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#BadgedtoHire Final Report

Brian LaDuca
University of Dayton, bladuca1@udayton.edu

Education Design Lab

Excalibur Education Group

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Submitted to:
Education Design Lab

Prepared by:
Excalibur Education Group, LLC

Project led by:
Dr. Wesley Wilson, Dr. Tim Wilson, and Stephanie Youngblood

Edited by:
Dr. Sarah H. Young

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Table of Contents

Table of Graphics

Executive Summary

Education Design Lab, through professional input and focus groups, developed eight badges that address the instruction of "soft skills" to postsecondary students. With the emergence of alternative credentialing and badging, Education Design Lab wanted to contribute to the evidence of student confidence differences as attributed to completing the badge content as expressed on their resume, interview, and through application or example. Postsecondary institutions were engaged in this evaluation across the nation and allowed for three differing viewpoints on badge importance and expression – student, instruction, and employer.

Student Impact

Students were surveyed before and after their badge experiences on perceptions of importance, learning, and confidence to express their learning. While all the students reported an increase in confidence and importance, the only statistically significant difference in confidence of badge content was on student resumes. It should be noted that the student survey respondents were not completely representative of the student bodies of the institutions participating.

Instructor Perspectives

Instructors are strong advocates for the inclusion of badges and micro-credentialing within academic coursework if there is a strong alignment with the course curriculum. Some faculty felt empowered to make the badge content their own through individualizing the Canvas content which supported this intervention for student learning. Additionally, faculty reported that the badges allowed for the demonstration of skills that were employer-valued and can be assessed adequately. Instructors appreciated the rigorous assessments of the badges used by Education Design Lab.

Employer and Workforce Responses

Employers are excited about the opportunity for additional ways to identify 21st Century workforce skills. Some seem ready to consider those in place of more traditional entry-level requirements, while others want to use badges to complement the accepted application and hiring processes. Employers also indicated that written communication (e.g., resume), oral expression (e.g., interview), and application or example are all equally valuable ways of expressing the badge content.

Based on the data, we have the following recommendations for areas of improvement:

1. **Students should be shown ways to clearly demonstrate the badge skills learned,**
2. **Instructors should be supported through individualized inclusion into their established curriculum through faculty champions or administrative supports, and**
3. **Employers should continue to be engaged and educated about the value of the badges to their hiring processes.**

Background and Current Research on Badges and Micro-credentialing

The value and relevance of postsecondary education was called into question during the COVID-19 pandemic. Colleges and universities struggled to find a way to demonstrate the skills that had previously been assumed to be taught – formerly known as soft skills. Skills such as Creative Problem Solving, Critical Thinking, Collaboration, Oral Communication, Empathy, Resilience, Initiative, and Intercultural Fluency, became even more important as industries fought to show how they identify newly hired individuals with critical skills that make an impact on their workforce.

Badges and micro-credentialing became new buzzwords in postsecondary education and by employers, however there is little regulation or consistency in how they are used. Post-pandemic credentialing has been used to convey confidence to employers about the relevance of academic degrees and skills for entry-level employees (Spaulding & Johnson, 2016; CCDaily, May 11, 2022). Mischewski (2017) and Pitt et al. (2018) presented research that badges have taken on new applications, such as academic subcomponent skills. Fishman, Teasley, and Cederquist (2017) discussed how badges are used for assessment in higher education admissions. Badges representing the achievement of technical skill competency has also been researchers (AIR, 2013). Hamari conducted research on the effectiveness of badges in alternative academic assessment (2017). Badges are being used by various entities, not just academic as demonstrated by Fong, Janzow, and Peck's research (2016).

However, even with the variety of applications of badges, the most common research on micro-credentialing is the impact on soft skills and employability. Sadly, employers are still skeptical about how they will incorporate micro-credentialing into their hiring processes, professional development, and job promotion (CCDaily, "Employers Hesitant to Move Away from College Degrees", August 11, 2022). However, some employers report that they would welcome another way to recognize skills that are needed to be successful within their workplace.

This final evaluation report addresses the current progress in terms of delivery, implementation, and impact of the 21st Century Skills Digital Micro-credentials. This report provides a high-level overview of the research design and implementation, while specifically addressing:

- the development of the data collection model for the T-Profile,
- an analysis of employer feedback from recruitment sessions,
- a status update of college and system partners' badge rollout,
- key changes and challenges faced by the project during COVID-19, and finally
- recommendations for next steps in the initiative.

The Education Design Lab's (The Lab) *#BadgedtoHire* initiative expanded employers' awareness and acceptance of 21st Century Skills Digital Micro-credentials to create market signals for the power of these credentials to bridge the skills gap, particularly for underserved learners. This initiative built on previous work with seven institutions and their employer design partners. The Lab selected the most promising partners from the *TeeUp the Skills* initiative—the seven campuses of the University of Maine System (UMS), San Jose State University (SJSU), Central New Mexico Community College (CNM), and the University of Dayton (UD) —to build a full market test with more than 40 employers and 2,700 students (900+ participating partners).

This evaluation study focused on institutions' and employers' use of 21st Century Skills Digital Micro-credentials, as well as student achievement impacts associated with the 21st

Century Skills Digital Micro-credentials. Deeper analysis focused on the effects of the digital micro-credentials on underrepresented and underserved student groups.

For the last seven years, the Education Design Lab has focused on developing, prototyping, and piloting a set of rubrics, definitions, curricula, assessments, and credentials for 21st Century Skills as an important tool to level the playing field for underserved learners. The Lab partnered with 20 institutions—with active input from over 60 employers—to develop and test a set of eight skill areas and accompanying sub-competencies. In May 2018, this system was published as an Open Educational Resource toolkit. To date, over 1,700 individuals representing over 1,200 organizations from 44 countries and institutions have signed an MOU to access the suite of rubrics, definitions, curricula, assessments, and credentials. Students earning these credentials report higher levels of engagement, self-awareness, and readiness for careers (Education Design Lab, 2019). It is important to note that while The Lab's badges have garnered international interest, and many institutions are looking at ways to use them and the framework, the goal is to shape the opportunity for new credentials as an equity tool, driving design principles of rigor, portability, affordability, and relevance to meaningful career advancement (Education Design Lab website, n.d.).

To gain deeper, more evidence-based insights into how these credentials work in the real hiring economy, specifically for non-networked learners, this three-year multi-city/region project expanded the implementation of the 21st Century Skills Digital Micro-credentials by partnering with the University of Maine System, San Jose State University, Central New Mexico Community College, and the University of Dayton.

Research Design

This evaluation employed both quasi-experimental and explorational research designs to accurately capture the holistic impact of the 21st Century Badges initiative on academic achievement, intervention perceptions of competency growth, and faculty perceptions on badge impact on their instruction.

Quasi-experimental and Mixed Methods Designs

A) Student perception and growth on the badges' skills were compared using a correlational pre-post assessment. At the beginning and end of the course, students participated in an online survey administered through Qualtrics. The survey asked students to express their perceptions of the 21st Century Digital Badges, and to provide demographic information (to determine initiative impact on underserved and underrepresented student populations). The Qualtrics pre- and post-test assessment analysis was conducted using correlational inferential analysis examining the strength of the relationship between post-badge survey responses related to the pre-badge survey responses.
B) Student and faculty perceptions of the badges' value and skill acquisition was triangulated. The mixed methods design incorporated qualitative data collection, analyzed through student open-ended survey responses and faculty interviews.
C) At the end of the course, faculty were also invited to participate in an interview to provide their perceptions of the students' learning activities, engagement, and growth in the areas of the selected eight 21st Century Badges. This mixed methods analysis compared common themes and perceptions between the students and faculty.

D) Employers were also asked how they might consider badges in the hiring process, both in terms of relative importance to other job application materials and where in the timeline they might be considered. Current timelines and application materials' level of important was compared to predicted future hiring practice, which included badges and T-Profiles.

Explorational Design

The explorational research examines the effects of the badges curriculum on student academic achievement, specifically course completion rate, semester and cumulative GPA, credit accumulation, retention (subsequent semester and one-year retention), and, if applicable, graduation and completion. Data come from Student Records at each institution. The analysis compares those in the program to general student population averages to see if there is a difference. This analysis was not experimental since the comparison group cannot be matched and may not be equivalent on relevant demographic baseline variables.

T-Profile Development

A key foundation for understanding and aligning the competencies and sub-competencies for the specific eight badges was the development of the T-Profile for specific job positions. The T-Profile allowed employers to indicate which 21st Century mobility competencies (as indicated by the badges) were relevant and priority for a specific job position. In addition, employers rank ordered the corresponding sub competencies within each badge. See Appendix A for an illustration of a T-Profile for the position of Account Executive (Sales).

Given that the T-Profile was a foundational piece in aligning which specific mobility skills students will need to succeed within certain industries and professional roles, we developed a more comprehensive way to collect data for analysis. This section outlines the database template that we created for current and future T-Profile collection and provides data insights regarding the current collected T-Profiles.

T-Profile Data Collection Template

The development of the T-Profile data collection template builds upon Education Design Lab's current data collection and added other potential variables that could offer further insights into the alignment of badges to employment. In addition, this data collection template offers a strategy to assess the ranking of various badge sub competencies. The T-Profile data collection template consists of the following variables:

- **Title of Position for Individual Submitting T-Profile**: Collected to understand if this person may either be a hiring manager or possibly have a supervisor role
- **Industry/Sector**: Categorized by North American Industrial Classification System (NAICS)
- **Company**
- **Geographical Region**: Collected to better understand industry demand and employment patterns extending beyond state boundaries
- **State**
- **Education**: The minimum education level needed for the specific position
- **Years of Experience**: The minimum years of career experience needed to be hired in this role

- **Job Title/ONET Code**: Listing of Job Title and corresponding ONET code, which can allow comparisons on a regional and national level
- **Competency Rankings**: The top three badges for the specific positions
- **Sub Competency Rankings**: Rank of the individual badge sub competencies in order of importance from 1 (most important) to 4 (least important)[1]
- **Tech Skills Entry**: A list of technical skills needed per position different from Badge competencies that can be used to track trends and patterns among these skills.

These categories and data points were collected in an Excel spreadsheet and were easily transferrable to various statistical platforms for analysis. Given the large size of the T-Profile Data Template, it was not added to the appendix but can be submitted as a separate file if requested.

Data Insights from T-Profile

The initial analysis of the T-Profile consisted of T-Profile submissions from the project's postsecondary institution partners: the University of Maine System, San Jose State University, Central New Mexico Community College, the University of Dayton, and their employee-partners. The limited number of total profiles collected restricted the types of analysis that could be conducted (i.e., there was insufficient sample size for statistical analysis of relationships between the different categories). Therefore, T-Profile results were descriptively summarized and provide a baseline foundation for further analysis, as well as a model to collect further data from industry members.

Despite sample size limitations in analyzing the T-Profile category relationships, there were several key insights based upon the overall (and regional) ranking of importance of badge competencies and ranking of the most important sub competencies by badge competency and industry sector and region.

Badge Competencies

As indicated by the various industry members, there was a very equitable distribution of importance among the badge competencies. As illustrated in Figure 1, the badges of most importance were:

- Initiative (17%),
- Oral Communication (16%), and
- Collaboration (16%).

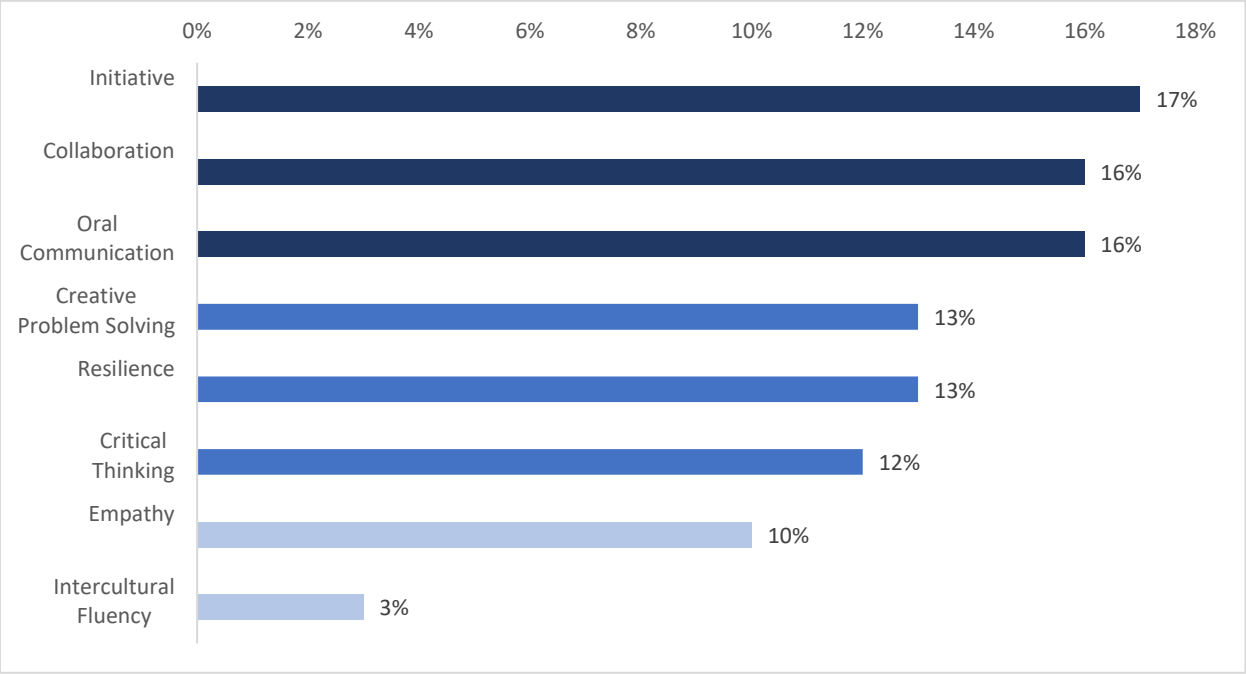
Those badges of least importance were:

- Empathy (10%), and
- Intercultural Fluency (3%).

One interesting insight was that Critical Thinking was listed with relatively low importance (12%) compared to the other badge competencies especially given the continuing emphasis of employer's need for critical thinking from their employees. More data could shed light on this specific competency as highly emphasized with respect to the employment positions.

[1] For analysis, these sub competency ranking were weighted in the following manner: Least Important (4) = 1.0, Slightly Important (3) = 1.25, Important (2) = 1.5, Most Important (1) = 1.75.

Figure 1. Level of Importance of Badge Competencies



Badge Competencies Identified by Employers

Though overall the most important badges were Initiative, Oral Communication, and Collaboration there were differences by Institution Employer-Partners (as indicated in Table 1). For example, Empathy (18%) was selected at a higher level of importance by the University of Maine System employer-partners and Resilience (17%) was highlighted as important by San Jose State University employer-partners. Interesting to note was that while there is a greater emphasis now on multiculturalism, global awareness, or cultural competency in higher education degrees and programs, the Intercultural Fluency badge was rated lowest by employers (3%). This suggests a disconnect between the emphasis placed on multiculturalism and diversity by colleges and universities compared to what employers find valuable.

Table 1. Badge Competencies by Institutional Employer-Partners (Top Three)

Institution	Badge Competency	Percentage
University of Maine System	Creative Problem Solving	27%
	Oral Communication	18%
	Empathy	18%
San Jose State University	Collaboration	19%
	Resilience	17%
	Initiative	17%
Central New Mexico Community College	Initiative	22%
	Collaboration	19%
	Oral Communication	15%

Institution	Badge Competency	Percentage
The University of Dayton	Collaboration	100%
	Critical Thinking	62.5%
	Oral Communication	62.5%

In addition to the most important badge competencies, it was important to understand which competencies were less valued based upon various job roles (Table 2). A key pattern emerged of Intercultural Fluency not being as desirable of a workplace competency among industry representatives. A possible explanation for the lower rankings of Intercultural Fluency was the relatively larger amount of IT, Financial, and STEM-focused industry T-Profile submissions, which seemed to emphasize more Collaboration among teams, Oral Communication between coworkers and presenting information, and Initiative to problem solving approach.

Table 2. Badge Competencies by Institutional Employer-Partners (Lowest Three)

Institution	Badge Competency	Percentage
University of Maine System	Collaboration	6%
	Intercultural Fluency	3%
	Initiative	3%
San Jose State University	Creative Problem Solving	11%
	Intercultural Fluency	6%
	Empathy	6%
Central New Mexico Community College	Empathy	9%
	Creative Problem Solving	8%
	Intercultural Fluency	3%
The University of Dayton	Empathy	12.5%
	Resilience	12.5%
	Intercultural Fluency	0%

Badge Competencies by Industry

Table 3 outlines the most important badge competencies by industry as well as the top sub-competencies within those badges. For example, in the Healthcare sector, the badges of Empathy and Creative Problem Solving were the competences most needed to succeed. Within the competency of Empathy, the sub-competency of Identify Patterns was selected as most important.

Table 3. Badge Competencies and Sub-competencies By Industry Sector

Industry Sector	Top Competency/ Competencies	Sub-competency Ranking within Top Competency
Healthcare	Empathy	Identify Patterns
	Creative Problem Solving	Manage Ambiguity
	Collaboration	Listen Actively
		Diverse Perspectives
Hospitality	Collaboration	Focus on Solutions
		Diverse Perspectives
Information Technology	Critical Thinking	Draw Conclusions
		Gather and Access Relevant Data
	Oral Communication	Storytelling
		Adapt Tone and Word Choice
Education	Collaboration	Listen Actively
Finance	Resilience	Self-Awareness
	Creative Problem Solving	Manage Ambiguity and Iteration
	Initiative	Lead without a Title
Government	Oral Communication	Listen Actively and Adapt Tone
	Collaboration	Listen Actively

Sub-Competency Analysis by Badge Competency

A prominent theme among the top ranked sub-competencies was the ability to listen actively in these specific job roles. Given that listen actively covers multiple sub-competencies, it was not surprising that it was listed higher; however, it reinforced the need to emphasize how listening skills are applied across industry areas. Table 4 lists the badge competency and the frequency list of the top two sub-competencies for each corresponding badge competency.

Table 4. Sub-Competencies (Top Two by importance level) by Competencies

Competency	Sub-competency Ranking*
Critical Thinking	1. Draw Conclusion 2. Gather and Access Relative Data
Initiative	1. Learn from Experience 2. Lead without a Title (Tie) Act as a Catalyst
Collaboration	1. Listen Actively 2. Focus on Solutions (Tie) Diverse Perspectives
Creative Problem Solving	1. Identify Patterns 2. Manage Ambiguity

Competency	Sub-competency Ranking*
Intercultural Fluency	1. Diverse Perspectives 2. Self-Awareness (Tie) Curiosity
Empathy	1. Listen Actively 2. Recognize Needs
Resilience	1. Learn from Experience 2. Self-Awareness
Oral Communication	1. Listen Actively 2. Adapt Tone/Word Choice

***** Most important and slightly important

Recommendations

While most of the T-Profiles were gathered in face-to-face live design thinking sessions, there was a need to build out the online interactive T-Profile to collect more examples virtually and provide a more streamlined data repository. The Education Design Lab followed previous interim report recommendations and has developed an online virtual T-Profile. It is available at https://docs.google.com/spreadsheets/d/1qk9ZlX-j7cie5DYRxh-KknGlPFNeM3vlwdKUCdnczF0/edit?usp=sharing.

Employers' Digital First Impressions

Another key foundation for understanding and aligning the competencies and sub-competencies for the eight badges was the preparation of potential employees for specific job positions and understanding how employers recognized and used those badges in the hiring process. The Digital First Impressions allowed employers to indicate which activities or employment documentation were relevant for a specific job position, as well as at what point they are considered in the hiring process.

The Digital First Impressions was foundational in collecting information about the importance and timeliness of employment materials. This activity compared employers' impressions of their own hiring processes before and after consideration of the 21st Century badges. This section outlines the current and potential future hiring processes. The Digital First Impressions collected during employer summit meetings provided relative values of importance and order in the hiring process thus all calculations and visualization maps have been approximated.

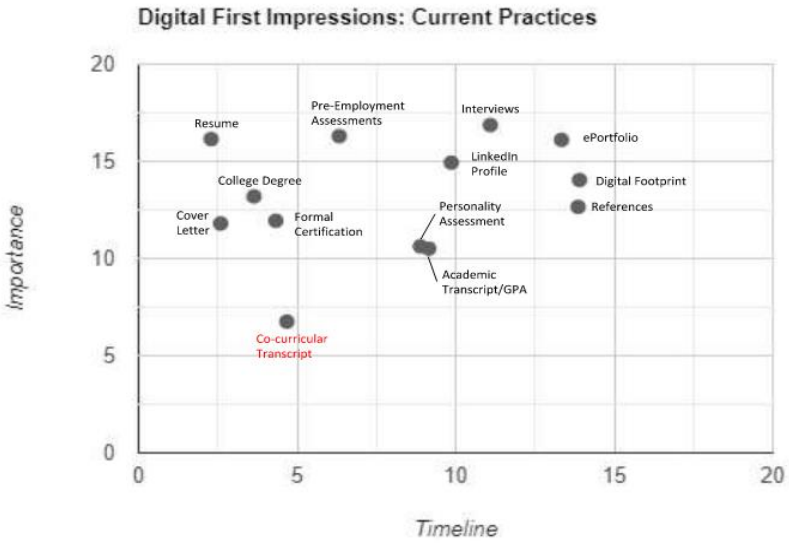
The data were collected as a set of current practices and after the badge presentation to determine: 1) how employers might consider using the badges in the hiring process, 2) the importance for the current artifacts, and 3) the timeline when those artifacts should be considered.

Data Collection and Synthesis

Resume and Cover Letters are still the foremost application materials in the hiring process and employers consider those as relatively important. Completing College, a Formal Certification, and Pre-employment Assessment of Skills were also considered relatively early in

the hiring process and were considered important but to a lesser degree. Later in the process and with the most importance overall was the Interview. Latest in the process, and with less importance, came consideration of an Electronic Presence and Reference Checks. provides an overview of the current state of the hiring process, focusing on the importance of what was considered, as well as at what stage it was considered. Figure 3 provides an overview of the future potential state of the hiring process, focusing on the timeline and importance of the elements of hiring artifacts and practices.

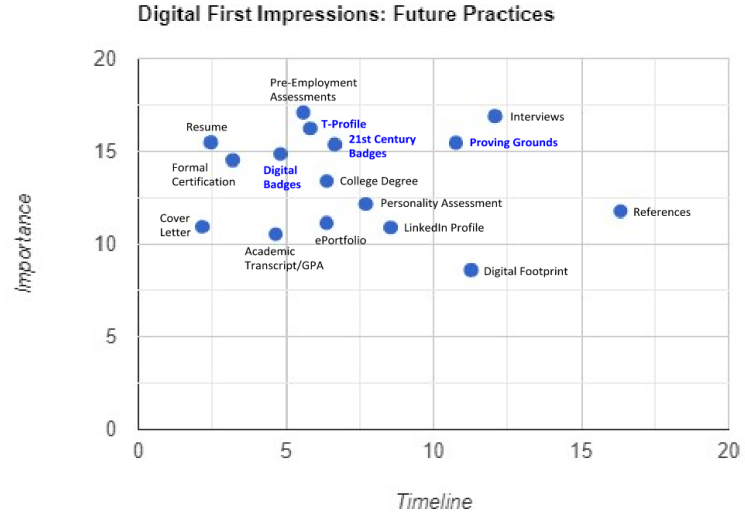
Figure 2. Current Hiring Practices: Aggregate Mapping of Importance and Timing



Note: The horizontal axis measures the earlier (left) to later (right) in the hiring process these are considered, while the vertical axis measures the importance of each activity.

Practices in red do not appear in the Future Hiring Practices.

Figure 3. Future Hiring Practices: Aggregate Mapping of Importance and Timing



Note: The horizontal axis measures the earlier (left) to later (right) in the hiring process these are considered, while the vertical axis measures the importance of each activity.

Practices in blue were added based on the 21st Century Digital Badge Presentations and did not appear in the Current Hiring Practices.

The individual responses used in this aggregate are included in Appendices B (Current Practices) and C (Future Practices and Perspectives). The calculated averages for all artifacts and practices are included in Appendix D. This also includes the differences between current and future practices after the 21st Century Digital Badges were introduced and considered.

Data Discussions about the Digital First Impressions

Co-curricular transcripts were the only hiring practice that was measured in the current practices but did not appear in the future hiring considerations. Significant decreases on timeline were reported by hiring managers in reference checks and college degree/major. Decreases in importance were noted in considering formal certifications and personality assessments.

Interesting to note that increases were reported in timeline consideration for academic transcripts/GPAs, formal certifications, personality assessments, ePortfolios, LinkedIn profiles, and digital footprint artifacts when hiring candidates. Importance increases emphasized digital considerations, such as ePortfolios, LinkedIn profiles, and digital footprints. These increases indicate an increase by employers to consider a new hire/applicant's online presence during the hiring process.

There are changes of note for formal certification and personality assessments which decreased in importance but were moved up in the hiring timeline. This should be examined deeper to determine why this has occurred.

The Education Design Lab's 21st Century Digital Micro-credentials are well-positioned to clearly make significant changes in the current hiring process if and when they are adopted and recognized by employers with the same level of respect carried by a college degree or other industry credentials.

#BadgedtoHire College Partner Update

Many colleges had to alter their approach to coursework and classes starting in Spring 2020 through Summer 2021 based on the COVID-19 pandemic. As each campus pivoted and adjusted to changes in their delivery and support services, the badge initiative, through the campus coordinators, also had to adjust. For example, focus groups data collection were conducted remotely through an online virtual conferencing platform.

a. University of Maine System (UMS)

The University of Maine badge initiative started with a different approach than the other partner schools by offering the badges as embedded components of an academic course as well as to external extracurricular student groups. The badges delivery mechanism was adjusted to respond to the COVID-19 pandemic, which closed UMS campuses to visitors.

UMS expanded the badges initiative to all interested system students for the Summer of 2020 with no relation to coursework or program of study. The IRB approved modifications to reflect the expanded badge offerings and virtual conferencing for focus groups. The approval of the IRB application also accounted for the rolling admissions and registration of students during the remote learning of the Summer 2020 semester by entering information onto a Google spreadsheet for the researchers to distribute pre- and post-surveys, as well as selecting focus group participants. Rolling admission and registration into the badge experiences required a different way for researchers to collect student qualitative feedback and narrative. New tools for student focus groups were adopted that allowed for asynchronous focus group feedback, however, it was not utilized by students being recruited, thus, the evaluation shifted back to the original model on regular student outreach to gather student perspectives.

b. San Jose State University

San Jose State University (SJSU) badge initiative underwent many changes driven by Institutional Review Board (IRB) revisions and modifications to the research plan. Initially, the Oral Communications badge was to be embedded within the curriculum of the BUS 16: Business Communications course. SJSU IRB required all surveys to be conducted via Qualtrics rather than SurveyMonkey (now Momentive) to address concerns over student privacy and data security. Due to a delay in IRB approval, the opportunity to collect information from BUS 16 students was lost. The badges initiative was also complicated by the COVID-19 pandemic, which closed the SJSU campus to visitors. Informal feedback from students who participated in the Oral Communications badge was collected through instructors and forwarded to Education Design Lab for consideration. As there was no IRB in place for the Fall 2019 and Spring 2020 semesters, there was no formal data and feedback collection for the students participating in those semesters.

San Jose State expanded the badges initiative to all interested instructors for the Fall 2020 semester. Dr. Bobbi Makani, a nursing faculty, took the lead in designing courses that utilized current assessments and activities and aligned the badges to the current curriculum. She also changed the Proving Grounds and Assessments of the badges to make all the badge activities relevant to SJSU courses and programs. Dr. Makani used her experience to guide other SJSU faculty into adopting the badges into their courses.

The IRB approved modifications that reflected the expanded classes and virtual conferencing for focus groups. The approval of the IRB application placed the coordinator into a much more active role in student records data collection and the removal of student identification information. The distribution of survey links and selection for focus group participation also fell in the responsibilities of the coordinator.

During the pandemic, the SJSU #BadgedtoHire coordinator role was shifted from a senior institutional administrator to the Director of the Career Center. Again, due to the nature of the pandemic, very little notice or information was shared in the transition, however, adjustments were made to keep the project on task.

Even though San Jose State University was an initial partner in this initiative, when informed of the one-year extension, SJSU chose to end its participation with this research study to focus on other pandemic-related activities and initiatives. Additionally, feedback was provided in conversations with the coordinator and instructors that the institution's President has also supported the incorporation and use of alternative badging and skill-building platforms throughout numerous programs to address the same needs identified by the Education Design Labs #BadgedtoHire team. This has created confusion and a "watering down" of the effects of this initiative.

c. Central New Mexico Community College

The Central New Mexico Community College (CNM) badge initiative also underwent many changes driven by the COVID-19 pandemic which closed many campuses to visitors and course delivery. Initially, numerous badges were embedded within the curriculum of courses within the Advanced Manufacturing and Retail Management programs. CNM IRB approval was given in the Spring 2020 semester, however, the opportunity to collect information from badge experience students was altered due to the pandemic.

To provide greater opportunities of workforce preparedness to CNM students, the CNM Coordinator expanded the badges initiative to local employers during the Summer 2020. These new learners were covered under a new model of corporate college and executive education rather than the traditional embedded model. The IRB approved modifications to reflect the expanded badge experiences and virtual conferencing for focus groups. The approval of the IRB application placed the coordinator into a much more engaged role in student survey links and selection for focus group participation also fell onto the responsibility of the coordinator.

The badges were offered to current and potential new employees through Human Resources in their respective companies, which allowed for the measurement of using the badges for career and personal development, retention and promotion, and job performance. The employers who adopted the #BadgedtoHire curriculum served as support and monitor of badge earner progress. This greatly impacted the retention and completion of the badges for this institution.

Like SJSU, Central New Mexico Community College was an initial partner in this initiative. However, when informed of the one-year extension and with the retirement of the institutional coordinator for micro-credentialing, CNM chose to end its participation with this research study. Feedback to the evaluator indicated that the institution will be supporting the continued incorporation and use of the Education Design Lab badging curriculum with employers as a tool to retrain, retain, and promote current employees. The retiring CNM Coordinator indicated that this was a new unanticipated approach addressing the same needs identified by the Education Design Labs #BadgedtoHire team.

d. The University of Dayton

The University of Dayton has been a strong proponent of badges with the implementation of the Institute of Applied Creativity for Transformation (IACT). This project has had consistent leadership. The IACT Director has a strong voice to the institutional administration to promote incorporation of badges and micro-credentialing into academic coursework. Additionally, the IACT Director has worked closely with industry partners to make sure that all badges are well-aligned with industry needs for entry-level workers.

Additionally, since the IACT has its own curriculum, the challenges felt by other institutions were not noted. It was an easy adaption for badges to be inserted and awarded within the curriculum. The Executive Director was able to be hands-on and taught in the classrooms, the curriculum challenges by other schools were already decreased and students were much more engaged and enthusiastic about participating in this project. Additionally, there was incentive for the Director to encourage regular participation in feedback on the badges throughout UD's engagement.

The University of Dayton joined this project when SJSU and CNM exited the project in year 3, however, the data and student access provided was invaluable to this evaluation report.

Table 5. Badge Completion Demographics from Institutional Research Data Reports

	Univ of Maine System (UMS) [*n* = 132]	**San Jose State Univ (SJSU) [*n* = 556]**	**Central New Mexico (CNM) [*n* = 188]**	**Univ of Dayton (UD) [*n* = 332]**	**Totals**
Gender					
Male	60 (45%)	258 (46%)	89 (47%)	**150 (55%)**	**557 (46%)**
Female	72 (55%)	296 (53%)	97 (52%)	**181 (45%)**	**646 (54%)**
Race/Ethnicity					
White or Caucasian	114 (86%)	81 (15%)	60 (32%)	**255 (77%)**	**510 (45%)**
Black or African American	1 (1%)	16 (3%)	4 (2%)	**20 (6%)**	**41 (4%)**
Hispanic or Latino(a)	8 (6%)	91 (16%)	49 (26%)	**21 (6%)**	**159 (14%)**
Asian American	3 (2%)	321 (58%)	0 (0%)	**23 (7%)**	**347 (31%)**
Hawaiian or Pacific Islander	0 (0%)	2 (0.4%)	0 (0%)	**2 (0.6%)**	**4 (0.04%)**
Native American or Alaska Native	0 (0%)	1 (0.2%)	0 (0%)	3 (1%)	**4 (0.04%)**
2 or more races	3 (2%)	3 (1%)	6 (3%)	8 (2%)	**20 (2%)**
Unknown or No response	1 (1%)	39 (7%)	7 (4%)	0 (0%)	**47 (4%)**
Enrollment Status					
Full time	122 (92%)	329*	NR	289	**720 (88%)**
Part-time	10 (8%)	67*	NR	32	**109 (13%)**
Classification					
Freshmen	NR	188 (34%)	NR	34 (10%)	**222 (26%)**
Sophomore	NR	10 (2%)	NR	67 (20%)	**77 (9%)**
Junior	NR	44 (8%)	NR	66 (20%)	**110 (13%)**
Senior	NR	297 (53%)	NR	157 (47%)	**454 (53%)**
Graduate/Post-Baccalaureate	NR	15 (3%)	NR	NR	**15 (2%)**
Badges					
Oral Communication	88	318	29	43	**478**
Critical Thinking	0	180	0	41	**221**
Collaboration	0	17	0	197	**214**
Creative Problem Solving	0	39	73	89	**201**
Intercultural Fluency	0	0	13	0	**13**
Resilience	0	1	36	62	**99**
Empathy	0	1	36	76	**113**

	Univ of Maine System (UMS) [*n* = 132]	San Jose State Univ (SJSU) [*n* = 556]	Central New Mexico (CNM) [*n* = 188]	Univ of Dayton (UD) [*n* = 332]	Totals
Academic Information					
Average GPA	3.69 (SD 0.32)	3.39 (SD 0.58)	3.64 (SD 0.58)	3.01 (SD 1.02)	
Retention Rate	NR	538 (97%)	AY18 – 75 (62%) AY19 – 81 (66%) AY20 – 66 (54%)	156 (96.3%)	
Course Completion Rate	132 (100%)	556 (100%)	NR	NR	
Degree Completion Rate	NR	175 (32%)	59 (48%)	18	

Note: UMS and CNM offered the badges to employer partners or to the community/non-student populations, therefore the percentages are based only on enrolled student populations reported. NR = Not Relevant/Non-student respondent.

*SJSU reported this information for AY 2020-21 year only.

** UD reported this information for the AY 2021-22 year only.

Preliminary All-Institutional Cumulative Survey Student Demographic Responses

The demographics from 332 cumulative survey responses for all four participating institutions are presented in this section. Students were most likely to be female (52%), White (70%), and between 18 and 24 years old (82%). Based on the demographics of the universities in this study, this was not unexpected since they enroll this traditional age population. More surprising was the lack of underrepresented minorities who participated in the surveys compared to those who completed the badges reported by institutional data. It should be noted that many students refused to identify their demographic information since it was voluntary.

Table 6. All-Institutional Cumulative Race/Ethnicity

Race/Ethnicity (*n* = 332)	Number	Percent
White	255	76.8%
Hispanic or Latino/a	21	6.3%
Black or African American	20	6.0%
Asian	23	6.9%
American Indian or Alaska Native	3	0.9%
Other or No Response	8	0.6%

Table 7. All-Institutional Cumulative Pre-Survey Employment, First Generation in College, and Financial Aid Demographics

Status	Number	Percent
First Generation in College (*n* = 328)	56	16.9%
Received Financial Aid (*n* = 326)	254	76.5%
Employment (*n* = 321)		
Yes, full time	60	18.1%
Yes, part-time	115	34.6%
Not externally employed	146	44.0%

In addition, 87% of the badge learners were enrolled full-time while 17% were first generation in college (Table 6). Almost one-fifth of respondents reported that they are working externally full-time, 34.6% working part-time, and 44% not employed externally. Most students (47.3%) were at the end of their program (defined as within 24 credits of graduation), with 40.1% in the middle of their program, and 10.2% with 24 or fewer credits in their program of study. This might suggest that students who responded to the survey were not beginning students and thus preparing for careers after completing their degrees. The overwhelming majority (76.5%) received financial aid.

Table 8. All-Institutional Cumulative Major Field of Study

Major Field of Study (*n* = 317)	Number	Percent
Business majors (include Accounting, Entrepreneurship, Finance, Health Services Administration, Sports Management, International Business, Management, Marketing)	110	33.1%
Education majors (include Art Education, Secondary Education, and Special Education)	5	1.5%
Humanities majors (include English, Creative Arts, History, Pre-Law, and Communication)	23	6.9%
Social Sciences majors (include Criminal Justice, Human Rights Studies, Economics, Psychology, and Sociology)	40	12.0%
STEM majors (include Biology, Sport & Wellness, Exercise Science, Health Science, Nursing, Pre-medicine, Mechanical Engineering, Civil Engineering, Computer Engineering, and Electrical Engineering)	139	41.9%

The top three common badges indicated by survey respondents were: Collaboration, Empathy, and Creative Problem Solving. The lowest badge pursuits indicated by survey respondents were Critical Thinking, Initiative, and Oral Communications. It is interesting that while the majority of student were pursuing the Oral Communications badge, as reported by institutional data, Oral Communications had the fewest survey respondents. It should also be

noted that there were no reported survey responses reporting pursuit of the Intercultural Fluency badge.

Badge Skill Confidence Comparison and Analysis

In previous research by The Lab, employers reported that although students expressed a confidence in many of the desired badge skills, they were unable to present those on a resume, during an interview, or through application. To establish a baseline of student confidence, the badge pursuers answered specific questions about their confidence in relating the badge competency. This allowed for students to reconsider their own confidence when expressing the skills after the badge experience and demonstrate learners' development over the course of the badge. In addition, this research investigated if these students indicated any differences in confidence levels based upon a variety on potential pre-employment opportunities. The following questions related to the students' self-rated confidence on the badge content as applied:

- How confident do you feel expressing the knowledge of your badge on a resume?
- How confident do you feel expressing the knowledge of your badge through application or example?
- How confident do you feel expressing the knowledge of your badge in an interview?

The researchers assigned ratings of

- 5 for responses of Completely Confident,
- 4 for Confident,
- 3 for Confident with Some Work to Do,
- 2 for Minimally Confident, and
- 1 for Not at all Confident

These numerical designations allowed for a quantification of confidence ratings. Table 6 presents an aggregated quantitative presentation of the confidence data.

Table 6. Comparative All-Institutional Comprehensive Pre-Badge and Post-Badge Confidence Data.

	Cross-Institutional	
Confidence Expressed	**Pre (SD)**	**Post (SD)**
…on a Resume	**3.33 (1.16)**	**3.90 (0.98)**
…in an Interview	**3.24 (1.11)**	**3.84 (1.04)**
…in Application	**3.33 (1.08)**	**3.97 (1.04)**

Pre-Badge Survey Confidence Levels

Resume

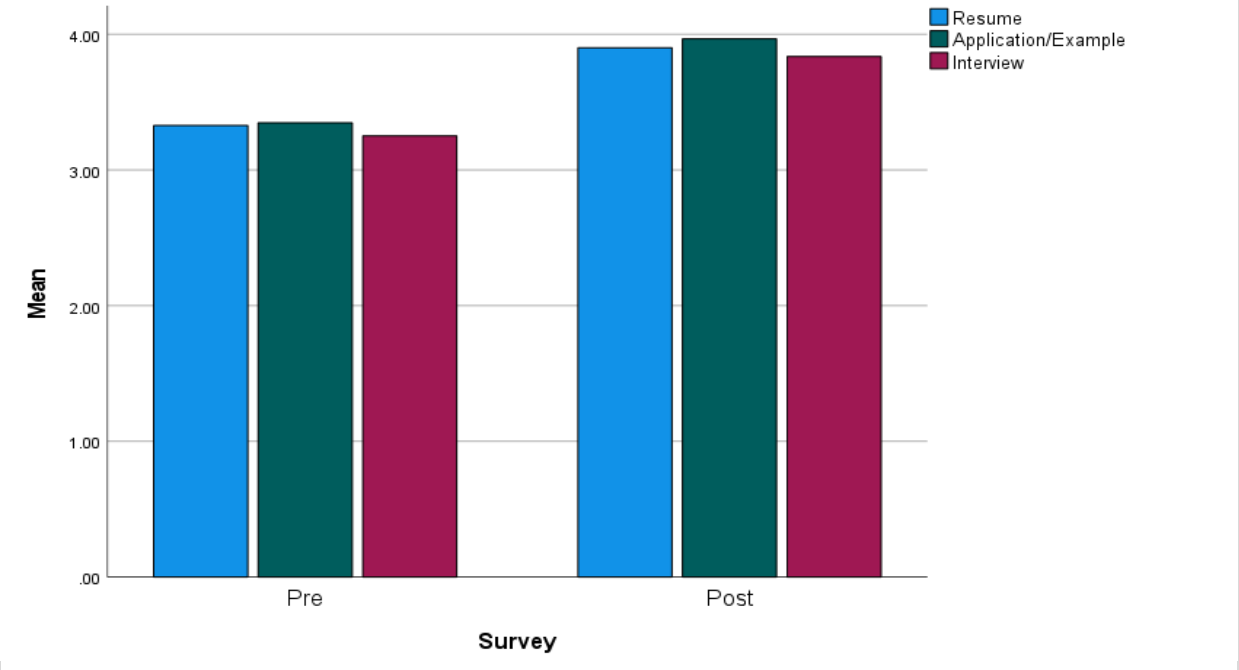
The first pre-employment confidence rating focused on a learner's confidence on expressing their badge on a resume. Figure 4 presents the confidence level of the 207 learners, prior to the badge experience, relating the specific badge competency on a resume to a potential job role. Thirty-six percent of all learners responding to the Pre-Badge Survey indicated they were Confident or Completely Confident in their ability to express badge information on a resume. Conversely, only 31% were Not at All Confident or Minimally Confident on how they can express the badge knowledge on a resume. The mean pre-badge confidence rating for resume

expression was 3.32 (1.16 standard deviation [SD]) indicating that respondents were Confident with Some Work to Do.

Example or Application

The second pre-employment confidence rating focused on a learner's confidence on expressing their badge in an applicable way. Figure 4 indicates how learners prior to the badge experience feel about relating the specific badge competency as an example to a potential job role. Relating the badge competency to potential employers through application, 81% of badge earners expressed Complete Confidence or Confidence in presenting these competencies in the job search process. Sixteen percent of pre-badge survey respondents rated themselves as Minimally Confident or Not at All Confident. The mean pre-badge confidence rating for resume expression was 3.33 (1.08 SD) indicating that respondents were Confident with Some Work to Do.

Figure 4. Pre-Badge Learners Confidence on Expressing the Knowledge of Badge



Interview

The third pre-employment confidence rating focused on a learner's confidence on expressing their badge knowledge in the interview process. Figure 4 indicates that prior to the badge experience 38% of badge earners felt Confident or Completely Confident about relating the specific badge competency on in an interview and illustrated a triangulation in confidence levels as compared to expression of badge knowledge through their resume or application. The mean pre-badge confidence rating for resume expression was 3.24 (1.11 SD) indicating that respondents were Confident with Some Work to Do.

Sub-Competency Analysis

As outlined in the T-Profile Development section, there are eight badges each with four respective sub-competencies. The pre-badge learners viewed the importance of specific sub-

competencies within their badge experience as it related to obtaining employment. The only badge that was currently not assessed by the badge earners was Intercultural Fluency.

Table 10. Pre-Badge Learners Confidence on Expressing the Knowledge of Badge

Badge	Survey	Min	Max	Mean	Std. Deviation
Collaboration	Resume	2.00	5.00	3.81	1.08
	Application	2.00	5.00	3.63	0.97
	Interview	2.00	5.00	3.67	0.96
Creative Problem Solving	Resume	1.00	5.00	3.02	1.23
	Application	1.00	5.00	3.02	1.16
	Interview	1.00	5.00	3.07	1.20
Critical Thinking	Resume	1.00	5.00	3.42	1.12
	Application	2.00	5.00	3.63	1.01
	Interview	1.00	5.00	3.42	1.17
Empathy	Resume	1.00	5.00	3.28	1.12
	Application	1.00	5.00	3.37	1.07
	Interview	1.00	5.00	3.20	1.05
Initiative	Resume	1.00	5.00	3.65	1.06
	Application	2.00	5.00	3.35	1.06
	Interview	2.00	5.00	3.18	1.07
Oral Communication	Resume	1.00	5.00	2.83	1.11
	Application	2.00	5.00	3.00	0.95
	Interview	2.00	5.00	2.83	1.03
Resilience	Resume	1.00	5.00	3.39	1.15
	Application	1.00	5.00	3.42	1.13
	Interview	1.00	5.00	3.28	1.19

Post-Badge Survey Confidence Levels

There were a majority females who responded to the post-badge completion survey (60%), with the overwhelming majority (88%) of post-badge survey respondents identified as white with only 12% being underrepresented minorities. Additionally, 94% of the post-badge survey respondents were traditional-aged college students 18 – 24 years old. Ninety-two percent were full-time in college and 10% were first generation in college. Almost half (49.6%) were at the end of their program while only 7% were at the beginning of their program. Almost half were employed with 9% employed full-time and 37% employed part-time. Only 18% were receiving financial aid while in college.

Post-Badge Confidence Levels Regarding Badge Competencies

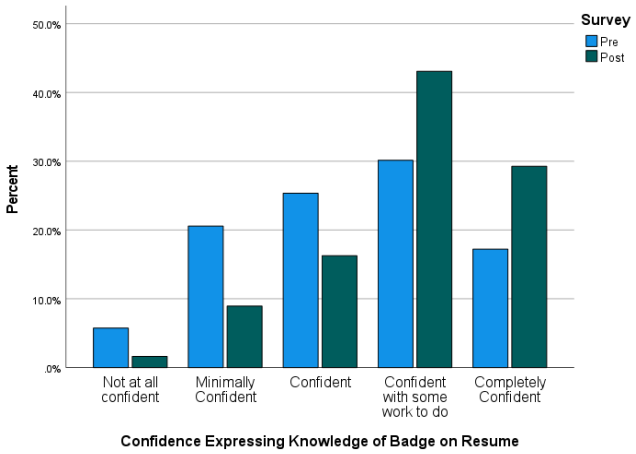
Table 11. Post-Badge Learners Confidence on Expressing the Knowledge of Badge

Badge	Survey	Min	Max	Mean	Std. Deviation
Collaboration	Resume	2.00	5.00	3.79	0.97
	Application	2.00	5.00	3.91	0.97
	Interview	2.00	5.00	3.77	0.99
Creative Problem Solving	Resume	1.00	5.00	4.26	0.87
	Application	1.00	5.00	4.00	1.20
	Interview	1.00	5.00	3.79	1.13
Critical Thinking	Resume	1.00	5.00	4.50	.84
	Application	2.00	5.00	4.00	1.10
	Interview	1.00	5.00	4.00	1.10
Empathy	Resume	1.00	5.00	3.59	1.23
	Application	1.00	5.00	3.76	1.30
	Interview	1.00	5.00	3.65	1.37
Initiative	Resume	1.00	5.00	4.00	0.76
	Application	2.00	5.00	3.88	1.13
	Interview	2.00	5.00	4.13	.833
Oral Communication	Resume	1.00	5.00	3.50	1.22
	Application	2.00	5.00	4.17	1.17
	Interview	2.00	5.00	3.67	1.03
Resilience	Resume	1.00	5.00	4.08	0.76
	Application	1.00	5.00	4.38	0.65
	Interview	1.00	5.00	4.23	0.73

Resume

Table 11 presents the confidence level of learners, after the badge experience, relating the specific badge competency on a resume to a potential job role. Almost three-fourths (72%) of badge earners responding to the Post-Badge Survey indicated they are Confident or Completely Confident in their ability to express badge information on a resume. Conversely, only 11% were Not at All Confident or Minimally Confident on how they can express the badge knowledge on a resume. This documented a strong increase in confidence from pre-badge to post-badge completion.

Figure 5. Confidence Expressing Knowledge of Badge on Resume

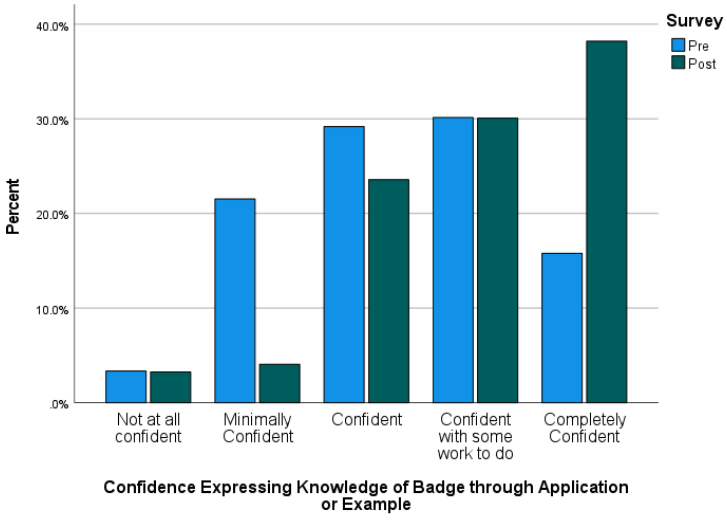


The mean pre-survey resume confidence score ($\bar{x}$ = 3.33, sd = 1.16) was compared to the mean post-survey resume confidence score ($\bar{x}$ = 3.90, sd = 0.98). On average, post-survey confidence was 0.57 points higher than pre-survey confidence (t_{287} = -4.78, p < .05), with a large effect size (d = 1.1). Participation in the badging program may help increase confidence in expressing knowledge of the badge on a resume and those difference within this research is attributable to the badge learning and experiences.

Example or Application

The second pre-employment confidence rating focused on a learner's confidence on expressing their badge in an applicable way. Figure 6 indicates how learners after completing the badge experience feel about relating the specific badge competency as an example to a potential job role. Relating the badge competency to potential employers through application, 68% of badge earners expressed Complete Confidence or Confidence in presenting these competencies in the job search process through Application. Few (9%) post-badge survey respondents rated themselves as Minimally Confident or Not at All Confident.

Figure 6. Confidence Expressing Knowledge of Badge through Application or Example



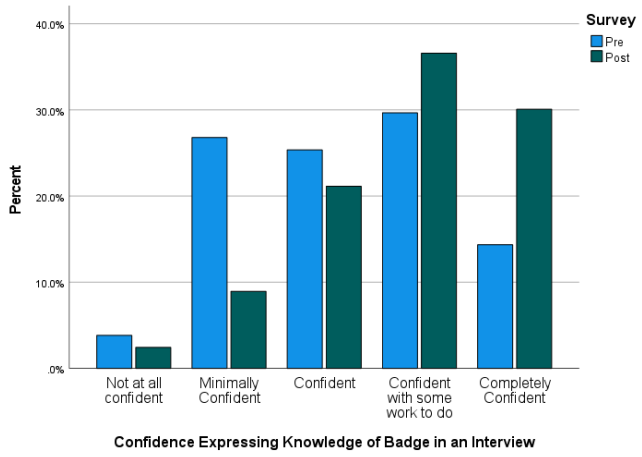
The mean pre-survey application confidence score ($\bar{x}$ = 3.33, sd = 1.01) was compared to the mean post-survey application confidence score ($\bar{x}$ = 3.97, sd = 1.04). On average, post-survey confidence was 0.63 points higher than pre-survey confidence (t_{329}= -

5.2, $p > .05$), with a large effect size (d=1.07). Therefore, the difference was not significant and the difference could not be solely attributed to the badge content and learning exercises.

Interview

The third pre-employment confidence rating focused on a learner's confidence on expressing their badge knowledge in the interview process. Figure 7 indicates that 67% of badge earners after their badge experience felt Confident or Completely Confident about relating the specific badge competency on in an Interview. This self-reported confidence from the surveys documented increased confidence levels as compared to expression of badge knowledge through their Resume or Application.

Figure 7. Confidence Expressing Knowledge of Badge in an Interview

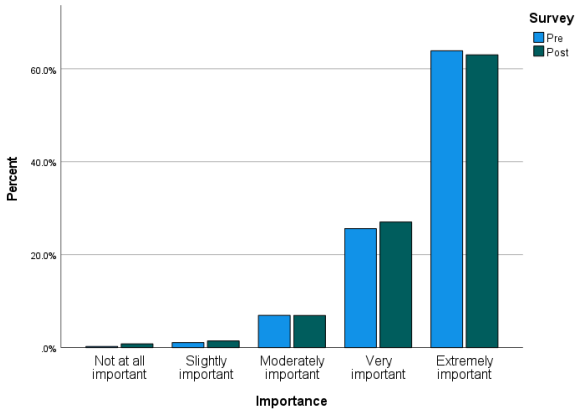


The mean pre-survey resume confidence score ($\bar{x}$ = 3.24, sd = 1.11) was compared to the mean post-survey resume confidence score ($\bar{x}$ = 3.84, sd = 1.04). On average, post-survey confidence was 0.6 points higher than pre-survey confidence (t_{329} = -4.82, $p > .05$), with a large effect size (d = 1.09). Therefore, the difference was not significant and the difference could not be solely attributed to the badge content and learning exercises.

Importance Perception by Students

Survey responses on student perceptions of importance in the badge competencies indicated that there was no shift in importance before and after students completed the badges.

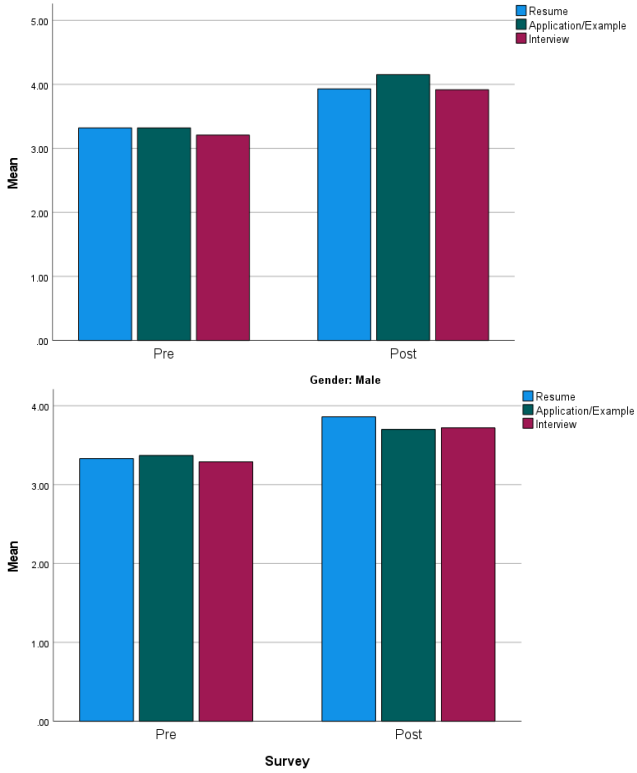
Figure 8. Student Perception of Importance



The mean pre-survey sub-competency importance score ($\bar{x}$=4.55, sd=0.70) was compared to the mean post-survey resume confidence score ($\bar{x}$=4.51, sd=0.76). On average, post-survey confidence was 0.04 points lower than pre-survey confidence (t_{1303}= .99, $p > .05$), with a large effect size (d = 0.72).

Student written responses to open-ended questions about strengths were positive and are included in Appendix C. Opportunities for improvements indicated a genuine interest in improving the badges curriculum and activities. The most effective parts from a student perspective were the ability to focus on the sub-competencies within the badge, collaboration with fellow students and the opportunity to reflect on the badge content, and learning skills that will apply to future careers, such as leading without a title, convergent and divergent thinking, and iterative processes.

Figure 9. Confidence Expressing Badge Competencies by Gender



Students made positive and well-thought-out improvement suggestions, which are included in Appendix C. The students wanted to see more innovative and up-to-date content, especially from instructors who did not adapt the badge content to the specific class or program. Additionally, more detailed support for the use of external programs was also mentioned. They also commented on specific modules such as expanding the storytelling sub-competency on story arcs, conflict, and telling the truth through stories.

Pre-Badge and Post-Badge Confidence by Gender.

While confidence increased in expressing badge competencies in all areas, women reported a greater confidence increase when expressing their badge competencies through application or example (Figure 9). Men indicated their confidence increased when expressing their badge competencies on a resume.

Instructor Interviews

All instructors were invited through the institution coordinators to discuss their perceptions and evaluation of the #BadgedtoHire initiative. Nearly half (8) of the twenty intervention instructors and coordinators responded. There were several pieces of feedback that are important to the holistic evaluation of the curriculum. The primary research design addressed by this data was the triangulation of results between instructor/facilitator, students, and employers.

> I liked the self-reflection aspect of what we learned after each work day. The modules were a great opportunity to gather all of the information we learned in one day and re-cap on what we could do better next time or see what we did a great job on that day.
>
> -Student Response

Instructor Overall Interview Summary

Instructors were introduced to the badges from multiple sources, mostly from another faculty champion. As one instructor indicated, “Success breeds success” and when she saw how much the lead instructor enjoyed teaching the badges and what the students were saying about it, she decided to incorporate it into her classes. She appreciated making the tweaks for her individual program and course as she incorporated the badge content beside her academic curriculum. At one institution, senior course faculty took the initiative to tailor the badges to their program and course content and implemented the tailored badge curriculum in Fall 2020.

Instructor Perception on Student Confidence on Expressing Badge Skills on a Resume

Instructors and badge facilitators rated students as Confident or Confident with Some Work to Do in expressing the badge content on a resume. Some noticed that while participant motivation played a major factor in the badge completion, the badge content was seen as relevant to current and future job expectations. There was an appreciation for the ability to adapt the badge content to relevant job descriptions and skills, especially with Critical Thinking. Challenges on resume expression were seen in the Oral Communications badge because many concepts were covered in the badge and some aspects, like storytelling, could be lost in how to map that skill to a job. One instructor mentioned that she had to reinforce how to be definitive in student oral expression, as compared to random storytelling, to see the relation to job requirements or skills.

> Active listening as a sub-component for oral communication changed students' perceptions as to a more complete understanding of the badge skill and competency. This allowed students to take their learning a step further to identify their strengths and work holistically to gain a whole scale approach.
>
> -Badge facilitator interview

Instructor Perception on Student Confidence on Expressing Badge Skills in an Interview

Instructors and badge facilitators rated the students' ability to express or demonstrate their badge knowledge in an interview as Highly Confident, but at least one felt like student motivation played a major factor in their rating. This rating was much higher than the resume and application expression as instructors could see the badge skills demonstrated "off the top of students' heads" during an interview, rather than the intentional expression on a resume.

> The badges showed a new way to demonstrate knowledge for my students. It prepared students as if they were interviewing for their next job.
>
> -Instructor Interview

Instructor Perception of Badge Skills on Workforce Relevance

Instructors and badge facilitators almost uniformly agreed that the badges were relevant and useful to students as they prepared to the workforce. They indicated that the embedded parts of the badges, such as video submissions and group work, re-emphasized the true aspects of real-world work environments and helped students prepare. One mentioned specifically that with the pandemic, building numerous videos within e-portfolios helped document student development from the beginning. It was mentioned more than once that other staff and instructors who did not have the badges embedded noticed the student improvements as well. In one interview, the nursing faculty member indicated that the patient-focused scenarios were particularly helpful for students and instructors were able to expand discussions into moral issues around nursing that were sometimes

> The badge content was wonderful for the students. They enjoyed learning about the individual components of a badge skill while embedded into their course activity.
>
> -Instructor Interview

overlooked. The instructor thought that students would be better equipped to handle their emotional intelligence on their future employment pursuits. Instructors also liked the assessment at beginning and end of the badges to demonstrate growth.

At San Jose State University, the badges were inserted as part of summer externship/internship course. The specific skill-application identified in the badges embedded in the academic program were reinforced through visiting external facilities and in the students' paid internship. The students' journal reflections highlighted that reinforcement. It was also brought up that the skills taught in the communication badge were very helpful for students in some of the programs.

Most Effective

Instructors were asked about the most effective aspects of the badge content. This led to an "aha moment" during the interview to point out that students finally started to notice how all the sub-components fit into to their particular badge and what sub-components they need to work on. For example, instructors reported that active listening as a sub-component for Oral Communication changed students' perceptions from a narrow perspective of Oral Communication to a more complete understanding of the badge skill and competency. This allowed students to take their learning a step further to identify their strengths and work holistically to gain a whole scale approach. It was emphasized that students put a lot of energy into the assignments and sub-competencies.

Instructors and facilitators again mentioned the adaptability of the badges for students. Some instructions mentioned that there were programs who adapted the micro-badges content and how those program-specific applications strengthened the overall incorporation of these 21st Century Skills into academic curricula. The instructors provided feedback on the three types of models that were used to incorporate the badges: 1) weaving badges into the curriculum so that students see the badges as seamless to the content, 2) embedded in the class as an untimed and completion-based assignment, and 3) exclusively extra credit within the course but no course assignments or requirements attached.

Least Effective

Some instructors had mixed results with the badges indicating that when an employer and postsecondary institution worked together to create and embed content, the results were more effective. When badges were too complex for some work environments or some targeted employee groups, the impact was reduced. Additionally, it was noted that some badges (e.g., Creative Problem Solving) were better suited to adaption than others and that other badges (e.g., Resilience) were more general and geared for a traditional new employee audience and not incumbent employees. Therefore, it limited the desired outcome and enthusiasm for one of the employer-partners.

Quizzes within the badges were not as effective in other models of delivery since they were more of a reflection. Those assessments were effective in the first model (embedded in the activities of the course). When instructors could remove repetitive quizzes, they were replaced with a reflective paper (e.g., what you learned from each module). In the beginning, there were issues with the Checkster 360 initial assessment, but this was not universal as some instructors did not report problems using Checkster.

Instructor Qualitative Feedback

Instructors indicated that their students fell into two buckets: 1) those that understood the value and wanted more, and 2) those who did not understand the value and refused take the badges seriously. Students with the highest initiative were the ones who completed the badges without embedding into the curriculum. Students with much lower initiative often waited for the badges to be offered as extra credit to help them pass a course so those students did not get as much out of the badge content. Instructors heard from students that the badges were not easy or quick to complete and therefore demonstrated the value gained from the badge content. Instructors and facilitators who might be considering badge content in the future need to think about how they want the badge content to be presented to students beforehand and make relevant assignments for the students in the course.

A faculty champion for the badges mentioned that there is a need for instructional designer training to adapt the content for students. The idea that some used for the badges as "plug-and-play" was not the best instructional methodology. There was a lot of support needed for instructors. Adoption of badges into academic courses could be faster with instructional designer and assessment/grading support. Badge instructors and facilitators needed to find a way to provide more meaningful feedback for students participating in the badges. More general feedback was acceptable for students in larger sections. One example suggested that video interview feedback on responses was good but when instructors provided details like posture, background, and clothing, students felt that was also important. It was reiterated that students benefited the most from individual feedback on badge content.

Overall Perceptions

Almost all the instructors indicated that they wished they could incorporate more of the badge content into their courses as they felt it helped their students in very real and concrete ways. They noted that LinkedIn® could be used to promote the students who had completed badges in their employment searches.

Employer Interviews

Interviews were conducted with employer-partners, many of whom used the badge instruction within their own Human Resources for employee professional development, retraining, or retention. They noted that the badges worked best when there was engagement and support offered to students who were stuck or had stalled in their learning. This was instituted due to the high dropout rate based on the pandemic but was a positive to increase student completion. When they continued the support and student monitoring, the learner success (measured by badge completion) increased.

The badges have a project attached to completion which might be challenging for workers who were not college ready. One instructor reported that some employees who signed up for the badges did not expect so much time would be put into the badge though they were approved to work on the badge during the workday if their other obligations were complete. She mentioned that the amount of writing for some of the topics and activities was overwhelming for some employees, possibly because the targeted employees were mostly high school graduates and may not have been college ready. The employer-partner was hoping the badges would provide something for those who did not have college degrees.

The biggest deterrent for many of the learners pursuing the badges was time. Some learners who were considered overachievers or those who had a strong competency in time management completed all 4 sub-competencies in a week. Eventually, due dates were introduced as a pacing guide and did a lot to keep students on track.

For the employer-partner who offered badges to their incumbent workers, when the company rolled out initially, interest was high. Some badges even had waiting lists. However, it was quickly noted that badges were intense and there was work involved. When the employer did not incorporate accountability for completion, the badges completion rate declined. The struggle in that environment was trying to decide how to tailor the badges for the company and its employees. The company also had to figure out how to hold employees accountable. It was ultimately decided that badge completion should reflect positively on the annual reviews for personal development. This particular employer promoted education and self-development and it was noted that the badges had positive effect by learners in the workplace.

Overall, the badges were discussed as a fantastic idea and great tool for those who do not have access to a post-secondary education. One of the employer badge facilitators noticed that when she completed the Resilience badge, the content of that badge was different than what she was taught in the business school application of resiliency. She commented that the badge content seemed much more academically focused than practical for her employees.

Coordinator Feedback

Coordinators were invited to have a discussion with the evaluation team and were asked about their experience facilitating the initiative with students, faculty, and administration. Specific questions presented to the coordinators were:

1) What has been your experience in coordination of the faculty, students, and administration around implementing the badges?
2) What has been your experience with employers about the badges?
3) What has been your experience with the badge implementation process from beginning to end?

Coordinators indicated that they were most effective in rolling out the badges initiative when they had a champion (e.g., College of Business or Nursing program) to promote workforce readiness. This was especially evident when the coordinator at the University of Dayton was not only overseeing the badge initiative but also an instructional deliverer who could ensure that students remained engaged in the badge curriculum. Some coordinators were more remote or removed from the instructional component and thus, some faculty were more focused on academic achievement, while others were focused on career outcomes. Overall, badging and micro-certifications were valued by students who put their heart and effort towards them. This was demonstrated through the differences in importance and confidence in expressing the badge content.

One of the challenges that coordinators had was getting faculty involved, which required negotiations and meetings with academic leaders and providing incentives for faculty to pilot. For coordinators not holding a faculty assignment, without a faculty background, or without direct classroom oversight, changing a syllabus and the overall academic culture created upheaval and it was best to come at an intervention like this with administrative oversight. This was not universally agreed upon since some interventions like at IACT were grass-roots level innovations and were extremely effective. Interestingly, there were faculty who responded more

to the research interest in evaluating the badges and impacts on students. Another challenge was the maintaining of the integrity of the badges while respecting faculty academic freedom.

Coordinators reported that in their communications with employers, the hiring managers were excited about badges and were encouraged to have early access to connect with #BadgedtoHire students. One company was impressed with how students expressed and demonstrated their skills learned in the badge. They valued when students would give examples to show competency. However, on the opposite side, employers are not very interested in badges with no specific job-related badge value (e.g., Google provides own internal badge, but those are based on technical skills and while they are thinking about soft skills, they have not implemented those yet.). Another challenge mentioned was an institution looking at variety of badge delivery methods and who would championing those.

Other complications occurred when talking to coordinators about the evaluation. The IRB process was not as smooth as anticipated and changes in personnel created numerous barriers. IRBs were required to conduct research and allow for institutional reporting, however, coordinators had varying success in collecting the data with the most engaged coordinators or coordinator assistants providing a strong connection for the student-level data. Research was indicated at one institution as “Opt in” for data sharing, which limited what institutional data could be provided. Due to the nature of this being an external initiative, there was no option for extra credit for participation in surveys or focus groups and the $50 gift card was not enough of an incentive. Some coordinators mentioned survey saturation for students on needs and essentials during the pandemic, which diluted interest in completing another survey for the badges.

The implementation of the #BadgedtoHire curriculum in the student learning management system (e.g., Canvas) did require tailoring assignments. This restricted faculty from being able to use some assignments. Faculty were not given clear expectations on adapting materials, such as case studies and examples, as well as how to adapt assessments for students. In one institution, students did not use discussion pieces as much as anticipated, which was possibly a function of pandemic environment. Some students indicated they did not like being on camera though video submissions were directly applicable to real world experience, especially with interviews and presentations to show students how to get comfortable when interviewing or interacting with future colleagues.

One coordinator suggested that with so many students who have completed the badges, that there is now an established network and cohort of badge earners. Those badge completers could be sent updates on badge initiatives and badge-valuing employers. Maybe, Education Design Lab, working through the partner institutions, could provide potential links on institutional or employer HR websites helping badge completers recognize who uses the badges in the hiring process.

In summary, almost all the coordinators appreciated the opportunity for the pilot project and framing ways to help students develop the skill sets in bite-size options. They indicated that the difficulty was piecing all the parts together when students are only getting the badge skills within certain classes. The more that can be done through badges, the more students can demonstrate their skills sets. The badges were seen as a great tool to build portfolios.

Conclusion: Summary and Recommendations

The information gathered and analyzed from the T-Profile was extremely useful identifying the most common overall badges desired by employers. It also explored the difference on badge importance as broken down by entry-level positions by the employer partners. One recommendation for further data collection would be having individuals submitting the T-Profile also rank the badge competencies in order of importance (1 – most important to 3 – least important).

All results strongly supported the learner perception of an increase in confidence between expression of badge knowledge and skills on a resume, interview, and through application. However, while all indicated an increase in confidence, the only increase found to be statistically significant was on resume expression.

The summary from instructors, badge facilitators, and coordinators provided strong qualitative data that the badges are effective, and they are seeing a difference in the skills demonstrated by the students. There were numerous initial intervention challenges and barriers identified, however the adaptability of the badge content for individual program was pointed to repeatedly as a strength of the Lab's badges. Instructors and coordinators provided solid and relevant suggestions for feedback and improvements, which indicated they took the badge intervention and the institutional involvement as integrated within the curriculum to support student learning.

Employers are extremely impressed with the quality of the badges to document the essential work skills for new and incumbent workers. The Lab's Badges are different than other badge promoters due to the intense proving grounds and rigorous assessments of the competency-based modules. The only challenge identified by employers was that the badges might not be as easy to complete for those not academically inclined since they involve significant reading and writing.

Appendix A. Education Design Lab's T-Profile Example

Job Title: Account Executive (Sales)
Organization: Unite Private Networks
Completed by: Regional Sales Director

Initiative		Creative Problem Solving		Collaboration		Intercultural Fluency	
lead without title	act as a catalyst	identify patterns	manage ambiguity	focus on solutions	listen actively	curiosity	challenge biases
self-awareness	learn from experience	iteration	convergent / divergent thinking	diverse perspectives	strengthen relationships	self-awareness	diverse perspectives
Resilience		**Critical Thinking**		**Oral Communication**		**Empathy**	
exhibit flexibility	focus on solutions	identify patterns	draw conclusions	listen actively	clarity/ precision	listen actively	recognize needs
self-awareness	learn from experience	question assumptions	gather relevant info	storytelling	adopt tone/ word choice	validate others' feelings	diverse perspectives

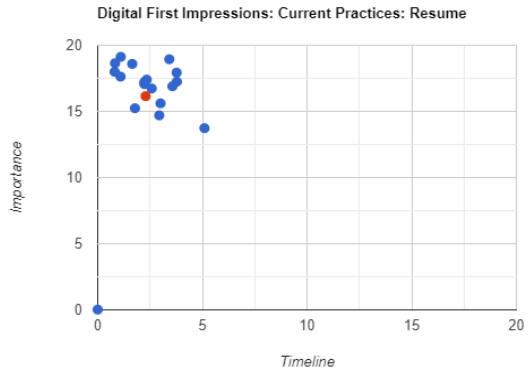
Entry-Level Technical Skills

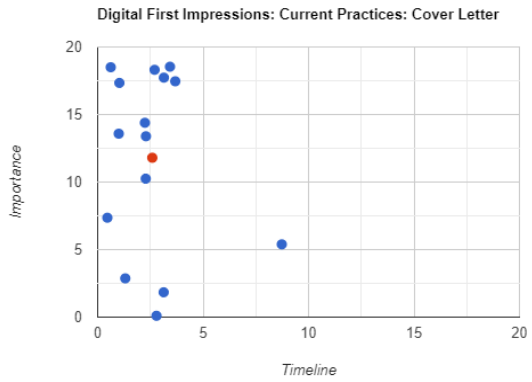
- Microsoft Office
- Presentation skills
- Time management
- Follow-up
- Financial modeling (ROI/TCO)

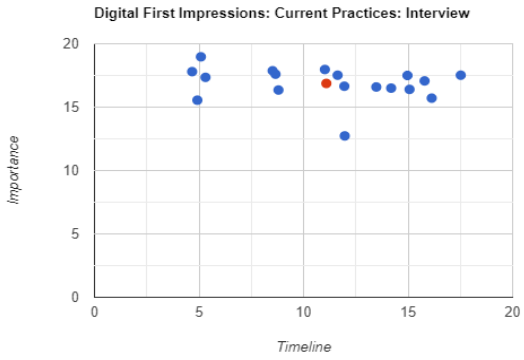
Importance of sub-competencies (1 being the most)

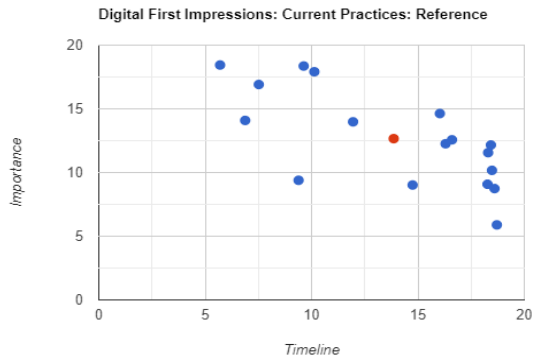
1 4

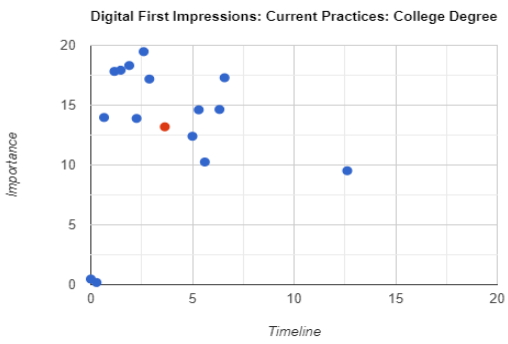
Appendix B. Individual Response Heat Map for Employers Digital First Impressions – Current (Minimum of 7 responses)

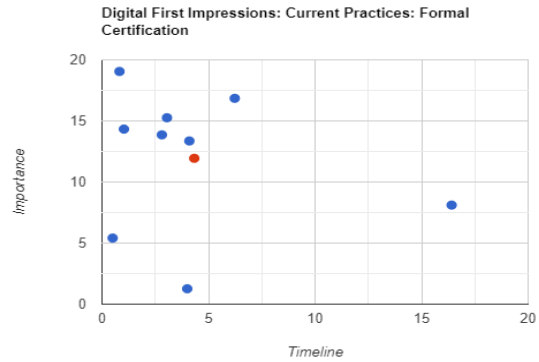


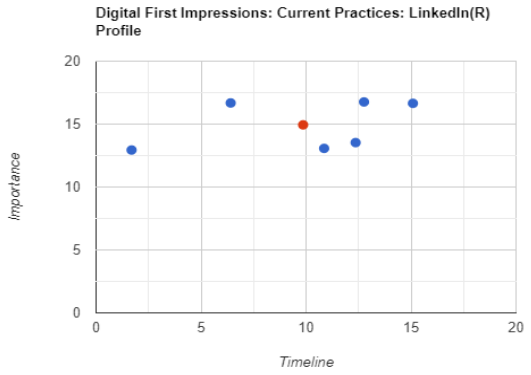


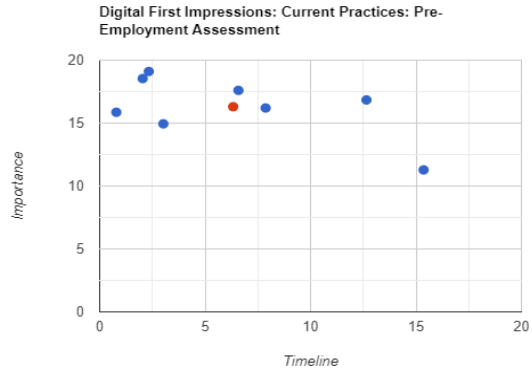






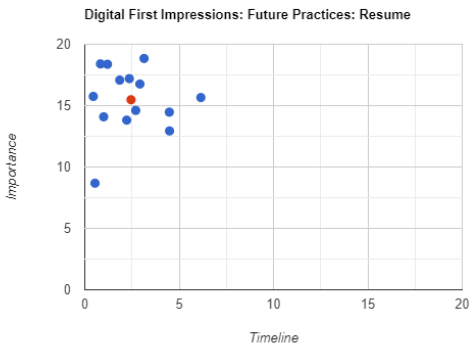


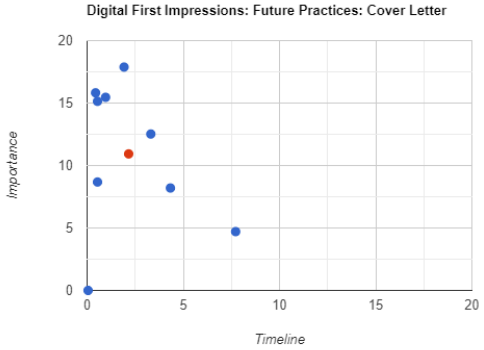


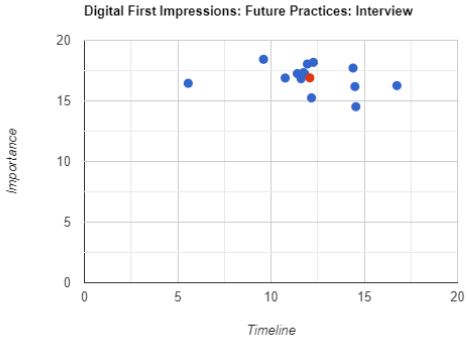


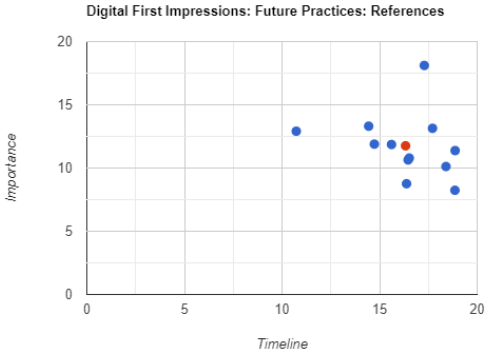
Individual responses are in blue with the average calculated point-momentum in red.

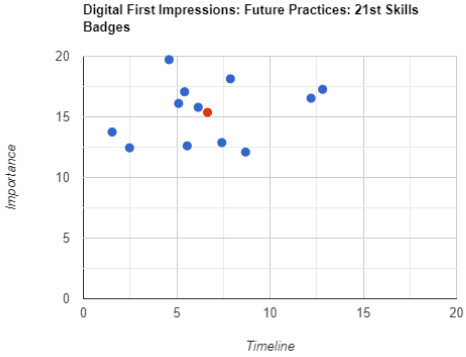
Appendix C. Individual Response Heat Map for Employers Digital First Impressions – Future

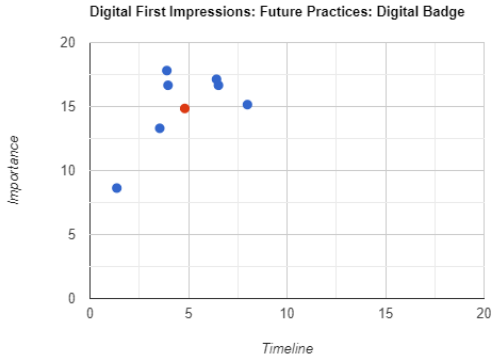


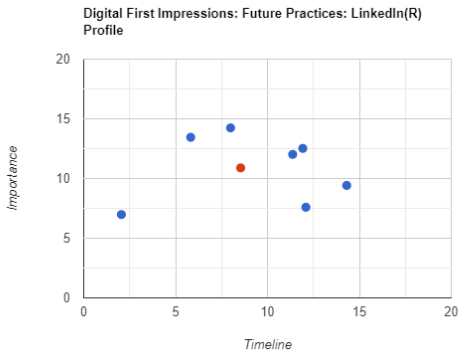


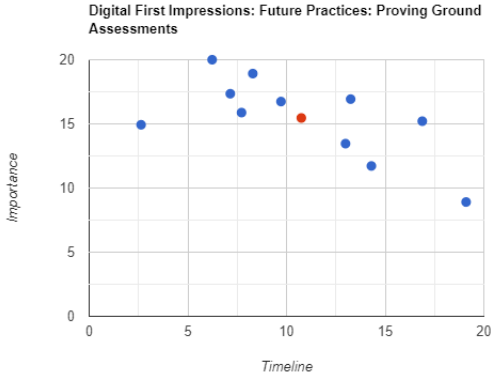


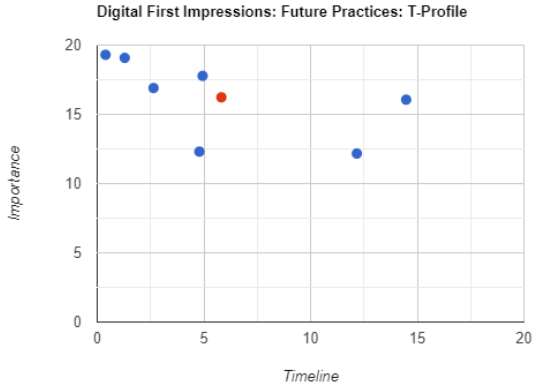


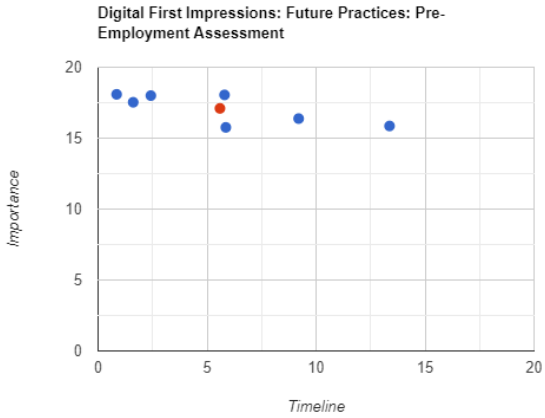









Digital First Impressions: Future Practices: T-Profile
Importance
Timeline
0
5
10
15
20


Digital First Impressions: Future Practices: Pre-Employment Assessment
Importance
Timeline
0
5
10
15
20

Appendix D. Quantification of Current and Future Perceptions of Digital First Impressions: Averages and Differences

	Future		Current		Differences	
	Importance	Process Timeline	Importance	Process Timeline	Importance	Process Timeline
Resume	**15.48**	**2.46**	**16.15**	**2.29**	0.67	-0.17
Cover Letter	**10.94**	**2.17**	**11.80**	**2.59**	0.86	0.42
Interview	**16.90**	**12.08**	**16.87**	**11.09**	-0.03	-0.99
Reference	**11.77**	**16.34**	**12.66**	**13.86**	0.89	-2.47
College Degree	**13.39**	**6.38**	**13.19**	**3.64**	-0.20	-2.74
Academic Transcript/GPA	**10.53**	**4.66**	**10.51**	**9.15**	-0.01	4.50
Formal Certification	**14.53**	**3.20**	**11.94**	**4.33**	-2.58	1.13
Personality Assessment	**12.16**	**7.70**	**10.63**	**8.89**	-1.53	1.18
ePortfolio	**11.13**	**6.38**	**16.11**	**13.34**	4.97	6.96
21st Century Skill Badge	**15.37**	**6.66**				
Digital Badge	**14.86**	**4.82**				
LinkedIn Profile	**10.90**	**8.55**	**14.94**	**9.86**	4.04	1.32
Proving Ground Assessments	**15.46**	**10.75**				
T-Profile	**16.23**	**5.82**				
Digital Footprint	**8.59**	**11.27**	**14.04**	**13.91**	5.45	2.63
Pre-Employment Assessment	**17.10**	**5.59**	**16.30**	**6.33**	-0.81	0.74
Co-Curricular Transcript			**6.75**	**4.68**		

Yellow highlighted practices were introduced in the future considerations for hiring.

Differences in green demonstrate an increase of more than 1 from current and future considerations.

Decreases of greater than 1 from current to future considerations after digital badging discussions were introduced, appear in red.

Appendix E. Student Open-Ended Responses on Post-Badge Surveys

What parts of the modules did you find to be the most effective to your learning of the competencies? (open-ended)

- Lead without a Title- To me this is highly important in any role you are in
- Convergent vs divergent thinking, managing ambiguity gave me a lot to think about and helped me develop job aids in my current role.
- The most effective parts of the modules were when we focused on one competency at a time.
- Definitely the iterative process, and divergent and convergent thinking.
- Collaborating and sharing our stories with others and getting feedback.
- I liked the self-reflection aspect of what we learned after each work day. The modules were a great opportunity to gather all of the information we learned in one day and re-cap on what we could do better next time or see what we did a great job on that day.
- Learning to manage ambiguity. This was a lot of the ACT I courses
- The 500, 50, 5 activity
- Using storytelling as a device to invoke empathy
- The tactile work with sticky notes and white boards
- I found the drive meetings the most helpful in understanding how my past experiences effect the present and how I can use those to my advantage and gain a deeper understanding of myself.
- The aspects of collaboration and hands-on-work.
- the end of section activities
- I enjoyed creating the projects at the end using all of the sub competencies. Our idea really showcased these stratagem
- The team sessions where we were able to interact and learn from each other.
- Groups collaborating together.
- The group work really helped bring it together.

What parts of the modules did you not find to be the most effective to your learning of the competencies? (open-ended)

- The iterative process is something I haven't had much time to apply in my current role, but hopefully with more practice I will gain more understanding.
- I found the work with only one person to be less effective than group work.
- We spent lots of time focusing on the main character of our stories. Not things like story arcs, conflict, and how to express those things in ways that are exciting to listen to yet truthful. Storytelling is an art and the module was a bit too unstructured so I didn't learn how to communicate effectively through stories.
- Sometimes the modules were redundant with the work we were doing, but overall the modules were very good methods of learning empathy.
- Having to be online made class a little more difficult
- Sometimes the videos we watched weren't always relevant
- some of it was repeated from ACT 1

- ACT 3 and 4 were definitely very useful and made an impact on me and my growth. I would consider possibly adjusting the ACT 2 curriculum or theme to make it a little less wordy and more personal and impactful. ACT 1 is good to act as an introduction.
- some of the fast paced activities
- I did not enjoy the interdisciplinary course we had to take where we were supposed to expand on our own knowledge. I didn't think this worked as intended
- Initially the Prezi presentation was somewhat challenging as none of us were competent in this tool. This caused much additional time at the end of a very long day.

  Recommend that how to do a Prezi and the expectations be provided via an Asynch video ahead of the intensive.
- The limited time granted on a per exercise basis.