

## Chapter 21

# Using Digital Badges to Design a Comprehensive Model for High-Impact Experiential Learning

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### **ABSTRACT**

*This chapter details the design, implementation, and promise of the Project Portal, a co-curricular badge system, as an exciting example of how digital badges can transcend traditional notions of credentialing. The authors begin by detailing their design approach, which frames goals within hypotheses and research questions, allowing for optimizing implementation based on student outcomes and ongoing data collection. The authors then share a comprehensive model through five primary functional lenses: (1) generating diverse applied learning opportunities, (2) incentivizing, (3) facilitating and (4) assessing student engagement, and (5) leveraging related impacts. Although still in its infancy, the model suggests that these functionalities are individually important and collectively sufficient to activate the promise of high-impact experiential learning as a driver for student and community impact along with key institutional priorities.*

### **INTRODUCTION**

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### ***Using Digital Badges to Design a Comprehensive Model for High-Impact Experiential Learning***

When the University at Buffalo (UB) launched its new micro-credentialing office in 2017 and invited departments and programs to submit proposals, the promise of increased enrollments drew an impressive number of applications. Deans and directors anticipated an inherent appeal of digital badges and thus bringing new audiences, while engaging current students wanting to demonstrate specific skills and competencies during their pursuit of degrees and minors. Although members of the UB Experiential Learning Network (ELN) recognized the importance of credit-based engagement, they were seeking something far different. They envisioned co-curricular digital badges as an engine for transforming university relationships and expertise into accessible opportunities for high-impact experiential learning.

While their vision was bold, their interest in high-impact experiences was not unique. Many have recognized that undergraduate degrees are no longer sufficient, including employers seeking specific skills, competencies, and examples of what students can achieve beyond degrees and grades (Salas Velasco, 2012; Stewart, Wall, & Marciniac, 2016). The promise of a place-based education focused primarily on coursework and traditional assignments is quickly losing relevance, especially in the face of the ongoing pandemic and reliance on remote instruction (Dhawan, 2020; Faize & Nawaz, 2020). Yet despite their obvious appeal and demand, high-impact experiences are still elusive. While all colleges and universities offer some version of applied learning opportunities (Trolan & Jach, 2020), they are often administered through ancillary offices that focus on promotion and compliance without helping students customize or integrate activities within degrees or programs of study. Rather than empower students to leverage opportunities in their most diverse and powerful forms, these programs commonly limit (albeit unintentionally) students' control and access.

The ELN sought to do the opposite, using co-curricular badges to create new, dynamic, and flexible structures that place students at the center of their learning—empowering them to explore and access the full breadth of relationships, expertise, and potential engagement opportunities internal and external to the university. Beyond promoting existing offerings, they hoped to catalyze new experiences generated from students' interests and sense of purpose, while prioritizing scalability and curricular versatility, and accommodating engagement and badges within courses and programs of study. They also sought to efficiently track and analyze student learning, success, and retention, while at the same time supporting broader institutional goals, optimizing engagement, and building capacity for new opportunities. Together, these functionalities would comprise a uniquely comprehensive model for high-impact experiential learning.

This chapter details the design, implementation, and promise of the ELN's co-curricular badge system, known as the Project Portal, as an exciting example of how digital badges can transcend traditional notions of credentialing. The chapter begins with an overview of the design process, framing goals within hypotheses and research questions, allowing for the optimization of implementation based on student outcomes and ongoing data collection. The model is then shared through five primary functional lenses: (a) generating diverse applied learning opportunities; (b) incentivizing, (c) facilitating and (d) assessing student engagement; and (e) leveraging related impacts. Although the Portal is still in its infancy, early results suggest that these functionalities are individually important and collectively sufficient to activate the promise of high-impact experiential learning as a driver for student and community impact, along with key institutional priorities.

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### CONTEXT

Experiential learning represents an exciting frontier for higher education. While stakeholders agree on its value and importance, it has yet to be regulated or controlled. Instead, it is up to individual institutions and programs to set goals for their approaches, then create structures and offerings to achieve them. The opportunity for innovation and customization is exciting, but it's also daunting for colleges and universities that have prioritized parity over student choice. For students, the move toward customization is a natural one, as technology-supported platforms elevate their preferences and choices, creating pathways for adapting to their evolving needs and goals (Alamri, Lowell, Watson, & Watson, 2020). Employers are also prioritizing customized student experiences (Pitt, Bell, Strickman, & Davis, 2019), recognizing that uniform degrees are no longer sufficient to evaluate potential, and seeking evidence of applicants' worthiness for investment and opportunity. Other external audiences, including community partners and industry, are eager to tap into the best that students have to offer. Finding ways to meet these diverse expectations through models that are sustainable and tied to institutional goals represents a growing priority for innovation. Digital badges provide an opportunity to elevate student choice (Cucchiarra, Giglio, Persico, & Raffagheli, 2014; Schenke, Tran, & Hickey, 2013), prioritize customized experiences (Gamrat, Zimmerman, Dudek, & Peck, 2014), and apply innovation to meet institutional goals (Carey & Stefaniak, 2018).

The University at Buffalo (UB) is a public, R1 research university that has long prioritized experiential learning. With academic resources and programs distributed throughout its numerous schools, centers, and offices, students can find opportunities through multiple pathways. At UB, like other schools, experiential learning comes in many forms, from internships, research, and service, to study abroad, innovation, and entrepreneurship. For UB students, the challenge has never been availability, but instead how to find and navigate the vast inventory of options and activate experiences to support their unique interests and goals. Programs often find themselves competing for students and investing disproportionate resources in related marketing because there are so many opportunities.

As a student-focused program situated centrally within Undergraduate Education, the ELN shared these challenges. For many years, the office, under a different name, had been supporting experiential learning in various forms, including a living and learning community focused on interdisciplinary themes, and a center supporting undergraduate research and creative activities. Under new leadership, the team was directed to expand and deepen its approach, scaling offerings to support diverse student interests, facilitating engagement, and gathering data related to student outcomes. These goals required the redesign of existing resources and infrastructure, embracing a more dynamic and flexible approach, and the promise of digital badges, a new paradigm that was being embraced within the university and the broader State University of New York (SUNY) system.

A statewide advisory committee to the SUNY Provost released a white paper that defined micro-credentials and outlined their benefits for existing and new students, alumni, businesses, and industry partners. SUNY leadership encouraged its 64 campuses to develop micro-credentials and digital badges to attract students and support their professional competencies, touting them as flexible and stackable credentials that could be earned in a short amount of time. System administration provided guiding principles and a policy framework, but encouraged campuses to be bold with their programs, foregoing any centralized approval (SUNY Micro-Credentialing Task Force Report, 2018). At UB, a centralized office was created along with a system to design, approve, and implement both credit-bearing and non-credit micro-credentials. Micro-credentials are defined at UB as learning opportunities that take less

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time to complete than degrees or certificate programs and focus on specific knowledge and skills that are explicitly aligned with workforce competencies. Digital badges are issued as recognition of the discrete knowledge and skills gained through these small programs. They contain verifiable metadata providing detailed information about what the earner knows or can do as a result of completing the micro-credential.

UB's newly inaugurated Office of Micro-Credentials distributed a Request for Proposals (RFP) to all faculty and professional staff, and accepted proposals from decanal units as well as non-academic, student-focused programs and offices. As long as the proposals met identified needs, were aligned with 21st century skills—as identified by the National Association of Colleges and Employers (NACE) competency framework—and provided clear pathways with evidence of student competence, programs and offices could offer micro-credentials that would be endorsed by the university.

This new initiative presented an opportunity to use digital badges to build and support the ELN's expanding experiential learning offerings. Through a comprehensive planning process, informed by student focus groups and surveys, the ELN identified a series of design priorities that would guide their work. These included the following goals:

1. Ensuring all students had access to meaningful opportunities aligned with their unique interests;
2. Helping students activate the full potential of experiences in support of their academic and professional goals;
3. Fostering collaboration with internal offices and programs rather than competing for students; and
4. Embracing technology to support scale and efficiency.

By clarifying and exploring these design goals, the ELN identified project-based engagement as the focus of its new model and sought to create a comprehensive system leveraging the functional benefits of digital badges. The design process began with an analysis of the current institutional climate related to high-impact experiential learning. Although an extensive array of opportunities existed both centrally and through specific departments and programs—including internships, research, study abroad, innovation, and service—many students found navigation to be challenging, and access uneven, while others struggled to resolve scheduling conflicts and competing responsibilities. They also noted the lack of consistent institutional evaluation of applied learning, which limited opportunities to assess, improve, and enhance offerings and support. Based on these limitations, the ELN envisioned a system that could efficiently connect each UB student with meaningful projects, while at the same time facilitating and assessing engagement using co-curricular digital badges.

To achieve these goals, the ELN designed a two-dimensional model focused on both diversity and quality of project offerings, as well as facilitation of student engagement with integrated assessment. By addressing each level individually, while also ensuring coherence through a universal digital badge structure, they could design a powerful system that would be uniquely flexible and catalytic with regard to student and community impact.

### **Diversity and Quality of Mentored Projects**

To ensure quality and consistency of offerings, while also catalyzing creativity and innovation, the following minimal requirements were adopted. For inclusion in the Project Portal, opportunities would need to be mentored, collaborative, and result in a tangible product meaningful to an identified audience.

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Each of these requirements was individually necessary, and collectively sufficient to support the design goals, as described below.

#### **Mentored**

To ensure appropriate supervision, projects required a UB mentor (faculty or staff member) to be listed on the project profile. While close engagement with affiliated partners, alumni, or external stakeholders would be welcomed, the model acknowledged the importance of institutional oversight to address the complexities associated with external engagement and partnerships.

#### **Collaborative**

Only student-directed projects with ample mentor feedback would be included, with intentional opportunities for students to adjust their approaches as they worked toward identified goals. Modest expectations for collaboration were adopted, with a minimum of three points of feedback throughout the mentored project. These occurred during initial planning, midway, and prior to completion.

#### **Tangible Product**

To ensure that students moved beyond learning into the realm of doing, ELN projects would be required to culminate in a tangible product to illustrate student skills and be meaningful to some identified audience in the form of a research poster, video, educational materials, a choreographed dance piece, or any work product with some identified broader impact.

Together, these design requirements could accommodate existing mentored projects, while allowing for the design and co-creation of new offerings. In addition to finalizing the initial portfolio, ELN needed a place to showcase available experiences and encourage new projects to be envisioned. Using the existing departmental website, the ELN created a dynamic webpage to host the Project Portal, which could be searched by various tags, including project type, affiliated school, and project focus. While students could browse available project profiles, they could also engage in self-directed projects that would require the same design parameters (mentored, collaborative, and culminating in a meaningful product). To encourage new project ideas, an online form was added that solicited videos, photos, and other engaging media to entice students to get involved. Students were invited to browse and find opportunities that resonated with their unique interests and goals.

### **PEARL: A Framework for Supporting and Leveraging Student Engagement**

To maximize flexibility, the engagement framework needed to be relevant across all types of project offerings. Research on high-impact practices emphasizes the importance of preparation, engagement, and reflection (Kuh, 2008) for applied learning, which would serve as the foundation for the project framework. But complementary processes were needed to go further, thus optimizing impact for students, their respective audiences, and partner communities. As an enhancement to engagement, students would be required to *add value*, producing a culminating product meaningful to an identified audience. The benefit could be direct or indirect, as long as it transcended individual interests or goals. The ELN also sought to enhance reflection by requiring students to *leverage* their engagement and propose opportuni-

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ties to build upon their efforts toward broader impacts. Together, these steps—Prepare, Engage and Add value, Reflect, and Leverage—formed PEARL, a framework that would allow for maximal flexibility in project design, as well as provide a consistent engagement process that would also support research and assessment. PEARL would serve, too, as the facilitative structure for digital badges, moving students through the various phases toward earning a symbol of their achievement, while showcasing their final project for important audiences. Each phase of PEARL is detailed briefly below and culminates in the earning of a badge.

### **Prepare**

Even the best designed experiences require students to activate their potential through preparation and readiness. Before beginning their projects, students would be introduced to the NACE professional competencies, and be prompted to identify priorities and set associated goals. The NACE competencies would be re-introduced during reflection, allowing for assessment of growth and development, while encouraging students to get the most from their experience. In addition to having this preparation in common, students would complete specific activities pre-assigned by their individual project mentors.

### **Engage and Add Value**

The Engagement Phase of PEARL would be directed by the project mentor, its scope and focus varying, but always culminating in some tangible outcome meaningful to an identified audience. An optional planning template would be available to assist students and mentors in clarifying goals and expectations, action items, and final deliverables, ensuring fulfillment of the “add value” requirement. The notion of adding value would provide a powerful vehicle for moving students beyond their own learning, supporting service, amplifying broader impacts, or building capacity for future projects and student engagement. Upon project completion, students would be prompted to upload their final product and endorsement from their mentor, allowing them to move to the next stage of the badge process, that is the Reflection Phase.

### **Reflect and Leverage**

During the Reflection Phase, students would be directed to complete a post-experience NACE competency self-assessment, reflecting on their goals as written during the Preparation Phase, that is, prior to beginning their project. They would then watch a brief video on how to tell compelling stories about their experiences and achievements. This would take place before developing a “connected narrative” video about their experience to make intentional connections with their academic and professional goals. These exercises would allow for assessing student growth and impact, while also supporting cognitive integration of experiences with identity and goal formation.

The process of leveraging experiences toward broader goals and impacts is undervalued in higher education. Students tend to quickly move to the next activity without fully activating the potential of their recent accomplishments toward building further capacity. To help students get and give more through their mentored projects, they would suggest related implications for themselves and their audiences prior to receiving their digital badge. Leveraging activities would include researching and identifying a specific opportunity they might pursue next—such as a job, graduate program, or scholarship that builds on their project—and adding the project to their resume, noting any gaps that can be further addressed

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through additional experiential learning. Finally, students would share their project journey through pictures and text, leveraging another opportunity to develop connected narratives. These submissions would create authentic student-generated content to spark more interest in projects and badges and serve as a driver for student engagement and ongoing project development. Together with provided rubrics and oversight by project mentors, quality control would be addressed without any additional resources or administrative investments.

Together, this inclusive definition of mentored projects and the PEARL framework provided the design structure for a comprehensive engagement system. However, to move from an innovative idea to a scalable model, ELN needed to make the system functional and operational. This included populating the Project Portal with diverse project opportunities and facilitating student engagement using the digital badge process. The next section details the implementation of the design, along with early indicators of its functionality related to identified goals and hypotheses.

## **IMPLEMENTATION**

### **Creating a Diverse and Exciting Array of Project Opportunities**

To populate the Project Portal, research mentors were invited to migrate their postings from the old platform, making any necessary modifications to align with the new model. Relative to the former system, which simply posted opportunities with associated details and context, faculty would benefit from the added preparation component, along with assessment and storytelling functionalities. These early mentors were critical in laying a foundation; they allowed for the launch of the Portal with approximately 90 featured project opportunities. In the following months, the ELN worked to expand offerings by reaching out to departments and programs. This helped cultivate collaboration and enhanced student and faculty engagement.

At the same time, the ELN began developing its own project offerings, with the goal of exploring new, scalable opportunities to attract students who would not typically engage in research-based experiences. Based on a long-standing study abroad course in Tanzania that included project-based engagement, a new category of opportunities was created. It connected students with global NGO partners, allowing the students to contribute while developing important global learning competencies. These projects generated interest among students from diverse majors and presented an opportunity for expansion by adding other partners from Africa, Asia, and beyond. Because these projects were virtual in nature, they provided an accessible vehicle for engagement, especially for students unable to participate in travel-based experiences.

When the pandemic hit, many featured projects shut down. Faculty research labs closed, and students were not able to travel or engage in in-person activities. While students were initially focused on completing the spring semester, they eventually began seeking virtual experiences, as they were eager to enhance their resumes and occupy their time. Accordingly, in summer 2020, the ELN sought to expand its portfolio of remote projects, offering to work with faculty and departments to transform in-person opportunities into virtual iterations, while also building out global NGO experiences. With the university's embrace of the Zoom teleconferencing platform, it was possible to connect students with global partners, in addition to their using email and social media. Students greatly enjoyed these interactions, and partners were equally eager to engage and to benefit from student contributions.

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While these projects were exciting, they were also quite complex and required extensive mentoring and facilitation. To address these limitations, a uniform preparation was developed, prompting students to explore the UN Sustainable Development Goals (SDGs) and contextualize the work of their selected NGO partner. Once preparation was complete, students would propose ideas for collaborative projects, and meet with partners to specify deliverables and engagement activities. This particular category of projects began to grow quickly, representing an exciting opportunity for students to explore the world and make tangible contributions through virtual engagement. Interestingly, international students were particularly drawn to these projects, with many participating from their home countries.

Early efforts to create offerings demonstrated that good projects could come from anywhere. Alumni began contacting the ELN with interest in engaging and undergraduates began to propose projects for other students. This generative functionality was especially apparent with the Tanzania projects that were based on a partnership formed long before the Portal was envisioned, beginning with an exploratory trip in 2009 and study abroad trips since 2014. In 2017, a study abroad student proposed a reusable sanitary pad sewing project in the hopes of addressing the relationship between girls' education and menstrual maintenance. Because girls in Tanzania often lacked access to safe supplies and resources, they frequently dropped out of school and also faced health problems. The initiative took off, and when it was eventually added to the Portal, students began suggesting new ways to build on its success. Some created educational materials around menstrual hygiene, while others worked to fundraise for a second pad project under the leadership of the original study abroad student, who had returned from medical school to assist. Still another student started a digital magazine focused on women's empowerment and shared stories of the pad projects from the perspectives of both the women in Tanzania involved in the initiative and UB students engaging through their projects. This initiative continues to evolve with new ideas and iterations, demonstrating that the framing of projects can serve as a catalyst for innovation and impact.

Within a year of launching the Portal, project offerings had doubled, with the rate of new proposal submissions increasing and project innovation and creativity also accelerating. As new projects were added, these examples were shared with other interested faculty and mentors, helping to build additional capacity and new possibilities emerging within virtually every realm of university engagement.

### **Facilitating and Incentivizing Engagement**

Like other programs embracing the affordances of digital badges and micro-credentials, the ELN assumed that badges would be inherently incentivizing, attracting students and key external audiences. Through early implementation, however, it became evident that while useful, badges were not necessarily sure-fire successes in their effects on learners. As documented in numerous research studies across fields of application, many badges go unclaimed (Streater, 2018). Moreover, incentivization is more complex than simply offering attractive icons. In order to drive sustained behavior, badges must be designed to be inherently meaningful, with attention paid to specific details such as name, associated evidence, partner endorsements, and audience relevance.

Through the badge system, the ELN was able to experiment with aspects of incentivization toward the goal of optimizing engagement and associated facilitation. While most students were attracted to the Portal by the promise of high-impact projects, some were seeking badges to display on digital resumes and LinkedIn profiles. These two distinctive groups presented different engagement patterns and required different combinations of support. The students who were looking for projects were not necessarily mo-



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tivated to complete the post-engagement activities required to earn the badge. Meanwhile, students who were motivated by the badges were often less interested in the intrinsic value of their project. In addition to recognizing differences in student motivation, the ELN also observed the importance of badge titles in encouraging student engagement and persistence. Although the name “Project-Based Collaboration” was originally used for the final badge, they quickly recognized the importance of aligning badge names with the focus of student projects. When students were given the ability to select their final badge title (Community Engagement; Creative Work; Global Collaboration; Innovation; Mentored Research; and Sustainability), rates of claiming and displaying badges increased dramatically, even though the underlying activities to earn the badge remained the same.

These lessons demonstrated the importance of focusing on what students value in order to ensure incentivization and completion. But through implementing the system, it also became clear that badges could offer nuanced benefits related to administration and facilitation of student experiences. While exciting, these called for thoughtful design to ensure that the system could facilitate student engagement across diverse project types, while meeting expectations for scale and efficiency. While micro-credentials require a clearly articulated series of activities and expectations associated with earning a digital badge, there is no set platform or model for pedagogically designing or delivering the activities students must complete. Therefore, the ELN needed to transform the idea of PEARL into an actual platform that would move students through the various steps toward completion and earning their badge.

When the Portal and digital badges were first created, the campus’s learning management system, Blackboard, was adopted as the platform for facilitating engagement. Students would browse through the project profiles and then express interest through a web-based form. They were enrolled in the first Blackboard module, and then subsequent modules, as they worked through assignments until completion was approved and they were issued a badge through the university’s badge vendor, Credly. It is important to note that this process worked, as did an alternative version that used the university’s ePortfolio system associated with its general education curriculum. While both versions were successful in moving students through online assignments and collecting related work, these platforms were unwieldy and required extensive oversight and staff time. They also presented challenges related to research and assessment. The team eventually settled on a workflow system, Formstack, that uses logic to move students through assignment prompts, tracking progress, and associated evidence. It also supports research and assessment, compiling student-level data, and populating dashboards that allow tracking student progress from a single database.

Through piloting and refining the system, the benefits of badges with regard to facilitation, incentivization, and assessment became compelling. However, the importance of examining each of these individually, both within the design phase and after implementation, cannot be overstated. By experimenting with different facilitation platforms and delivery methods, it was possible to improve the model in relation to both student outcomes and administrative efficiencies.

### **Curricular Versatility**

By making the badges co-curricular, each student could have access to a meaningful opportunity, without competing with coursework or requiring additional fees. They could complete their project at their own pace, either during the academic year or over winter or summer break. However, at the same time, the ELN recognized the value of credit-based engagement, predicting that students would be more likely to complete projects when associated with course grades, and could also benefit from faculty input and

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connections with course content. Accordingly, the ELN sought to encourage integration of badges within credit-based courses, while also fulfilling the commitment to student access and equity. By allowing both options, while holding the PEARL and digital badge framework constant, it would be possible to assess any differences between credit-based and non-credit engagement, while supporting diversity of offerings and scalability.

#### **Independent Studies Courses**

Curricular versatility was an intentional design feature of the model. Using PEARL as the engagement framework, along with the associated activities, the consistent process could accommodate a variety of course structures and approaches. Not surprisingly, independent studies emerged as the first curricular integration, with students pursuing departmental credit for mentored projects within their respective programs. Upon indicating interest, students were directed to meet with departmental liaisons to clarify specific requirements and get feedback on preparation, engagement plans, and course deliverables associated with PEARL. The model proved flexible enough to accommodate departmental requirements associated with credit-based courses, while being equally accessible through co-curricular engagement.

#### **Formalized Courses and Academic Programs**

In addition to independent studies, opportunities emerged to integrate the PEARL framework within more formalized courses and programs. Through collaborating with the Honors College, the system was able to support their Sophomore Colloquium, both in terms of preparing undergraduate teaching assistants to develop and lead group projects, and then engaging more than 400 students in the mentored experiences. By using the PEARL process and infrastructure, the Honors College could leverage the model's benefits, while ELN could extend its reach and help students get more from their experience. Other early collaborators included faculty members interested in including condensed NGO projects within a general education course focusing on sustainability. In this instance, after an abbreviated exploration of the SDGs, student groups had the opportunity to meet with a global NGO partner and ask questions about their organizational mission and initiatives, before developing proposals to add value and help build capacity. This specific pilot, which included more than 150 students, proved particularly exciting with (anecdotally) more robust interest in course material compared with students in sections that had traditional assignments without direct NGO engagement.

#### **Virtual Study Abroad**

Other interesting curricular variations included a credit-based virtual study abroad course offered in fall 2020, featuring the partnering Tanzanian NGO and students working toward a Global Collaboration digital badge. The syllabus was built around the PEARL framework with associated assignments, and followed the travel-based, study-abroad itinerary. Students met with partners and contacts via Zoom and used the web to explore featured places and communities. Students worked on projects throughout the semester through close engagement with the NGO partner. With no travel costs, there were no additional fees beyond a traditional course. Yet students reported multiple benefits and indicated that they would not have had access to a travel-based version due to financial and other limitations. The quality of their final projects was quite impressive, with students producing a digital magazine on global women's

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empowerment, an animated video series about global project engagement, and a workshop on women's safety and peer advocacy. While the course was no substitute for travel-based experiences, it proved to be a valuable learning opportunity for students, and merits further consideration as a curricular option or enhancement.

#### **Grants and Broader Impacts**

With continued implementation, the model is suggesting interesting opportunities to support broader impacts through integration with faculty grants and research programs. Although grantees are expected to disseminate research and innovation within external communities including K-12 education, such outreach can be difficult to coordinate and assess. By including projects featuring collaboration with related organizations, engagement and reach can be achieved. While this focus area is still developing, early examples are promising. Currently, students are working to translate innovation in their respective laboratories into digital content that can be shared globally toward expanding the pipeline for under-represented students. These activities benefit students with regard to sharing their stories and making an impact, while also supporting partner organizations through a shared mission and focus. Faculty have begun to explore more scalable opportunities, while also writing Portal and digital badge functionalities into grant applications, thus demonstrating institutional infrastructure and support.

It is important to note that these examples, while diverse in focus and implementation, preserve the model in its entirety, and they support assessment and research as described in the next section. The variations are important, however, in fostering collaboration and integration with university programs and curricular offerings. Rather than viewing high-impact experiential learning as "extra," the model reveals that it is possible to use co-curricular badges to support students in leveraging and connecting the benefits of this kind of learning within programs of study and related coursework. Providing maximal flexibility, while maintaining the integrity of the process and framework, is critical to meeting these goals while optimizing access and equity.

## **ASSESSMENT AND RESEARCH**

Initial design work focused on core assumptions and hypotheses, each connected to research and assessment questions that were in turn mapped to unit- and institution-level goals. The PEARL framework was linked to related assignments evaluated by rubrics, which also provided a structured methodology to test the identified research questions. In these ways, the model was designed to support a robust assessment and research agenda that would allow for continuous system improvements, while supporting institutional priorities. The following are key predictions that serve as the foundation for the comprehensive approach.

### **Student Outcomes**

The system will be examined through a combination of student-reported data and more objective measures, including direct assessment of assignments and analyses of student success markers and retention rates. Although co-curricular, the model can be rigorously evaluated across all facets, including student outcomes, strength of projects, impacts realized by partners, and efficacy of the model itself.

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### **Student Success and Retention**

Because students enter the Formstack platform using single sign-on functionality, their individual accounts are automatically created. This supports administrative efficiencies and allows for the collection and examination of detailed, student-level input that can be easily linked to institutionally managed data, such as student success markers, retention, persistence, and time to degree completion. Students who participated in mentored projects will be compared with those who did not, while controlling for demographic and engagement factors, and generating matched samples from the general campus population. Differential impacts for specific groups of students will also be explored, allowing for the identification of potential areas for focus and collaboration. Many of the planned analyses require longitudinal data, such as retention and persistence, so results in these areas are forthcoming.

### **Student Growth and Transformation**

The PEARL framework allows for observing student growth across the various assignments submitted before, during, and after project engagement. Students are asked to self-assess their level of mastery with NACE competencies, both at the very beginning of their engagement and following the completion of their project. Reflection and leveraging activities focus on integrating experiences with academic and professional goals, while sharing points of dissonance and lessons learned. Student responses to all activities, collected in qualitative and quantitative forms, are captured within the workflow system, allowing for direct assessment of work. Additionally, students are presented with a series of survey questions between the various phases. This allows for the capture of perceptions related to university markers assessing transformational learning.

### **Strength of Projects**

Although the Portal was designed to accommodate a broad array of mentored project opportunities, it was hypothesized that some offerings would be more successful at attracting student interest and affording greater growth and impact. The liberal definition for project inclusion resulted in a wide range of offerings of different scope and focus. It also led to varied approaches to marketing. Projects also differed in relation to mentorship, with most featuring engagement with faculty, but others emphasizing external partners, staff, or even graduate students. All variations present opportunities to explore salient differences in student interest and engagement, which, in turn, will help optimize growth and development of the Portal. For example, if a higher degree of transformational impact is found to be associated with a specific type of project (mentored research; global collaboration) or mentor (faculty; staff; external partner), resources can be targeted to enhance or scale those areas. It also allows for strengthening engagement with academic departments and faculty by sharing examples that resonate with students and associated impact data. The most successful projects, in turn, become models for new project development and collaboration.

### **Partner Impacts**

Many projects involve external partners who stand to benefit from student engagement and related contributions. In completing projects, students are required to have ongoing communication with partners

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throughout the process, and to obtain an endorsement in order to earn their final digital badge. Close communication allows for continued evolution of project opportunities and ongoing customization, as new students present specific skills and interests. Early results have revealed dramatic impacts for partners through global NGO projects. Students have contributed by building out websites, supporting key programming through creating marketing and educational materials, and gathering data through community surveys and focus groups. Importantly, findings suggest that the projects with the greatest potential for partner impacts resonate the most strongly with students. This suggests exciting implications that warrant further exploration and analysis.

### **Model Efficacy**

In addition to supporting student and partner outcomes, the model was designed to serve as an engine for high-impact experiential learning. As implementation continues, it will be evaluated through the lenses of nimbleness, generativity, and scalability. Each is described briefly below.

#### **Nimbleness**

With the Portal's nonrestrictive definition, almost anything can be a project as long as it is mentored, collaborative, and results in a tangible meaningful outcome. While the initial launch featured traditional research offerings, a trend toward "harvesting" projects that resonate with particular interests or opportunities has continued to build. Students are drawn to projects that allow for deep exploration of places, ideas, and challenges, but that also relate to their own academic and personal journeys. In recognizing that students were struggling with implications of the pandemic, projects focusing on self-reflection were added, including one titled "exploring best failures" that guides students in analyzing their own perceived failures toward the goal of acquiring new insights and strategies. This project has attracted many students and resulted in meaningful outputs that can be shared with others who are experiencing similar struggles. It serves as a powerful example of how the harvesting of projects can be a tool to support student interests and needs, and to recognize their struggles as opportunities for growth and learning.

#### **Generativity**

In addition to supporting diverse project opportunities, it was also important to build on students' project contributions toward greater impacts. This was especially the case with the global NGO projects in which engagement often begins with a single activity or focus for collaboration but quickly spawns other ideas and iterations. Students themselves have also proposed new project opportunities based on their engagement. For example, the student who created a digital magazine decided to continue with the effort, developing a related project opportunity that invited other students to work on content and promotion. As global NGO projects have evolved, the pace of new project ideas and opportunities is increasing dramatically, and it is serving as a catalytic engine for innovation and impact.

#### **Scalability**

The model was designed to be scalable, accommodating large numbers of students and projects, assuming appropriate oversight by project mentors. The badge system facilitates engagement using form-based

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workflow logic, allowing for customized pathways for students to complete assignments within a platform that is administratively efficient, and that scales quickly without expanding staff and investments to accommodate more students and projects. While a centralized evaluation process using rubrics is maintained, the workflow logic allows for easily assigning group leaders as the evaluator of their students' submissions. Because rubrics set evaluation standards, inter-rater reliability can be maintained among all evaluators, while at the same time ensuring sufficient capacity to accommodate an influx of students. As implementation continues, student engagement numbers are increasing dramatically, as new collaboration with departments and programs is formalized. Assuming that projects fit and have sufficient clarity regarding process, the model is proving highly scalable and robust.

## **EARLY LESSONS**

Although the Project Portal is still new with much to be learned and explored, a number of significant lessons have already emerged and warrant sharing.

Clearly, students are drawn to mentored projects. They see them as valuable in building their resumes and securing access to graduate programs, but they also view them as opportunities to do something meaningful. The interest in making a direct contribution has undoubtedly been enhanced by pandemic-imposed isolation, but the Portal seems to be tapping into something inherently important for students. With this interest in mind, it is not surprising that global NGO projects have been so popular, drawing students from diverse majors and areas of study, as well as international students working from their home countries. But in addition to these offerings, projects that connect students with broad issues and needs have resonated with their personal stories and sense of purpose. Beyond traditional mentored opportunities, there is clearly a market for more personalized projects that connect students with the world in compelling ways.

The model has also demonstrated the importance of preparation and helping students develop context for their experiences and engagement. While preparation can come in many forms and include necessary skills and competencies, powerful frames are valuable in connecting specific interests to broader impacts. For global NGO projects, the UN SDGs have been particularly resonant. They have an inherent appeal in their hopeful, positive focus. And they help students contextualize their understanding of the NGOs and the significance of their work. Regardless of the required preparation, however, it is clear that students benefit from building foundational knowledge before they jump into a project.

The model has also demonstrated that the aspiration of adding value is a powerful tool, helping students stretch beyond their own work and immediate perspective. Although the notion of broader impacts can be abstract and problematic to students who have come to expect clear expectations and rubrics, it challenges them to stretch both cognitively and culturally. For global NGO projects, this expectation has been critical in elevating the partner's work and vision and allowing students to listen and support, thus avoiding some of the cultural biases and assumptions that are often associated with global engagement.

It is also apparent that while badges are not a panacea, they are very useful when designed with a data-informed approach and a clear, focused framework that meets identified needs. The badge as an incentivization tool is important, but its versatility as a pedagogical vehicle to facilitate engagement, assess co-curricular learning, and provide structures for scalability are also potentially useful.

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### **IMPLICATIONS AND NEXT STEPS**

Although the higher education landscape will continue to evolve and change, students are seeking exciting and transformative experiences that move them from learning to doing. As colleges and universities contemplate how to support these expectations with uncertain resources and growing constraints, design solutions are needed for models that are both nimble and scalable. This will allow the ELN to leverage relationships and expertise, while connecting with students' diverse goals and interests. Within this context, it has been demonstrated that digital badges provide important functionalities that extend well beyond those associated with traditional credentialing. They can offer customization and flexibility, incentivizing students and facilitating engagement in ways that support access and assessment. Beyond skills and competencies, they can scaffold growth and capacity building, while also extending similar benefits to partners and collaborators.

Although exciting in its affordances and functionalities, the ELN model and its perceived complexity may be somewhat daunting. Accordingly, readers are urged to consider its lessons in their most simple form. Specifically, we should be broad in our definition of what counts as an experience: one that aims for diversity of projects and resonance with student interests. But we should also recognize the importance of supporting student engagement through some facilitated process, helping to connect their experience with academic and professional goals. This will lead to greater impacts for students, while leveraging institutional investments in high-impact experiential learning to support institutional priorities.

In sharing the design and initial implementation of this model, the authors hope to inspire other campuses and programs to experiment boldly. In this new frontier of experiential learning and mentored collaboration, personal and authentic connections matter most. By tapping into our own relationships and social capital, colleges and universities can offer opportunities that are uniquely their own, while making connections to core curricula, signature offerings, and commitments in their most resonant and relevant forms. These are exactly the types of experiences students are seeking. Through leveraging technology-supported platforms and the affordance of digital badges and micro-credentials, we have what we need to adapt, pivot, and self-optimize along the way. These are indeed challenging, yet exciting, times for our collective work and for our collective potential.

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## **KEY TERMS AND DEFINITIONS**

**Co-Curricular Learning:** Learning opportunities provided by an educational institution that enhance curricular goals but are not associated with course credit or grades.

**Customized Student Experiences:** Learning programs and activities that are not required or standardized but rather directed by individual learner preferences, interests, and academic and professional goals.

**Digital Badge:** A validated indicator of achievement of discrete knowledge or skills that can be issued, accessed, and displayed online. Digital badges contain verifiable metadata that provides detailed information about what the earner knows or can do as a result of earning the badge.



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**Experiential Learning:** Learning as process of knowledge creation through transformative experiences.

**High-Impact Experiences:** A set of empirically tested teaching and learning practices that focus on “learning by doing” and can serve as a vehicle for experiential learning to occur.

**Micro-Credentials:** Learning opportunities that take less time to complete than degrees or certificate programs and focus on specific knowledge and skills that are explicitly aligned with workforce competencies.

**PEARL Framework:** Prepare, Engage and Add value, Reflect, and Leverage. A framework that allows for maximal flexibility in project design, and a consistent engagement process to support research and assessment. PEARL also serves as the facilitative structure for digital badges, moving students through the various phases toward earning a symbol of their achievement, while also showcasing their final project for important audiences.

**Project Portal:** A web-based tool that hosts profiles of experiences and projects that students can search or browse to find opportunities that resonate with their unique interests and goals.

**Project-Based Learning:** A pedagogy centered on engaging students in addressing authentic challenges, questions, or problems; involves ongoing reflection; and culminates in a student-designed product.