National Institute for Learning Outcomes Assessment
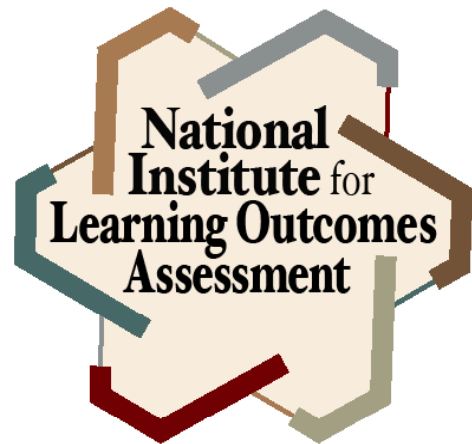
IUPUI's HIP Taxonomy for ePortfolio: A Tool for Development, Implementation, and Scaling

Susan Kahn, Tyrone Freeman, &
Amy A. Powell

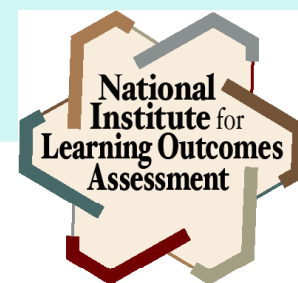www.learningoutcomesassessment.org

Contents

NILOA Mission

The National Institute for Learning Outcomes Assessment (NILOA), established in 2008, is a research and resource-development organization dedicated to documenting, advocating, and facilitating the systematic use of learning outcomes assessment to improve student learning.

Please Cite As:

Abstract

So-called High-Impact Practices (HIPs) are high-impact only when planned and executed thoughtfully, with attention to the relevant literature and the wisdom of experienced practitioners. After decades of experience with most HIPs, and national recognition for several, in 2016, IUPUI (Indiana University-Purdue University Indianapolis) undertook to create a series of HIP taxonomies describing the features needed to ensure that a given HIP experience will be truly high-impact. In 2018-2019, a committee of IUPUI HIPs and ePortfolio practitioners and experts convened to develop a similar taxonomy for ePortfolio, the most recently recognized HIP and one with which IUPUI already had nearly two decades of experience. In this Occasional Paper, we discuss the history of ePortfolio at IUPUI and what we came to understand about effective ePortfolio practice; the purposes of the taxonomies and of the ePortfolio taxonomy in particular; the development process for the taxonomy; our use of the ePortfolio taxonomy for professional development; and the attributes of high-impact ePortfolio practice that we identified, based on the growing literature on ePortfolio and on our campus and individual experiences. In the taxonomy and this paper, we emphasize the need for ePortfolio to be central to curricular design; embedded in pedagogies that support integrative learning and identity development; developed in concert with explicit instruction on "ePortfolio making"; and assessed holistically and in alignment with desired learning outcomes and experiences. The paper concludes with a case study from IUPUI's Philanthropic Studies B.A. program, which discovered through its own ePortfolio work many of the same principles and practices reflected in the taxonomy and the literature.

IUPUI's HIP Taxonomy for ePortfolio:
A Tool for Development, Implementation, and Scaling

Context

Electronic student portfolio practitioners and researchers were thrilled when George Kuh recognized ePortfolio as a High-Impact Practice (HIP), based on the evidence presented by Bret Eynon and Laura Gambino in their 2017 book, *High-Impact ePortfolio Practice: A Catalyst for Student, Faculty, and Institutional Learning*. In the volume's foreword, Kuh agrees that Eynon and Gambino's evidence, based on a 26-institution national project,

> Empirically demonstrated that, *when done well,* students who create and continue to add to their ePortfolio as intended benefit in ways similar to students who participate in one or more of the 10 HIPs on the AAC&U [Association of American Colleges & Universities] list. That is, compared with their counterparts who did not use ePortfolios, students taking courses requiring ePortfolios were generally more engaged in educationally purposeful activities, earned higher grades, and were more likely to complete courses and persist....The scope and complexity of the effort [in the national project] are impressive and the pattern of positive findings is consistent enough to substantiate the claim that the ePortfolio—*when done well*—warrants joining the AAC&U HIPs list. (Kuh, 2017, p. viii; italics added)

Leading higher education organizations like AAC&U and NILOA quickly followed Kuh's lead, adding ePortfolio to the list of ten HIPs that Kuh had initially identified in his 2008 monograph, *High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter*. This recognition of the pedagogical power of ePortfolio confirmed what many of us working with them (e.g., Bass, 2009, p. 35; Cambridge, 2010; Cambridge, Cambridge, & Yancey, 2009; Eynon & Gambino, 2017, 2018; Kahn, 2019b; Reynolds & Patton, 2014; Yancey, 2019) had long observed: That ePortfolio, like other HIPs, could intensify and deepen the impact of students' educational experiences, making their learning more meaningful, powerful, and connected, and enhancing their intellectual and personal development.

ePortfolio scholars and advanced practitioners also recognized the importance of Kuh's caveat; ePortfolio needed to be "done well" to have the powerful impact documented by Eynon and Gambino and their colleagues. The same caveat applies to all of the eleven HIPs identified so far. As an early adopter and leading proponent of many of these practices, including ePortfolio, IUPUI has long understood the importance of doing these practices well—that is, with fidelity to the key features that make each HIP "high-impact" and with any adaptations needed to meet the needs of the learners in question. In 2015, inspired by an Assessment Institute presentation by Ken O'Donnell (2014) of California State University, Dominguez Hills, on a similar project, IUPUI began developing "Engaged Learning taxonomies" describing the features of "done well" practice in the IUPUI context for (so far) ten HIPs. The campus-wide project aimed to clearly and concisely define the design and implementation characteristics needed to ensure effective use of these practices at IUPUI.

The first set of HIP taxonomies was completed in 2016, with additional taxonomies, including the ePortfolio taxonomy, developed in subsequent years. The current set of

As an early adopter and leading proponent of many of these practices, including ePortfolio, IUPUI has long understood the importance of doing these practices well—that is, with fidelity to the key features that make each HIP "high-impact" and with any adaptations needed to meet the needs of the learners in question.

ten taxonomies can be found at https://scholarworks.iupui.edu/handle/1805/21503. This article focuses on the development and key features of the ePortfolio taxonomy, and includes a case study from IUPUI's B.A. program in Philanthropic Studies. Over the course of more than ten years working with ePortfolio, Philanthropic Studies discovered from experience many of the attributes of high-impact practice represented in the taxonomy, which we include here as an appendix. But we begin with some additional background on HIPs at IUPUI and on our campus ePortfolio initiative.

HIPs at IUPUI

IUPUI's first mission documents, developed shortly after the campus commenced operations in 1969, pledged to raise educational attainment in Indianapolis, central Indiana, and the entire state, using teaching and learning strategies whose effectiveness was demonstrated by evidence (Kahn & Scott, 2013, para. 8). By the late 1980s, IUPUI had become an early adopter of assessment, and by the late 1990s, the campus was nationally recognized for its leadership on freshman seminars, first-year experiences, learning communities, and service learning, programs that were iteratively adjusted and refined over the years based on evidence from assessment. During this period and in the early 2000s, smaller, but growing, numbers of students were also participating in mentored undergraduate research and study abroad.

In 2008, a new academic plan provided additional investment in and scaling opportunities for "signature" IUPUI pedagogies encompassed by the RISE (Research, International, Service, and Experiential) to the IUPUI Challenge Initiative (IUPUI Division of Academic Affairs, 2008, p. 8). RISE encouraged all undergraduate students to experience at least two of these active-learning pedagogies, providing scholarships for participation and expanding professional development opportunities for faculty and staff leading these activities. The initiative gained additional impetus later in the year, when all four experiences were recognized as HIPs (Kuh, 2008).

A 2014 IUPUI strategic plan emphasizing student learning, engagement, and success further broadened opportunities for students to participate in HIPs. With continued growth of dedicated scholarships for experiences like study abroad and service learning and increasing numbers of faculty and staff incorporating HIPs into their own programs, IUPUI leadership created the Institute for Engaged Learning (IEL) in 2018 to bring HIPs on campus under one organizational umbrella. The Institute integrates previously separate units responsible for service learning, internships, undergraduate research, first-year experiences, and, now, ePortfolio, with the aim of providing equitable access to HIPs and bringing new knowledge to bear on HIPs implementation. Setting a high bar for participation, IEL currently aims for all students to participate in at least four HIPs as they progress along a coherent engaged learning pathway, with ePortfolio supporting continuity, integration, reflection, and identity-building throughout students' undergraduate experiences.

By 2015, IUPUI was thus well-positioned to create and refine HIPs taxonomies to support professional development and further capacity-building efforts to ensure that HIPs were implemented knowledgeably and effectively, even as implementation was scaled up. Communities of Practice, for example, provided faculty and staff opportunities to explore, implement, and reflect on their experiences with these pedagogies, aligning their courses and programs to the developing taxonomies and refining and modifying the

taxonomies when appropriate. To date, the taxonomies have provided invaluable support for professional development and scaling of "done well" HIPs planning and practice.

ePortfolio at IUPUI

The ePortfolio initiative at IUPUI began in the early 2000s, but gained real traction around 2010, when improved software made large-scale use more feasible and acquired the ability for students to create ePortfolio websites containing their work and reflections in various media (Kahn & Scott, 2014). The latter capability sparked renewed interest, and adoption by departments and programs accelerated. Indeed, the ability to represent oneself and one's learning and to create a digital academic/ professional presence on the internet is essential to the high impact of ePortfolio experiences done well (Cambridge, 2010; Cambridge, Cambridge, & Yancey, 2008; Eynon & Gambino, 2017, 2018; Kahn, 2019a, 2019b; Yancey, 2019).

The largest program to adopt ePortfolio at this time was the first-year seminar in University College, which began requiring students in selected sections to develop an ePortfolio-based Personal Development Plan, or ePDP (Buyarski & Landis, 2014). In 2010-2011, when University College initially piloted the ePDP, a small group of faculty volunteers engaged in an intensive two-week professional development program focused largely on reflection and related pedagogies. Students in sections taught by those faculty members had significantly higher first-year GPAs and first-to-second-semester retention rates than students in non-ePDP sections.

> IUPUI became involved in several national ePortfolio initiatives focused on researching the ways in which ePortfolio could most effectively deepen and strengthen student learning and achievement.

But University College lacked the resources to offer a similar intensive professional development experience to the many faculty members who adopted the ePDP in subsequent years, and the student success results from the pilot year were not consistently sustained (Buyarski, 2016). This development was congruent with findings at other universities that also demonstrated more powerful outcomes from ePortfolio when faculty and staff participated in extended intensive professional development than when they engaged in brief training programs or no professional development. (See, for example, Getman-Eraso & Culkin, 2018.) This phenomenon underlines the importance of informed and thoughtful—done well—ePortfolio implementation to the impact of ePortfolio on student learning and success. The taxonomy is intended, in part, to address this need.

National Involvement

Around this time, IUPUI became involved in several national ePortfolio initiatives focused on researching the ways in which ePortfolio could most effectively deepen and strengthen student learning and achievement. In Cohort VI of the Inter/national Coalition for Electronic Portfolio Research, teams from 14 institutions of several types explored ePortfolio reflection, composition, and assessment in depth (Cambridge, Cambridge, & Yancey, 2009). As part of IUPUI'S participation, our project team conducted research on reflection pedagogies across IUPUI courses and programs using ePortfolio. We found significant diversity of pedagogical practices around reflection and even among definitions of reflection, with some instructors seeing reflection as expression of opinion or feelings and others defining it as a more rigorous process of examining learning experiences and concepts, often in relation to one another. Assessment practices followed suit; when reflection was treated as opinion or emotional expression, it was less likely to be assessed than

when it was thought of as a meaningful intellectual exercise (Landis, Scott, & Kahn, 2015).

Another national initiative, the Connect to Learning project led by Eynon and Gambino, included 26 institutional teams representing all U.S. higher education sectors. This project engaged participating institutions in developing a model for high-impact ePortfolio practice that incorporated pedagogical, technological, professional development, outcomes assessment, and scaling aspects of ePortfolio implementation (Eynon & Gambino, 2017). Participating institutions used a common annual student survey and other common data-gathering activities, wrote about various aspects of their campus practices with ePortfolio, engaged in frequent online discussion and commentary about their own and one another's work, and carried out individual campus projects. (The project website, *Catalyst for Learning: ePortfolio Resources and Research,* contains much of this material, including multiple essays and examples from each participating campus.) IUPUI's project for this initiative focused on improving and expanding implementation of the ePDP in the first-year seminar and piloting continuation of the ePDP in both academic and co-curricular programs taken after the first-year seminar. Connect to Learning resulted in the *High-Impact ePortfolio Practice* volume that convinced Kuh and others to recognize ePortfolio as a HIP.

These projects got underway at a time when interest in ePortfolio and its potential to support powerful new learning was surging at IUPUI and across higher education more broadly. A national ePortfolio organization, the Association for Authentic, Experiential, and Evidence-Based Learning (AAEEBL), was founded in 2009 and offered its first annual conference in 2010. IUPUI has participated extensively in AAEEBL, with dozens of faculty and staff presenting at AAEEBL regional, national, and international conferences and serving on AAEEBL committees. The *International Journal of ePortfolio* (IJEP), an online, peer-reviewed journal, published its first issue in 2011, and has nurtured the development of a substantial research literature on ePortfolio. Several IUPUI faculty and staff members have been involved in IJEP as authors or reviewers. IUPUI has also been a consistent contributor to the AAC&U ePortfolio Forum, which began in the mid-2000s, and, as we write, has several teams participating in AAC&U's inaugural ePortfolio Institute.

Professional Development

IUPUI's involvement in all of the above initiatives during the early and mid-2010s helped develop a corps of faculty and staff experts in ePortfolio pedagogy and implementation. In addition, a new university-wide general education program; the recognition of ePortfolio as a high-impact practice; the inclusion of ePortfolio in the campus's new Institute for Engaged Learning; and the taxonomy all boosted interest in ePortfolio at IUPUI, and set the stage for broadening and deepening ePortfolio adoption and practice across the university.

Following the development of the taxonomy and the ePortfolio's move to the Institute for Engaged Learning, the initiative renewed its focus on professional development and scaling ePortfolio implementation across the curriculum and co-curriculum. Our rich array of professional development opportunities includes consultations, workshops, Communities of Practice, project grants, and funding for participation in national conferences. We approach professional development with a longitudinal lens; increasing the impact of ePortfolio requires the coordination and development of groups of faculty and staff, working with intentionality over a period of time. The attributes we present here take time and experience to develop. As buy-in for ePortfolio shifts from a single faculty member
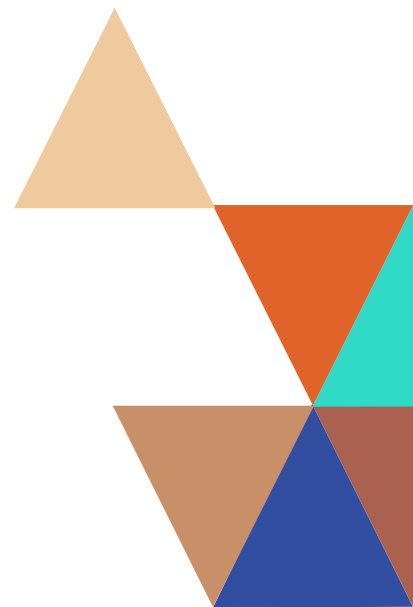
in a program, to a group of faculty, to a program-wide or departmental commitment to integrate ePortfolio across a degree program or set of co-curricular experiences, professional development is also iterative and seeks to address the needs of each phase of growth.

Most recently, a new ePortfolio Community of Practice has examined each of the attributes of high-impact practice outlined in the taxonomy. These activities have continued online through the COVID-19 pandemic. Another faculty-led Community of Practice, focused on capstone experiences, became a forum for exploring how ePortfolio could support key capstone goals: integrating learning across experiences and over time; reflecting on growth of personal, academic, civic, and professional identity; completing a substantive project; and sharing learning publicly. Because the ePortfolio taxonomy provides clear guidance and successively scaled levels of adoption, from single courses to whole programs and institutions, capstone instructors found pathways for degree programs to extend ePortfolio from capstones across entire program curricula.

Finally, the COVID-19 pandemic has sparked new interest in ePortfolio. Our Engaged Learning Showcase, an annual campus showcase of student participation in various engaged learning programs and projects, was moved online in 2020 and 2021, and many students created ePortfolios to share their projects. Faculty and staff often become interested in adopting ePortfolios when they see examples of them, and that was the case in the last two years.

Increased adoption of ePortfolio across curricular and co-curricular programs made clearer a longstanding need for one-to-one student support in developing ePortfolio making skills. This year, a peer-led ePortfolio Studio was created as a dedicated campus space where students could work with a peer mentor on creating and refining their ePortfolios and getting feedback. The Studio provides some technical support, but the main focus is on ePortfolio making skills like design, structure, aesthetics, understanding of audience, cohesiveness, and multi-modal communication. The Studio sets the stage for further growth of ePortfolio use across the campus—and continued use of the ePortfolio Taxonomy to help prepare and guide faculty and staff new to ePortfolio.

The Taxonomy: Purpose and Guiding Principles

The ePortfolio taxonomy has several purposes. As we have noted, it is part of a larger campus project to develop taxonomies for all 11 HIPs, in order to define and encourage "done well" HIP practice that can guide implementation at IUPUI. The taxonomy also provides a framework for professional development of faculty and staff with varying levels of experience with ePortfolio. Finally, it is intended to offer faculty and staff ongoing guidance on ePortfolio course, program, or other experience design and implementation to ensure that they are creating meaningful and powerful student learning experiences.

The taxonomy approaches high-impact practice "aspirationally," so that impact increases as adoption is scaled up, from a single course or experience, to course sequences, to degree programs, and, finally, to the whole undergraduate experience. In general, the more students work with ePortfolio, carefully planned and done well, the more impact it will have. Still, individual instructors can implement elements of higher- and highest-impact practice and programs can implement many aspects of "highest-impact practice," as we see in the Philanthropic Studies case study.

IUPUI's ePortfolio taxonomy has the following purposes:
1. Part of a larger campus project to develop taxonomies for all 11 HIPs to define and encourage "done well" HIP practice;
2. Provides a framework for professional development of faculty and staff with varying levels of ePortfolio experience;
3. Intended to offer faculty and staff ongoing guidance on ePortfolio course, program, or other experience design and implementation.

In practice, at IUPUI, most instances of ePortfolio adoption have begun with a single course, often a capstone. Use of the portfolio then often spreads to courses in the program or sequence that students take prior to the capstone, as it did in Philanthropic Studies. The taxonomy is designed to support entry into ePortfolio work at any level, allowing individuals or small groups to increase the depth and breadth of their practice over time. As ePortfolio activities expand across courses and programs, however, professional development needs change; intentional coordination among faculty becomes increasingly important to the cohesiveness of students' learning experiences and ePortfolio composition and may benefit from guidance by professional development staff.

The Taxonomy: Development Process

The taxonomy was created by a working group of campus faculty and staff representing the many different contexts and ways in which ePortfolio is used at IUPUI: directors of academic and co-curricular programs (including leaders of HIP experiences); experienced faculty practitioners from a range of disciplines: assessment specialists; academic and career advising staff; instructional technology staff; and diversity, equity, and inclusion leaders. The working group was charged with creating a HIP taxonomy for ePortfolio to guide faculty and staff in planning and implementing ePortfolio in courses, academic programs, and co-curricular programs, especially programs focused on other HIPs. The charge also instructed the group to offer direction for professional development aimed at encouraging thoughtful and informed implementation of ePortfolio at IUPUI. Taxonomy development took place over one academic year, with ongoing review and revision as the taxonomy was implemented. The full contributing group included thirteen faculty and staff, with a writing group of three (these authors) who co-authored the taxonomy.

Taxonomy development took place in several phases:
1. Gathering input from the full group, based on a literature review and our own experiences with ePortfolio. During this collaborative process, a list of attributes of effective ePortfolio practice was developed and reduced to a summary of essential elements.
2. Drafting the taxonomy. This task was carried out by the three-person writing team.
3. Soliciting and incorporating feedback from the full group on the initial taxonomy draft and rewriting/editing to create a pilot draft.
4. Disseminating the pilot draft, requesting feedback via survey, and revising, based on the feedback.

Certain key elements enabled us to include a large group of contributors, while completing the task within a short time:
- A clear charge from leadership: Create a taxonomy useful to our context at IUPUI. This resulted in a taxonomy relevant to IUPUI, but potentially transferable to other institutions.
- A clear audience for the document: IUPUI faculty and staff. This helped us focus the project.
- A well-defined timeline: Our conversations could have continued for much longer, but the timeline forced us to keep moving forward.
- A broad range of perspectives among members of the working group. We wanted the taxonomy to be useful to a wide range of campus ePortfolio stakeholders, so we needed multiple voices at the table.

- A small writing team with extensive ePortfolio experience. This helped to ensure efficiency and productivity.
- The opportunity for all campus practitioners to offer feedback. The pilot taxonomy was sent to the campus ePortfolio listserv (1600 subscribers), along with a feedback form.

The writing team also sought external feedback from peers in the field during presentations of the taxonomy at AAC&U's ePortfolio Forum, AAEEBL's national conference, and the Assessment Institute in Indianapolis.

The Taxonomy: Organization

The taxonomy is intended as a brief, concise summary of the key attributes of ePortfolio, done well, at the undergraduate level. (The attributes apply to graduate/professional learning too, but some language refers specifically to the undergraduate experience.) It opens with a description of ePortfolio as a framework for learning and a space for students to create new knowledge by integrating learning, understanding their education as a meaningful learning pathway, and developing academic and professional identities that can be represented and managed online.

Like much of the taxonomy itself, the description draws on Yancey's comparison of ePortfolios that function as "wrappers" of learning to "ePortfolio as Curriculum" (Yancey, 2019, pp. 2-4). In the former, ePortfolios are containers of evidence of learning represented by the artifacts therein. "ePortfolio as Curriculum" on the other hand, sees ePortfolio making itself as a learning experience—ideally, a high-impact one. The ePortfolio, in this view, is not just a collection, but a composition, unified by a reflective text that explains the individual and collective meanings of the artifacts it includes (Yancey, 2004). All of what follows in the taxonomy, including the attributes of high-, higher-, and highest-impact ePortfolio practice, rests on the idea that ePortfolio, done well, is a vehicle for and artifact of a HIP.

Following the description, we added a condensed statement of the purpose of the taxonomy. We further explain that each attribute is described along three levels of impact—high, higher, and highest. Here, we followed the template laid out by the ten previous taxonomies in avoiding any mention of "low-impact" practice. One can insert a "not" or "do not" in each of our four attributes of high-impact practice to understand what low-impact practice might look like.

Along the side of the first page, we include very brief descriptions of the taxonomy initiative and of the "Pathways Portfolio" that we aspire for IUPUI programs and the campus to adopt—an undergraduate portfolio that supports and integrates learning as students progress along a learning pathway in a meaningful sequence of experiences to graduation.

The second page provides a short glossary of terms used in the taxonomy descriptors, and shows how the descriptors align with our campus general education outcomes, the Profiles of Learning for Undergraduate Success, known as "PLUS" or "the Profiles." The latter section is followed by the taxonomy itself.

The Taxonomy: Attributes

Now we come to the crux of the taxonomy: the key attributes of high-impact ePortfolio

practice and the successive levels of impact we identified, based on our readings, discussions, and teaching experiences with ePortfolio. This part of the taxonomy is presented in table format, with rows representing key attributes or aspects of practice and columns representing levels of impact. Each level of impact includes several bulleted descriptors or characteristics of the attribute in that row. To economize on space, we decided that each level of impact would incorporate all the characteristics of the previous levels, so that "higher-impact" practice includes the characteristics of "high-impact" practice, and "highest-impact" practice includes the characteristics of both "high-impact" and "higher-impact" ePortfolios.

We identified the following attributes of high-impact ePortfolio practice:

1. ePortfolio is central to the curricular design of the course, program, or university experience.

As is the case with other HIPs, ePortfolio will be "high-impact" only when thoughtfully embedded in an intentional learning design, whether within the formal curriculum or in a co-curricular experience. An early and painful lesson learned at IUPUI and other institutions is that poor curricular integration and uninformed pedagogy will result in minimal impact of ePortfolios, as many studies and ePortfolio initiatives over the past 20 years have found (e.g., Eynon & Gambino, 2017, 2018; Kahn, 2019b; Kahn & Scott, 2014; Penny Light, Chen, & Ittelson, 2012; Yancey, 2019).

Students should thus clearly understand why we are asking them to compose ePortfolios. ePortfolio composition should be explicitly directed toward student achievement of key learning outcomes for the course, experience, program, or institution. Scaffolding, guidelines, and assignments for ePortfolio work should prompt students to connect learning experiences, content, and concepts to one another and to previously learned material through intentional artifact selection, guided reflection, narrative, imagery, and navigational links. Students should periodically be asked to explain how theory and concepts apply to practice, particularly if the ePortfolio is connected to or includes a hands-on learning experience. In other words, for true high impact, students should be integrating learning, articulating meaning, and using the affordances of the electronic environment, where, for example, hyperlinks may represent conceptual links.

The highest impact is achieved when ePortfolio composition occurs across the curriculum and co-curriculum, over the course of the whole undergraduate experience, and with all ePortfolio activities explicitly connected with course, program, and institutional learning outcomes. While this may not be possible at most institutions, program-wide implementation of ePortfolios, as we see in the IUPUI Philanthropic Studies case, can also have a powerful impact on student learning. Not every course or experience needs to be equally involved: Intentional touchpoints for ongoing ePortfolio development can be built into courses and experiences throughout the curriculum, as Philanthropic Studies has done, in order to help students situate themselves on a meaningful undergraduate learning pathway.

2. ePortfolio pedagogies support integrative, self-directed learning, and student identity development.

This attribute highlights several of the common components of HIPs and the larger ambitions of ePortfolio work. It also explains some of the high impact of ePortfolio done

well. Too often, as we all know, students see degree requirements as a series of hoops to jump through or a list of items to be checked off. But when they are encouraged to examine their learning within and across courses and out-of-class learning experiences, and to seek points of connection, perhaps in concert with one another, their learning begins to acquire direction and purpose. Composing ePortfolios that articulate and represent these connections, showcase increasing expertise, and demonstrate academic/professional growth can make learning visible to students themselves as well as to their instructors and assessors (Bass, 2014; Eynon & Gambino, 2017, 2018; Kahn 2019a, 2019b; Reynolds & Patton; Yancey, 2019). This has a powerful impact on students. They engage and internalize learning more deeply, identifying over time as emerging professionals, scholars, or engaged community members who approach learning with a sense of purpose and agency.

Curriculum and pedagogy thus need to be thoughtfully designed to support integrative, self-driven learning, where students are encouraged to make connections on their own or collaboratively with others. ePortfolio guidelines, assignments, and reflection prompts should work together to guide students toward an approach to learning that enables them to see their learning as a meaningful progression, with each experience contributing to personal, intellectual, and professional development.

As students move forward with reflective, integrative ePortfolio composition, this sense of developing identity and agency becomes increasingly salient. Feedback from multiple audiences can support this process. Maximum impact is achieved when students articulate and incorporate multiple and intersecting aspects of identity and growth within their ePortfolios, drawing on the totality of their learning experiences to communicate with authentic audiences, including peers, parents, faculty, administrators, and/or professionals in their chosen fields, as applicable.

3. ePortfolio making skills are explicitly taught to students.

Yancey explicated the concepts of "ePortfolio making," "ePortfolio makingness," and an "ePortfolio curriculum" in 2019 (pp. 1-11). "ePortfolio making skills" include not only mastery of the ePortfolio or web development software involved or the ability to create an attractive website, but also a larger understanding that digital spaces and their affordances materially alter the composing process and the thinking behind it. ePortfolio making requires and, ideally, develops certain intellectual skills and capacities: Proficiencies in reflection and integrative learning; and an understanding of rhetoric, including visual rhetoric, which enables students to create ePortfolios wherein each element contributes to a cohesive learning narrative tailored to its intended audience (Kahn, 2019b; Wenk, 2019). "ePortfolio makingness" can be defined as understanding of "ways to create ePortfolios," with "ways" including both technical and intellectual skills (Yancey, 2019, p. 3).

Clearly, students will need extensive practice and guidance if we expect them to compose ePortfolios with the kind of intentionality that these attributes describe. And, equally clearly, such ePortfolio composition must be embedded within a learning design wherein ePortfolio making is a central component—that is, an "ePortfolio curriculum." In an ePortfolio curriculum, students iteratively practice and learn the skills needed to compose ePortfolios whose look, feel, imagery, architecture, navigation, learning artifacts, reflections, and framing narrative combine to persuasively demonstrate the learning that the ePortfolio author claims to have achieved (Yancey, 2019).

HIP Taxonomy Attributes:
1. ePortfolio is central to the curricular design of the course, program, or university experience.
2. ePortfolio pedagogies support integrative, self-directed learning, and student identity development.
3. ePortfolio making skills are explicitly taught to students.
4. ePortfolio assessment is holistic and aligned with learning processes and outcomes.

To put it more simply, as we try to do in the taxonomy, the course, curriculum, or experience must include time dedicated to learning and practicing the ePortfolio composition skills that support the desired learning outcomes for both the program and the ePortfolio experience, as we see in the Philanthropic Studies case. At the very least, students should learn about basic web design, aesthetics, and effective writing and revision within the relevant context or discipline. They should gradually develop a consistent and cohesive narrative voice appropriate to their professional, civic, or academic identity. Frequent feedback from instructors, peers, and other audiences can support this development.

At the highest level of impact, students gain expertise in multimodal communication, so that imagery, navigation, evidence, reflection, and framing narrative all contribute to presentation of the ePortfolio as a unified digital composition—one that articulates and integrates learning across disciplines and experiences and brings together students' intersecting identities, using the affordances of digital media. At this level, students should be proactively reflecting, integrating, and articulating meaning as they build compelling ePortfolios representing personal, academic, and professional identities.

4. ePortfolio assessment is holistic and aligned with learning processes and outcomes.

Reflective portfolios first attracted attention from assessment practitioners and researchers in the 1990s and early 2000s as a particularly rich form of authentic assessment (Banta, 1999). Evaluators could select from multiple authentic portfolio artifacts representing key learning outcomes, and, for additional context, had access to reflections in which students explicated their own understanding and evaluation of their work. During this period, assessment practitioners were beginning to see that older approaches that asked students to produce work purely for assessment purposes were not as useful for improvement as initially expected (Banta, 2007). Authentic, embedded work and performances that students carried out as part of their classes or other ongoing educational activities could offer more accurate and nuanced information on their skills, especially for more complex higher-order learning outcomes.

These early uses of portfolios—whether paper or electronic—for authentic, contextualized assessment were consistent with a "meta-trend" identified by Hundley and Kahn in their recent book on assessment trends (2019, pp. 208-209). The rationale for authentic, embedded assessments was that students themselves could offer the most direct information about their learning. ePortfolios, perhaps more than paper portfolios, also aligned with two of Hundley and Kahn's other meta-trends: an increasing focus on broader, developmental learning outcomes as institutions sought to prepare students for future lives in an increasingly complex world; and a focus on learning designs (including HIPs) and environments that sought insights into students' own perceptions and interpretations of their learning experiences and how they might be improved (pp. 208-209).

ePortfolio assessment has all of the advantages of authentic assessment, with the additional advantages conferred by digital media. Artifacts can include video, audio, graphical, and interactive materials, among others. But in an ePortfolio, we have the added ability to structure the portfolio to represent the relationships among the materials within, using menus, pages, hyperlinks, and navigation. We can include framing narrative that explains these relationships. For example, an education student might devote a section of her

portfolio to a specific lesson, with a lesson plan, a rationale for the plan, a video clip of the lesson itself, and the student's reflection on what worked well, what worked less well, and what she plans to do differently next time. The framing narrative might explain why this particular example is included, how the student sees the artifacts now, and how they relate to a larger trajectory of learning about teaching, represented by other artifacts and experiences in the portfolio. Examining groups of artifacts in relation to one another, as opposed to assessing only individual artifacts, is what defines "portfolio assessment." An individual artifact may enable us to identify how well a student has mastered some aspects of a complex outcome; multiple, related artifacts (and the whole ePortfolio) can enable us to understand the student's learning process and what we might do to improve our learning designs, as well as to get a more holistic view of a student's achievement of the outcome.

As reflective, personal academic websites, ePortfolios can thus tell us much about how students see and present themselves as learners, citizens, or emerging professionals. They can demonstrate trajectories of learning and development that single artifacts representing a moment in time cannot. Well-guided reflection and narrative within ePortfolios can offer a window into students' perspectives and understandings of their learning experiences and environments—yielding a wealth of actionable information for improvement. Indeed, high-impact ePortfolio assessment practice seeks to elicit this kind of information and insight from students.

A common approach to ePortfolio assessment is to align artifacts with specific course, program, or institutional learning outcomes and then assess the artifacts to determine student achievement of these outcomes. This approach works best when programs have carefully mapped curricula and assignments to desired learning outcomes. Portfolio assessment is particularly well-suited to the kinds of complex, multi-faceted outcomes that higher education aims for students to achieve—abilities to communicate effectively; think critically; analyze and synthesize learning; or work effectively across cultural differences, for example. Assessors can look at both trajectories of learning and multiple facets of a higher-order outcome like critical thinking. Examination of both artifacts and reflections on those artifacts can yield particularly rich insight into where students may be having difficulties or how the learning environment might be improved to support deeper or more extensive learning. Kuh et al. (2018) have also written about how ePortfolios can support the achievement and assessment of "neurocognitive" outcomes—higher-order skills that may include both cognitive and affective components, like self-awareness and self-regulation.

If, however, we think of the ePortfolio as a unified composition intended to demonstrate powerful integrative learning that supports multiple aspects of student development— that is, if we aim for the ePortfolio to be a HIP—then we should also assess it holistically. Holistic ePortfolio assessment can give us insights into student learning unavailable from other assessment approaches. Have students mastered integrative learning? Reflection? Does the portfolio effectively portray a learning and development narrative? Have students gained the facility with ePortfolio making that we hoped they would? What can we learn from the answers to these questions about our programs and institutions? About how we can improve? We can answer these questions by looking at whole ePortfolios, the stories they tell of student learning and development, and the ways in which they deploy multi-modal narrative and evidence to demonstrate skills, dispositions, and a process of maturation and increasing self-understanding.

As reflective, personal academic websites, ePortfolios can thus tell us much about how students see and present themselves as learners, citizens, or emerging professionals.

Conclusion

After almost two decades of work to implement an ePortfolio to empower students and support richer, more authentic, and more actionable assessment, as well as intensive involvement in the inter/national conversation and scholarship on ePortfolios, IUPUI was well-prepared to develop a taxonomy identifying key components of high-impact ePortfolio practice. Drawing on ePortfolio literature and the extensive experience of its creators, the taxonomy serves as an important professional development resource for ePortfolios at IUPUI. It includes a point of entry for everyone, whether novice or veteran, to improve their implementation of ePortfolio. It maps out multiple pathways for achieving high-, higher-, and highest-impact. But users of the taxonomy will also need time, resources, and experience with ePortfolio curriculum and pedagogy to achieve highest-impact ePortfolio practice in courses, programs, or across entire campuses. Like other high-impact practices, or like learning itself, ePortfolio is more complex than may first meet the eye. Implementation rarely works as intended on the first attempt or the second. Nonetheless, with some perseverance, reading, and engagement with expert practitioners and students themselves, faculty and staff can create ePortfolio experiences that result in transformative, high-impact learning.

We regard the taxonomy itself as a living document that will continue to evolve as research and practice expand our understanding of high-impact ePortfolio pedagogy and curriculum. We invite you to contribute your own comments and insights to improve the taxonomy.

Case: An ePortfolio Journey from Introduction to Integration

This case study focuses on an IUPUI undergraduate degree program, Philanthropic Studies, a first-of-its-kind program that, through the course of more than a decade, came to many of the insights about high-impact ePortfolio practice now reflected in the taxonomy. The model in which ePortfolio was first adopted in the capstone seminar, but ultimately was integrated throughout the curriculum to support student learning and its assessment, resembles the experience of other programs at IUPUI, although Philanthropic Studies was a trailblazer. The director of the Philanthropic Studies undergraduate program was a member of the writing team for the taxonomy and this paper.

Overview

ePortfolio is an integrated feature of the B.A. degree program in Philanthropic Studies at the Indiana University Lilly Family School of Philanthropy at IUPUI. At the program's inception in 2010, it used only paper-based portfolios as a final project in the senior capstone. More than a decade later, students begin their ePortfolios in the program's first-year seminar, continue through hands-on ePortfolio engagement in so-called "touchstone" courses, and culminate their ePortfolio experience in the senior capstone course. The evolution of ePortfolio in the program was facilitated by faculty participation and service leadership in IUPUI's campus ePortfolio initiative, which includes funding for faculty travel and professional development, campus-level workshops, individual consultations, and other forms of support. Philanthropic Studies faculty participated in campus-based workshops and learning communities, and in regional, national, and international ePortfolio conferences sponsored by AAEEBL,

AAC&U, and the UK Centre for Recording Achievement, to develop expertise in and a curricular vision for ePortfolio. These experiences also enabled members of the program to contribute to the development of the taxonomy itself, and to articulate ePortfolio as a signature pedagogy in the emerging Philanthropic Studies field (Freeman, 2020).

Integrating ePortfolio Across the Curriculum

In 2013, ePortfolio was launched in the Philanthropic Studies capstone to replace paper-based portfolios. This addition to the course meant that students had to be introduced to ePortfolio, taught how to design one, and given time to search for useful artifacts and create their ePortfolios, all within a single semester. At the time, the capstone curriculum also included other major projects: a substantive research paper, a digital story, a service project, and intensive readings in the field. From the standpoint of the taxonomy, ePortfolio was initially implemented at an elementary level that did not emphasize structural and design elements. We now understand that this is typical of ePortfolio projects in their early stages. While students experienced some learning benefits of ePortfolio, its full potential was not yet recognized.

IUPUI ePortfolio HIP Taxonomy Attribute #1: ePortfolio is central to the curricular design of the course, program, or university experience.

As instructors began participating in AAEEBL convenings, reading ePortfolio literature, and engaging with campus learning communities and professional development opportunities, our understanding of ePortfolio began to change. For instance, in 2016-2017, the director of the Philanthropic Studies undergraduate program participated in a campus ePortfolio Mission Task Force, which spent several months reading new research on ePortfolio pedagogy and developing an institutional vision for all IUPUI students to experience the newly recognized HIP. By engaging in the larger campus, national, and international ePortfolio communities, instructors realized that introducing ePortfolio earlier in the curriculum would not only better prepare students for the capstone, but would enable them to experience the benefits of ePortfolio makingness throughout their undergraduate education, rather than only at the end (Yancey, 2019).

To facilitate this integration of ePortfolio across the curriculum, we had students begin work on their ePortfolios in our required three-credit internship course. ePortfolio was introduced to students as a site for reflection on how their on-the-job experiences were related to their disciplinary classroom learning. The internship ePortfolio enabled students to fine-tune skills in reflective writing, artifact curation, and ePortfolio making. This change was guided by a capstone instructor who also supervised internships. In 2017, faculty again changed the program curriculum to incorporate a 1-credit pre-internship required course to better prepare students for securing and succeeding in their internship experiences. This course provided opportunity for even earlier ePortfolio engagement as the instructor led students through a career development and advising curriculum grounded in using ePortfolio to explore their career interests and the world of professional work.

Simultaneously, the program began offering a first-year seminar based on IUPUI's ePDP (electronic Personal Development Plan), an IUPUI signature exploratory learning experience, wherein incoming students examine and reflect on their new identities as college students and on the skills, perspectives, and goals they intend to develop as successful learners. The first-year seminar, the pre-internship course, and the internship course, along with the capstone, created the foundation for fully integrating ePortfolio as a central pedagogy in the Philanthropic Studies curriculum. In

these four courses, students worked directly on composing their ePortfolios, allowing them to develop ePortfolio making skills and to experience the benefits of integrative learning over time, rather than in the capstone course only. The undergraduate program director also engaged faculty from other courses in the curriculum to build a culture of ePortfolio by referencing ePortfolios in syllabi and class discussions, and helping students identify and reflect on potential portfolio artifacts as a way to develop coherence across their learning in the program. This work continues as the program strives for greater integration and cohesiveness among courses and across the curriculum.

Taking Capstone ePortfolios Public

In the early years of the Philanthropic Studies undergraduate program, the capstone was an insular learning community in which students presented final projects—digital stories, service projects, research projects, and paper portfolios, for example—mainly to instructors and each other, rather than to external audiences. This was not an intentional choice. Frankly, with so many projects to facilitate in such a relatively short amount of time, instructors did not consider alternative ways for students to submit and share their work. When ePortfolio was added to the course in 2013, this practice continued, even as other projects were consolidated or eliminated to make room for ePortfolio pedagogy to strengthen student learning and the final ePortfolios. But after about two years, instructors began inviting faculty, administrators, staff, and other students from within the department to end-of-semester presentations of capstone ePortfolios. Thus, all capstone students were given an opportunity to formally present their ePortfolios to an audience, take questions, and receive feedback.

Through their participation in professional development on ePortfolio and other HIPs, instructors learned from the literature and other colleagues about the benefits of making capstone student work public—that is, sharing it with an audience beyond the instructor and classroom (Freeman, Pierce, & Zoeller, 2020). One of the capstone instructors participated in an AAC&U-sponsored Summer Institute on HIPs at Boston University who was particularly helpful in this regard. Upon his return to campus, capstone instructors created the Philanthropic Studies Capstone ePortfolio Campus Showcase. Hosted in a large conference room on campus, the showcase included food and a short program with remarks by the school's dean. Invitations were sent to faculty and staff both within and outside the school, including campus administrators, capstone and ePortfolio instructors, and students across campus. Capstone students also invited family members and friends. Showcase audiences averaged 50-60 people. Students presented their ePortfolios in science fair fashion, which meant they were able to interact with small groups of guests that moved from table to table. The intimate nature of the interactions allowed students to have multiple conversations about their work with people during the 75-minute event. This approach was drastically different from the previous brief 10-15 minute formal presentation to 10-20 people.

Over time, students reported high levels of satisfaction with the showcase. Knowing that they would have an actual audience to interact with influenced their approach to the assignments earlier in the course. The showcase gave them a focal point for their energies as they shaped their ePortfolios over the semester. Instructors also coached students on presenting their ePortfolios and gave them time in class to practice alternative versions of their presentations so they could adapt them to the many intimate audiences they would

have at the event.

When the COVID pandemic hit in the spring of 2020, the capstone course had just reached its mid-term point. Plans for the in-person campus showcase were changed to make it virtual. With support from the school's marketing and communications team, instructors created a host website for that year's capstone ePortfolios. Students posted short autobiographies, along with brief 5-7-minute videos of themselves presenting highlights of their ePortfolios. Instructors included a brief survey for each student so that guests to the site could leave individualized feedback. Students invited family, friends, roommates, former internship supervisors, prospective employers, and others. Students and instructors launched a sustained email and social media campaign to drive visitors to the site during a 5-day period during which feedback surveys would be open. Following the success of this approach, it was continued in 2021.

Taking the ePortfolios public gave students a renewed energy and focus for their integrative work in the capstone. They could consider who their audiences were (e.g., employers, family and friends, internship supervisors, and others) and take their interests and needs into account when crafting their ePortfolios.

Deepening Student Self-Direction and Identity Development

The Philanthropic Studies ePortfolio has always focused on supporting students' identity development and emphasizing their own self-direction in learning. In the capstone course, the driving question guiding development of the ePortfolio for students is, "Who am I as an emerging graduate and professional in Philanthropic Studies?" Intended as a broad, open-ended prompt, the question invites students to consider what various learning experiences have contributed to their sense of themselves as individuals, citizens, and professionals. In 2013, students explored this question primarily through the collection, selection, and reflection upon artifacts developed as coursework throughout the degree program. For instance, students chose signature assignments, like the freshman-year philanthropic autobiography essay or the third-year social entrepreneurship research paper, as central features of their ePortfolios.

But, as the taxonomy points out, artifacts can and should be drawn from across a broad range of learning contexts: courses inside and outside the major, co-curricular activities, HIPs experiences (e.g., supervised undergraduate research, service learning, experiential learning), and service or leadership experiences on and off campus. Philanthropic Studies students tend to be very active on campus and within the larger communities surrounding the university. It was natural for capstone instructors to assume students would have valuable artifacts of their learning and development from outside the classroom. But we had to be intentional in inviting students to record and retain such artifacts prior to taking the capstone course, and to consider them as part of the ePortfolio's reflective and integrative processes within the course.

By 2016, capstone instructors were intentionally inviting students to consider such artifacts, even requiring the submission of sample artifacts early in the course to help students identify options. But these early efforts did not take. Students still focused almost exclusively on academic artifacts. Effectively facilitating this type of artifact development required ongoing conversations with students, throughout the program, about potential types and sources of artifacts. Program changes in 2017 provided more touchpoints in the curriculum for enabling these conversations. As students progressed through the program,

From IUPUI ePortfolio HIP Taxonomy Attribute #2: Students engage with and share their learning publicly with an authentic audience.

instructors continually encouraged them to identify and save potential artifacts from in- and out-of-class experiences and even to embed them in early versions of their ePortfolios in their "touchstone" internship courses. Instruction within the capstone also emphasized including artifacts from general education and outside electives, along with co-curricular experiences. We wanted students to design their ePortfolios as truer representations of the many ways, spaces, and places in which they learned and developed over time. For instance, students began to incorporate artifacts representing study abroad, part-time employment, student government leadership, sorority or fraternity service, and on-campus activism into their ePortfolios. The result was a richer display and deeper discussion and presentation of students as learners and leaders. This approach to artifact selection enables the Philanthropic Studies ePortfolio to strive for higher impact, as outlined in the taxonomy.

Overall, by encouraging students to use a broader lens in selecting artifacts to document their learning and development, capstone instructors enabled them to assume more authority in the design and development of their ePortfolios. They moved beyond reliance on faculty-prescribed assignments and began aiming for a more broadly representative, curated collection of artifacts representing those undergraduate experiences that they deemed most influential upon their development. Empowering students to take this approach helped to deepen their sense of self-direction and strengthen their ability to articulate their emerging professional identities.

IUPUI ePortfolio HIP Taxonomy Attribute #2: ePortfolio pedagogies support integrative, self-directed learning, and student identity development.

Focusing on Student Learning Outcomes

In 2013, ePortfolio development in Philanthropic Studies included having students write six reflective essays, one focused on each of the degree program's six major learning outcomes. These outcomes were mapped to campus-wide institutional outcomes for undergraduate education that were known at the time as the Principles of Undergraduate Learning. In each essay, students assembled evidence from artifacts to argue their achievement of the program outcomes and--by extension and mapping—the institutional outcomes.

At the same time that Philanthropic Studies faculty revised degree program learning outcomes in 2017, the IUPUI campus undertook a major revamping of its institution-wide general education outcomes. During this period, Philanthropic Studies students' reflections gradually began to focus on the new outcomes as they were completed and adopted across the program and the campus. Six revised program outcomes were adopted, and four new institutional learning outcomes for undergraduates were branded as the Profiles of Learning for Undergraduate Success ("the Profiles"). Instructors began integrating these outcomes into the capstone course, and adapting the ePortfolio reflection processes accordingly.

By 2021, to help align the two levels of learning outcomes, capstone students were composing four artifact reflections, one focused on each Profile, but anchored in analysis of artifacts based upon the program-level outcomes. The Profiles are Communicator, Innovator, Problem Solver, and Community Contributor, and students write one reflection for each. Within each reflection, students select at least three learning artifacts from a variety of contexts that represent their overall achievement of the Profile, while also contextualizing each artifact as a representation of their achievement of one or more of the six program outcomes. These scaffolded reflection assignments enable students to decide which artifacts best represent
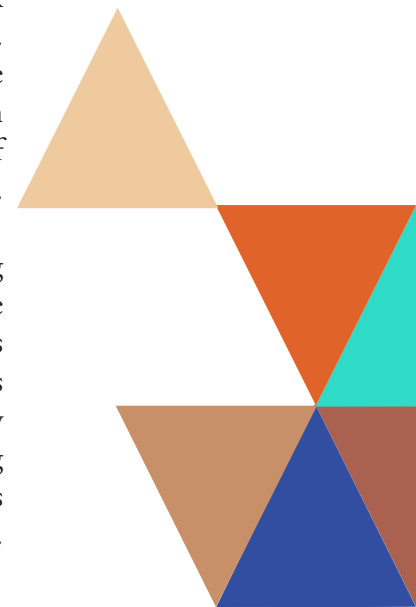
their learning and their achievement of the two levels of outcomes. They then write about the artifacts to compose an argument, that will be reflected throughout the ePortfolio, that they have mastered the skills that all college students should attain (the Profiles), as well as the specialized skills needed as practitioners in philanthropy. While this approach to reflection is rigorous and time-intensive (students spend 5 weeks in the course on reflection), students do make previously unrecognized connections among their learning achievements and other successes.

To prepare to write these reflections, students draft artifact annotations (Yancey, 2019, pp. 141-142) in which they conduct early analysis of a set of artifacts to identify potential evidence useful in constructing their reflections and demonstrating their achievement. These annotations are peer-reviewed by classmates, so that students can exchange feedback on the evolving connections and arguments they seek to make about their learning. With annotations and peer reviews completed, students then draft their reflections, 4-5 page integrative essays. Each of these essays uses the student's self-selected top three learning artifacts for one of the Profiles to argue for the student's achievement of the Profile in the context of one or more of the six program outcomes. These drafts are also peer-reviewed before first submission to the instructor for feedback. The instructor reviews the reflections and provides feedback on artifact selection, use of evidence, and the overall argument for learning in relationship to the two levels of outcomes. Students then have several weeks to revise the reflections before final submission and integration into their ePortfolios at the end of the course.

IUPUI ePortfolio HIP Taxonomy Attribute #4: ePortfolio assessment is holistic and aligned with learning processes and outcomes.

The integration of program and institutional outcomes supports achievement of some of the higher-impact aspects of ePortfolio practice identified in the taxonomy. Initially focusing on artifacts from within the major, students then draw on courses outside the major and co-curricular experiences that helped them develop the knowledge, skills, and dispositions needed to master each of the four Profiles. The requirement to ground reflective analysis and discussion of each artifact in the six program outcomes provides students with a foundation for exploring the larger, more general competencies they are developing alongside their specialized knowledge and skills. This kind of connection-making develops students' conceptual thinking and integrative learning skills.

The Integrated Student Experience

In 2021, ePortfolio is operating across the Philanthropic Studies curriculum through clusters of courses known as "cornerstone," "building block," "touchstone," and "capstone." The cornerstone and touchstone courses in the curriculum are the three primary courses in which students have direct hands-on engagement with ePortfolio making. The first-year seminar is the cornerstone. It is the first course in the first year in which students are introduced to the ePortfolio and use it to explore their new identity as college students. It lays their foundation for ePortfolio makingness. The touchstone courses are the pre-internship course and the internship course. They provide solid and direct instruction in ePortfolio design and development. Students generally take the pre-internship course in their sophomore or junior years, and the internship course during their junior or senior year. As a result, many students have at least one touchstone course per year as they matriculate through the traditional four-year program plan. These courses build up their facility with ePortfolio makingness, and enable them to more readily identify and retain artifacts throughout their undergraduate experience.

Building block courses are the other courses in the curriculum, required and elective, in
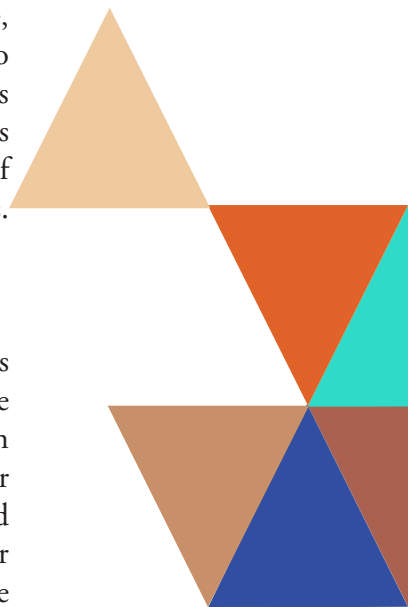
which elements of ePortfolio have been included as reminders to support a culture of ePortfolio makingness; however, the courses require no direct engagement with ePortfolio. For instance, syllabi for these courses commonly reference the ePortfolio and how a given course may contribute to its ongoing development. In these courses, instructors are not trained nor expected to use ePortfolio pedagogies. They are, however, familiar enough with these pedagogies to coach students on how to select and shape assignments and experiences for the ePortfolio. This approach relieves all faculty from the need to be trained and conversant in ePortfolio pedagogies, but enables them to support the culture of reflective, integrative learning in the program. Additionally, such faculty have attended the capstone showcase and have seen how their own instruction and assignments have impacted students.

As a result of the cornerstone, building block, and touchstone courses, the senior capstone course now rightly assumes its intended role as a culminating learning experience. Rather than beginning their ePortfolios in the capstone, as students in 2013 did, students now have had several semesters of experience with designing and developing ePortfolios. This enables them to come to the capstone with a set of ePortfolio making skills. Thus, the capstone has become the place where students refine and finish their evolving ePortfolios as a final articulation of their overall undergraduate experiences and identities as learners. Students now enter the capstone looking forward to the ePortfolio and to learning how to curate a final, culminating version of it just prior to graduation.

IUPUI ePortfolio HIP Taxonomy Attribute #3: ePortfolio-making skills are explicitly taught to students.

Part I: ePortfolio Pathway through the B.A. in Philanthropic Studies

Part II: ePortfolio Pathway Scaffolding of Instruction, Support, and Application
(Read from Bottom to Top with Both Pages Side by Side)

Capstone Course
Finishing touches & public presentation of eportfolios
• P450 Capstone in PHST

Touchstone Courses
Direct hands-on creation, expansion, & use of eportfolios in class
• P490 Internship in PHST
• P390 Internship and Career Preparation

Building Block Courses
Artifact creation & development
• 401
• 301, V362, Electives
• 210, 211, 212, 220

Cornerstone Courses
First exposure and engagement with eportfolios for incoming and new majors
• Freshman Year Seminar

Capstone Course
Finishing touches & public presentation
• Comprehensive reflection on IUPUI experience, finalize and present ePortfolios to the community
• ePortfolios support post-graduation plans (job search, grad school, service programs, etc.)
• Academic advising informed by eportfolios
• CLP series reinforces use

Touchstone Courses
Direct hands-on creation, expansion, & use
• Expand search eportfolio to showcase internship work and other artifacts in P490
• Creation of internship search eportfolio (Transform ePDP or create new one) in P390
• Academic advising informed by eportfolios
• CLP series reinforces use

Building Block Courses
Artifact creation & development
• Signature Assignments
• Extracurricular artifacts
• Storage of artifacts
• Eportfolios support academic advising
• CLP series reinforces use of eportfolios

Cornerstone Courses
First exposure and engagement for incoming, transfer, and new majors
• Introduction to SLOs, PLUS
• ePDP
• First Signature Assignments
• ePortfolios support learning and academic advising

Appendix

ePortfolio
IUPUI HIGH-IMPACT PRACTICE TAXONOMY

Description

ePortfolios are a framework for learning, a space for students to collect evidence of, reflect on, articulate, and create new learning over time. ePortfolios support powerful teaching and learning, assessment, student development, advising and career counseling, and professional and personal identity development along the pathway to graduation. Composing an ePortfolio helps students learn to communicate in multiple modalities, responsibly manage their online identities, and develop as learners and emerging professionals. ePortfolio practice can help students integrate learning across the curriculum, co-curriculum, and experiences outside school, contributing to a more meaningful and purposeful educational experience. ePortfolios offer rich information for assessment and improvement of curricula, teaching, and learning.

Purpose

This ePortfolio High-Impact Practice Taxonomy seeks to clearly define the features of ePortfolios as a high-impact practice in individual courses, across degree and co-curricular programs, and across entire undergraduate experiences. The taxonomy describes four attributes of ePortfolio practice along three dimensions of impact—*High-Impact, Higher-Impact, and Highest-Impact*. For the purpose of supporting student success the taxonomy aims to:

1. Provide guidance for course instructors, program directors, and campus administrators in planning, developing, implementing, and reflecting on ePortfolios in the context of course, curriculum, and program development;
2. Provide direction to campus ePortfolio professional development efforts; and
3. Provide a tool for encouraging program fidelity.

The taxonomy describes curriculum, pedagogies, ePortfolio-making skills, and assessment practices for ePortfolios. While many ePortfolio practices may align with current teaching and learning strategies, research tells us that instructors and program administrators will need professional development to achieve the highest-impact experiences for students. ePortfolio support is available through the IUPUI Institute for Engaged Learning. Contact the ePortfolio program director for current offerings and/or a consultation.

Contributors

Thank you to the members of the ePortfolio Taxonomy Workgroup for their time, input, and contributions to the development of the ePortfolio taxonomy: Cathy Buyarski, Tyrone Freeman, Brandi Gilbert, Steve Graunke, Susan Kahn, Sonia Ninon, Joan Pedersen, David Pierce, Amy Powell, Khalilah Shabazz, Lynn Ward, Cindy Williams, and Mike Yard.

Definitions

Authentic Audience: an audience other than the instructor

ePortfolio-making: skills and processes that support ePortfolio literacy

Identity development: exploration, articulation and commitment to multiple aspects of identity, including professional, civic, personal, and social

Integrative learning: a process of connecting learning across the curriculum and co-curriculum, from making simple connections among ideas and experiences to synthesizing and transferring learning to new, complex situations within and beyond the campus (AAC&U, 2009).

Metacognition: awareness, analysis, monitoring, and directing of one's own learning processes

Multi-modality: use of multiple digital media to communicate thoughts, ideas, and concepts, and to show connections; essential to ePortfolio-making

Pathway: a coherent, guided set of in- and out-of-class learning experiences from the first year to graduation

Reflection: an iterative process of examining experiences and ideas to integrate new learning with prior understandings or to adjust prior understandings in light of new knowledge

Scaffolding: instructional techniques providing appropriate levels of support to help students progress toward deeper understanding and more self-directed learning

Alignment with IUPUI Profiles of Learning for Undergraduate Success (PLUS)

Implementing each attribute of the taxonomy at the high, higher, or highest level may lead to development of student skills in the dimensions of PLUS. Below is a snapshot of how implementation of the ePortfolio taxonomy is connected to student learning outcomes in each PLUS area. In the taxonomy, each attribute is mapped to the specific PLUS learning outcome(s) students will develop through thoughtful implementation.

✚ COMMUNICATOR	✚ PROBLEM SOLVER	✚ INNOVATOR	✚ COMMUNITY CONTRIBUTOR
LISTENS ACTIVELY, BUILDS RELATIONSHIPS	THINKS CRITICALLY, ANALYZES, SYNTHESIZES, EVALUATES	INVESTIGATES, CONFRONTS, CHALLENGES, MAKES DECISIONS	ANTICIPATE CONSEQUENCES
Students express their learning and identity, making intentional choices in written, visual, and multi-modal formats, and adapting communications for different audiences.	Students articulate ways in which they have integrated learning from their chosen discipline and engaged learning experiences with skills learned in other areas to generate new understanding and solutions to complex problems.	Students use multi-modal evidence to demonstrate and narrate processes of investigating and confronting challenges, and designing and carrying out solutions to complex problems.	Students demonstrate their contributions to local and global communities through a curated collection and cohesive reflective narrative.

Learn more about the IUPUI Profiles of Learning for Undergraduate Success
https://due.iupui.edu/plus

Suggested Citation

Powell, A.A., Freeman, T., & Kahn, S. (2019). ePortfolio High-Impact Practice Taxonomy. Retrieved from https://scholarworks.iupui.edu/handle/1805/21503

Taxonomy

ATTRIBUTES	HIGH-IMPACT EPORTFOLIO	HIGHER-IMPACT EPORTFOLIO	HIGHEST-IMPACT EPORTFOLIO
ePortfolio is central to the curricular design of the course, program, or university experience ✚COMMUNICATOR	• The ePortfolio is an integral part of a single course or experience (engaged learning, co-curricular) • Course/experience includes one or more learning outcomes mapped to ePortfolio composition • ePortfolio activities support achievement of the course/experience learning outcomes • ePortfolio composition promotes student voice, awareness and ownership of learning, and guided pathways	• Includes all elements from the HIGH-IMPACT column, and • ePortfolio incorporates multiple courses (e.g., general education or degree program) and/or experiences (e.g., engaged learning, co-curricular), or a single course/experience that brings together other courses/experiences (e.g., learning community, internship, common intellectual experience, capstone) • ePortfolio learning outcomes include understanding connections among learning experiences, content, and concepts, and applying theory to practice	• Includes all elements from the HIGHER-IMPACT column, and • ePortfolio is an integral and explicit part of the whole undergraduate experience, including the first-year/transfer experience, general education, engaged learning, co-curricular experiences, degree program, and the capstone • ePortfolio activities and composition are explicitly connected to all relevant learning outcomes, and embedded throughout the educational experience, with intentional touchpoints built into courses and experiences each year
ePortfolio pedagogies support integrative, self-directed learning, and student identity development ✚COMMUNICATOR ✚PROBLEM SOLVER ✚INNOVATOR ✚COMMUNITY CONTRIBUTOR	• Throughout a single course, students reflect recursively on learning experiences, processes, and outcomes • Reflection prompts are connected to the course/experience learning outcomes and processes, and are designed and scaffolded to make student learning and metacognitive thinking visible • ePortfolio activities support reflecting on disciplinary processes, making connections between disciplinary learning and lived experiences, and communicating learning to an authentic audience beyond the instructor • Students receive ample, ongoing feedback on ePortfolio work from peers, faculty, staff, and/or external audiences, as appropriate	• Includes all elements from the HIGH-IMPACT column, and • Throughout multiple courses and/or experiences, or a single course/experience that brings together learning from other courses/experiences, students reflect recursively on learning experiences, processes, and outcomes • ePortfolio activities are designed and scaffolded to support students in reflectively connecting and/or integrating content, concepts, experiences, and disciplines, and transferring learning to new contexts • Students receive ample, ongoing feedback on ePortfolio work from the perspective of the student's intended authentic audience	• Includes all elements from the HIGHER-IMPACT column, and • Throughout the undergraduate experience, students reflect recursively on learning experiences, processes, and outcomes • ePortfolio activities are designed and scaffolded appropriately to support students in reflectively integrating and articulating learning and identity, drawing on all of their learning experiences, and including the intersections of personal, academic, civic, and professional identities • Students engage with and share their learning publicly with an authentic audience

ATTRIBUTES	HIGH-IMPACT EPORTFOLIO	HIGHER-IMPACT EPORTFOLIO	HIGHEST-IMPACT EPORTFOLIO
ePortfolio-making skills are explicitly taught to students ✚COMMUNICATOR ✚PROBLEM SOLVER ✚INNOVATOR	• Course/experience has time dedicated to teaching students foundational ePortfolio-making skills that support the learning outcomes for the course (e.g., reflection; basic design, structure and aesthetics; revision; understanding of audience; cohesive multi-modal communication) • Time is dedicated to explicitly teaching reflective integrative learning skills, as appropriate to course context. Includes helping students develop a cohesive narrative voice for presenting evidence of and reflection on learning.	• Includes all elements from the HIGH-IMPACT column, and • Throughout program or experience, time is dedicated to teaching students advanced ePortfolio-making skills (e.g., advanced reflection, curation; structure, hyperlinking, navigation, and visual imagery; audience analysis and communication) • ePortfolio-making skills taught include development of ePortfolio as a unified composition, with explicit relationships among evidence, artifacts, and reflections, and an integrative narrative that explains those relationships and tells a cohesive learning story supported by all elements of the ePortfolio (e.g., architecture, navigation, imagery)	• Includes all elements from the HIGHER-IMPACT column, and • Throughout the undergraduate experience, time is dedicated to teaching students expert ePortfolio-making skills (e.g., use of multimodal design, composition, user experience, communication of the relationship of the parts to the whole, and reflective design choices) • Time is dedicated to teaching students how to design the ePortfolio as a unified composition, with student choices of design, evidence, and reflections combining to tell a cohesive learning story, communicate effectively with intended audience, integrate learning across disciplines and experiences, and tie together intersecting identities
ePortfolio assessment is holistic and aligned with learning processes and outcomes ✚COMMUNICATOR ✚PROBLEM SOLVER ✚INNOVATOR	• ePortfolio assessment focuses on course/experience learning process and outcomes; skills ePortfolios develop (including ePortfolio-making skills, reflection, integrative learning, identity development) are integrated into course learning outcomes • Assessment includes a holistic examination of the ePortfolio as a unified composition and may also include examination of individual artifacts/reflections • Assessment may include examination of student learning processes and experiences to identify needed improvements	• Includes all elements from the HIGH-IMPACT column, and • ePortfolio assessment focuses on learning outcomes for multiple courses (general education or degree program) and/or experiences (engaged learning, co-curricular), or a single course/experience that brings together learning from multiple courses/experiences • Skills developed from ePortfolio composition (including ePortfolio-making skills, reflection, integrative learning, identity development) are integrated into program learning outcomes assessment • Assessment may include examination of student learning processes and experience of the program to identify needed improvements	• Includes all elements from the HIGHER-IMPACT column, and • Assessment focuses on institutional outcomes, and examines learning in first-year/transfer experience, general education, engaged learning, co-curricular experiences, degree program, and the capstone • Skills developed from ePortfolio composition (including ePortfolio-making skills, reflection, integrative learning, identity development) are integrated into institutional learning outcomes • Assessment may include examination of student learning processes and experience of the curriculum and institution to identify needed improvements

✚ Represents the aligned profile(s) from the *IUPUI Profiles of Learning for Undergraduate Success*

References

Association of American Colleges and Universities (AAC&U). (2009). *Integrative learning VALUE rubric*. Retrieved from https://www.aacu.org/value/rubrics/integrative-learning

Cambridge, D. (2010). *Eportfolios for lifelong learning and assessment.* San Francisco, CA: Jossey-Bass.

Eynon, B., & Gambino, L. (2017). *High-impact ePortfolio practice: A catalyst for student, faculty, and institutional learning.* Sterling, VA: Stylus Publishing, LLC.

Eynon, B., & Gambino, L. (2018). *Catalyst in action: Case studies of high-impact ePortfolio practice.* Sterling, VA: Stylus Publishing, LLC.

Kuh, G.D., Gambino, L.M., Bresciani Ludvik, >m, & O'Donnel, K. (2018, February). *Using ePortfolio to document and deepen the impact of HIPs on learning dispositions* (Occasional Paper No. 32). Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment (NILOA). http://learningoutcomesassessment.org/occasionalpaperthritytwo.html

Kuh, G.D., O'Donnell, K., & Reed, S. 2013. *Ensuring quality and taking high-impact practices to scale.* Washington, DC: AAC&U.

Matthews-DeNatale, G. (2013). Are we who we think we are? ePortfolios as a tool for curriculum redesign. *Journal of Asynchronous Learning Networks, 17*(4).

Yancey, K.B., ed. (2019). *ePortfolio-as-curriculum: Diverse models and practices*. Sterling, VA: Stylus.

References

Banta, T. W. (1999). *Portfolio assessment*. San Francisco, CA: Jossey-Bass.

Banta, T. W. (2007, January 26). A warning on measuring learning outcomes. *Inside Higher Ed*. https://www.insidehighered.com/views/2007/01/26/warning-measuring-learning-outcomes

Bass, R. (2014). The next whole thing in higher education. *Peer Review, 16*(1), 35.

Buyarski, C. (2016, July). *ePortfolios and student success*. Presentation at the AAEEBL Annual Meeting.

Buyarski, C. A., & Landis, C. M. (2014). Using an ePortfolio to assess the outcomes of a first-year seminar: Student narrative and authentic assessment. *International Journal of ePortfolio, 4*(1), 49-60.

Cambridge, D. (2010). *Eportfolios for lifelong learning and assessment*. San Francisco, CA: Jossey-Bass.

Cambridge, D., Cambridge, B. L., & Yancey, K. B. (eds.) (2009). *Electronic portfolios 2.0: Emergent research on implementation and action*. Sterling, VA: Stylus.

Catalyst for Learning: ePortfolio resources and research. (2014). Retrieved from http://c2l.mcnrc.org/

Eynon, B., & Gambino, L. M. (2017). *High-impact ePortfolio practice: A catalyst for student, faculty, and institutional learning*. Sterling, VA: Stylus.

Eynon, B., & Gambino, L. M. (Eds.) (2018). *Catalyst in action: Case studies of high-impact ePortfolio practice*. Sterling, VA: Stylus.

Freeman, T. (2020). The case for integrating ePortfolio pedagogy into nonprofit and philanthropic studies. *Journal of Nonprofit Education & Leadership, 10*(3): 231-245.

Freeman, T., Pierce, D., & Zoeller, A. (2020). Using the IUPUI capstone taxonomy to design high-impact-practice capstone experiences for graduating students. *Assessment Update, 32*(4): 6-7, 13.

Getman-Eraso, J., & Culkin, K. (2018). High-impact catalyst for success: ePortfolio integration in the first-year seminar. In B. Eynon & L. M. Gambino (Eds.), *Catalyst in action: Case studies of high-impact ePortfolio practice* (pp. 32-45). Sterling, VA: Stylus.

Institute for Engaged Learning. (n.d.). "Vision and Mission." Retrieved Oct. 10, 2021 from https://getengaged.iupui.edu/about/vision-mission/index.html

IUPUI. (2014-present). *Reaffirming our commitment to Indiana and beyond: IUPUI strategic plan*. Retrieved Oct. 10, 2021 from strategicplan.iupui.edu

IUPUI Division of Academic Affairs. (2008). *Academic plan: A roadmap for success*. https://archives.iupui.edu/bitstream/handle/2450/3508/academic_plan_brochure.pdf?sequence=1&isAllowed=y

Kahn, S. (2014). E-portfolios: A look at where we've been, where we are now, and where we're (possibly) going. *Peer Review, 16*(1), 4-7.

Kahn, S. (2019). Identity development as curriculum: A metacognitive approach. In K. B. Yancey, (ed.), *ePortfolio as curriculum: Models and practices for developing students' ePortfolio literacy* (pp. 89-105). Sterling, VA: Stylus.

Kahn, S. (2019b). Transforming assessment, assessing transformation: ePortfolio assessment trends. In S. P. Hundley & S. Kahn, *Trends in assessment: Ideas, opportunities, and issues for higher education*, (pp. 137-153). Sterling, VA: Stylus.

Kahn, S., & Scott, S. B. (2014). *Scaling up ePortfolios at a complex urban research university: The IUPUI story*. Catalyst for Learning: ePortfolio Resources and Research. Retrieved from http://c2l.mcnrc.org/iupui-scaling-story

Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Washington, DC: Association of American Colleges & Universities.

Kuh, G. D. (2017). Foreword: And now there are 11. In B. Eynon & L. M. Gambino, *High-impact ePortfolio practice* (pp. vii-xi). Sterling, VA: Stylus.

Kuh, G. D., Gambino, L. M., Bresciani Ludvik, M., & O'Donnell, K. (2018). *Using ePortfolio to document and deepen the impact of HIPs on learning dispositions*. NILOA Occasional Paper No. 32. Urbana, IL: National Institute for Learning Outcomes Assessment. Retrieved from http://learningoutcomesassessment.org/occasionalpaperthirtytwo.

html

O'Donnell, K. (2014, October). *What's at stake: Learning outcomes assessment as the expression of educational quality, priorities, and values*. Paper presented at the 2014 Assessment Institute, Indianapolis, IN.

Penny Light, T., Chen, H. L., & Ittelson, J. C. (2012). *Documenting learning with ePortfolios: A guide for college instructor*s. San Francisco, CA: Jossey-Bass.

Reynolds, C., & Patton, J. (2014). *Leveraging the ePortfolio for integrative learning: A faculty guide for transforming student learning*. Sterling, VA: Stylus.

Wenk, L. (2019). Hampshire College ePortfolios: A curriculum on reflection to support individualized educational pathways. In K. B. Yancey (ed.), *ePortfolio as curriculum: Models and practices for developing students' ePortfolio literacy*. Sterling, VA: Stylus.

Yancey, K. B. (2004). Postmodernism, palimpsest, and portfolios: Theoretical issues in the representation of student work. *College Composition and Communication, 55*(4), 738-762.

Yancey, K. B. (Ed.) (2019). *ePortfolio as curriculum: Models and practices for developing students' ePortfolio literacy*. Sterling, VA: Stylus.

About the Authors

Susan Kahn joined IUPUI in 1998 as director of the Urban Universities Portfolio Project, a national project that involved six urban research universities across the country in collaborating to produce the first generation of electronic institutional portfolios. She went on to direct IUPUI's nationally recognized student electronic portfolio initiative, to teach in the university's Department of English, and to serve in the Office of Planning and Institutional Improvement, where she helped lead the university's assessment efforts. Before joining IUPUI, Kahn directed a University of Wisconsin System-wide faculty development program that led initiatives focused on building campuses' capacity to support effective teaching and learning. She has published, presented, and consulted widely on faculty development, assessment, and electronic portfolios. She is a founding Board member and Past Chair of the Board of Directors of the Association for Authentic, Experiential, and Evidence-Based Learning (AAEEBL), the international association for ePortfolio researchers and practitioners. Most recently, she co-edited *Trends in Assessment: Ideas, Opportunities, and Issues for Higher Education*, with Stephen P. Hundley. Kahn holds an A.B. from Smith College, and an M.A. and Ph.D., all in English literature, from the University of Wisconsin-Madison.

Tyrone McKinley Freeman, Ph.D., is associate professor of philanthropic studies and director of undergraduate programs at the Indiana University Lilly Family School of Philanthropy at IUPUI. He led the integration of ePortfolio pedagogy across the curriculum of the B.A. degree program in philanthropic studies. He has published articles on High-Impact Practices in undergraduate education, and he is a member of the Indiana University Faculty Academy for Excellence in Teaching. He is author of the award-winning book, *Madam C. J. Walker's Gospel of Giving: Black Women's Philanthropy During Jim Crow* (University of Illinois Press, 2020).

Amy Powell is the Executive Director of ePortfolio at IUPUI. She leads ePortfolio work for the campus, including support for faculty, staff, and academic departments through professional development, and support for students through IUPUI's ePortfolio Studio. She teaches in the first-year experience, incorporating ePortfolio work into her teaching. As an instructional technologist, Powell can be found supporting and promoting ePortfolio, active teaching online, reflective, and social pedagogies, and the integration of pedagogy and technology. Powell holds a B.A. in music education from the University of Minnesota, and a M.S. in education in instructional systems technology from Indiana University.

About NILOA

- The National Institute for Learning Outcomes Assessment (NILOA) was established in December 2008.
- NILOA is co-located at the University of Illinois and Indiana University.
- The NILOA website contains free assessment resources and can be found at http://www.learningoutcomesassessment.org.
- The NILOA research team has scanned institutional websites, surveyed chief academic officers, and commissioned a series of occasional papers.
- NILOA's Founding Director, George Kuh, founded the National Survey for Student Engagement (NSSE).
- The other co-principal investigator for NILOA, Stanley Ikenberry, was president of the University of Illinois from 1979 to 1995 and of the American Council of Education from 1996 to 2001.
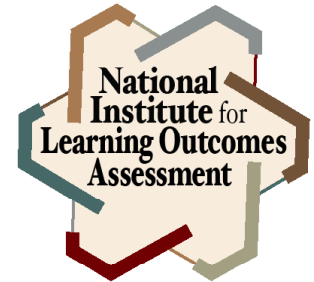
NILOA Staff & Fellows

Gianina Baker, *Assistant Director*

Erick Montenegro, *NILOA Fellow*

Verna F. Orr*, NILOA Fellow*

Nan Travers, *NILOA Fellow*

NILOA Senior Scholars

Peter Ewell, *Senior Scholar*

Pat Hutchings*, Senior Scholar*

Jillian Kinzie, *Senior Scholar*

George Kuh, *Founding Director and Senior Scholar*

Paul Lingenfelter, *Senior Scholar*

David Marshall*, Senior Scholar*

NILOA Sponsors

Lumina Foundation for Education

University of Illinois, College of Education

Follow us on social media:

@NILOA_web

@LearningOutcomesAssessment

Sign up to receive our monthly NILOA Newsletter and stay up to date with our research and publications.

For more information, please contact:

National Institute for Learning Outcomes Assessment (NILOA)
University of Illinois at Urbana-Champaign
51 Gerty Drive
Suite 196, CRC, MC-672
Champaign, IL 61820

learningoutcomesassessment.org
niloa@education.illinois.edu
Phone: 217.244.2155