges at this stage of the program.

Burnette, D. M. (2016). The Renewal of Competency-Based Education: A Review of the Literature.

*The Journal of Continuing Higher Education, 64(2), 84-93.*

doi:10.1080/07377363.2016.1177704

This literature review proved to be an extremely helpful resource in guiding the creation for a competency-based learning program. Particularly helpful was the author’s suggestion to incorporate learners and other stakeholders in the process of designing the criteria for various competencies.

## Appendix G. Budget and Timeline

The following charts outline the time (Table 4) and cost (Table 5) associated with the design work of this project. This chart does not include hours spent writing this report and related article. Similarly, this chart does not outline the time spent by employees participating in the program.

Table 4

### *Project Hours*

Month	Expected hours worked	Actual hours worked	Expected Student Employee hours worked	Actual Student Employee hours worked
October	20	22	10	20
November	20	19	2	15
December	20	20	2	0
January	20	15	2	0
February	20	15	2	0
March	20	10	2	0
April	20	20	2	0
<b>Total</b>	<b>140</b>	<b>121</b>	<b>22</b>	<b>35</b>

The only costs associated with this project were the hourly wage of the principal designer (\$18/hour) and multimedia lab student employees (\$9.55/hour). The employees assisted primarily in the development of Open Badge competencies. Table 5 outlines the predicted costs per month based on this information.

Table 5

*Budget*

<b>Month</b>	<b>Expected Cost</b>	<b>Actual Cost</b>	<b>Expected Student Employee Cost</b>	<b>Actual Student Employee Cost</b>
October	\$360	\$396	\$96	\$191
November	\$360	\$342	\$19	\$143
December	\$360	\$360	\$19	\$0
January	\$360	\$270	\$19	\$0
February	\$360	\$270	\$19	\$0
March	\$360	\$180	\$19	\$0
April	\$360	\$360	\$19	\$0
<b>Total</b>	<b>\$2,520</b>	<b>\$2,178</b>	<b>\$210</b>	<b>\$334</b>

There are two main differences between the original estimates and final results. First, in estimating the time I had planned for myself to work on the project, I did not plan for the time I would be spending working on other projects I was committed to as well as the time spent writing this report and article. Second, I underestimated the extent to which Multimedia Lab employees would be allowed to participate in the design process.