

What Difference Can ePortfolio Make? A Field Report from the Connect to Learning Project

Bret Eynon
*LaGuardia Community
College (CUNY)*

Laura M. Gambino
*Stella and Charles Guttman
Community College (CUNY)*

Judit Török
*LaGuardia Community
College (CUNY)*

Connect to Learning (C2L) is a FIPSE-funded project coordinated by LaGuardia Community College (CUNY) that links ePortfolio teams from 24 campuses nationwide into a supportive community of practice. Launched in 2011, C2L focused on exploring and documenting ePortfolio strategies to advance student, faculty, and institutional learning. Working together, the C2L community has developed a rich resource website, Catalyst for Learning: ePortfolio Resources and Research (<http://c2l.mcnrc.org>), that offers data, strategies, and expertise from C2L campuses. Our work has addressed two overarching questions: (1) “What difference can ePortfolio make?” and (2) “What does it take for ePortfolio to make a difference?” Focused on the first question, this article examines C2L findings through three propositions: (1) ePortfolio initiatives advance student success; (2) making student learning visible, ePortfolio initiatives support reflection, social pedagogy, and deep learning; and (3) ePortfolio initiatives catalyze learning-centered institutional change. Based on an array of evidence from campus practices and narratives—along with the C2L Core Survey, administered on campuses across our network—C2L findings advance our collective understanding of the power of integrative ePortfolio practice and its potential to support student, faculty, and institutional learning. Moreover, these findings offer multiple avenues for further research, analysis and theory-building. We believe the future of ePortfolio depends in part on our collective ability to gather, analyze, and share evidence of the difference ePortfolio initiatives can make and, therefore, offer these preliminary findings for broad consideration, testing, refinement and improvement.

The ePortfolio movement is at a crossroads. The field has grown, with large numbers of campuses ready to use ePortfolio for a range of purposes. More than 50% of U.S. colleges and universities now offer some form of ePortfolio experience (Dahlstrom, Dzuiban, & Walker, 2013). Yet in the context of tight budgets and broad concern about completion, accountability and disruptive change, ePortfolio innovators are increasingly asked difficult questions. What difference can ePortfolio make? Can an ePortfolio initiative improve student learning? Does ePortfolio-based outcomes assessment really work? Is ePortfolio worth an investment of institutional resources? What evidence demonstrates the broader value of an ePortfolio initiative? What strategies have produced success for students and institutions? The Connect to Learning project provides an interesting opportunity to consider such questions.

Connect to Learning (C2L) is a FIPSE-funded project coordinated by the Making Connections National Resource Center of LaGuardia Community College (CUNY), in partnership with the Association for Authentic, Experiential, and Evidence-Based Learning (AAEEBL). Launched in 2011 and focused on exploring ePortfolio strategies to advance student, faculty and institutional learning, C2L has now completed its third year.

C2L assembled 24 institutions with established ePortfolio projects into a national community of practice. Engaged in a recursive knowledge-generation process, partner campuses represent a cross-section of

higher education, from Boston University and Salt Lake Community College to Manhattanville College, San Francisco State University, Virginia Tech, and Three Rivers Community College.

C2L utilizes a hybrid community-building model that integrates ePortfolios, online conversations, and face-to-face meetings to link campus teams as they explore relevant literature, exchange practices, strengthen ePortfolio pedagogy, and grow their integrative ePortfolio initiative (Eynon, Gambino, & Torok, 2013). Building on this exchange, C2L has created a rich resource website for the field. Released in January 2014, Catalyst for Learning: ePortfolio Resources and Research (Connect to Learning, 2014; <http://c2l.mcnrc.org>) offers data, strategies, and expertise from C2L campuses. Field-tested practices and developmental narratives from C2L campus teams can guide campuses seeking to jumpstart or advance ePortfolio projects. Student portfolios and campus evaluation data flank multimedia resources and analysis by C2L leaders, senior scholars Randy Bass and Helen Chen, and others.

Analyzing an extensive body of documentation, with dimensions ranging from pedagogy to professional development, assessment, technology, and institutional support, C2L has addressed two overarching questions:

- What difference can ePortfolio make? (What does the evidence from the C2L network tell us about the potential value of a sophisticated ePortfolio initiative?)

- What does it take for ePortfolio to make a difference? (What are the strategies and practices used by effective ePortfolio initiatives? What patterns can we see across a diverse network?)

This article, focused mainly on the first question, examines C2L findings organized around three propositions: (1) ePortfolio initiatives advance student success; (2) Making student learning visible, ePortfolio initiatives support reflection, social pedagogy, and deep learning; and (3) ePortfolio initiatives catalyze learning-centered institutional change. In other words, sophisticated ePortfolio initiatives can help colleges and universities address the Completion Agenda while, at the same time, deepen the quality of student, faculty and institutional learning. While C2L evidence is preliminary, it suggests that the power of ePortfolio emerges from its capacity to serve as a connector. An integrative ePortfolio experience can help students link and make meaning from various learning experiences; and an integrative campus ePortfolio initiative can spur connection and collaboration across departments and divisions, catalyzing the growth of institutional learning cultures.

Proposition #1

ePortfolio Initiatives Advance Student Success

At a growing number of campuses with sustained ePortfolio initiatives, student ePortfolio usage correlates with higher levels of student success, as measured by pass rates, GPA, and retention rates.

Legislators, funders, and campuses nationwide are seeking ways to improve student success. C2L campuses have begun to demonstrate that ePortfolio practices correlate with substantially higher levels of student success, as measured by widely recognized indicators, including: course pass rates, GPA, credit accumulation, retention across semesters, and graduation. In this way, the most effective ePortfolio initiatives help their institutions address what is widely known as the Completion Agenda.

An important caveat: Definitive proof of causal connections related to student learning is always elusive. Operating with minimal staff and budgets, C2L campus teams lack the ability to conduct randomized control group studies. The network spans diverse campus contexts, marked by differences in focus, purpose, and level of student preparation. Campus methods of gathering data therefore have varied. Although the C2L data has limitations, it is nonetheless suggestive and intriguing.

A Growing Body of Success Data

In its initial years, the ePortfolio field produced relatively little evidence that traced the relationship of

ePortfolio and student success (Bryant & Chittum, 2013). But there have been some efforts to document and analyze this linkage. The landmark Cambridge, Cambridge, and Yancey (2009) collection, *ePortfolio 2.0, Emergent Research on Implementation and Impact*, presented 22 studies drawn from 30 campuses. Two studies discussed data on ePortfolio's relationship to student success. Hakel and Smith (2009) noted that, at Bowling Green State University, students who built ePortfolios demonstrated higher grade-point averages, credit accumulation, and retention rates than did control groups. Data in an article on LaGuardia Community College (Eynon, 2009b) showed that students in ePortfolio-intensive courses across the campus had a course pass rate of 74.9%; for students in non-ePortfolio sections of comparable courses, the pass rate was 69.1%. Comparison of next-semester retention rates showed that students enrolled in at least one ePortfolio-intensive course had a return rate of 75%; for the comparison group, the rate was 70.0%.

LaGuardia has continued to document and report on data from a wide range of courses. For example, a 2012 report to the U.S. Department of Education noted:

Data provided by the Office of Institutional Research over a period of years suggests that students building ePortfolio are more likely to return the following semester; and 2011-12 was no different. The composite one-semester retention or graduate rate for student in impacted courses [in 2011-12] was 80.4%, versus 61.7% for students in comparison courses . . . Likewise, students enrolled in impacted courses had higher course completion (96.4%, + 1.8 percentage points), course pass (79.7%, + 8.2 percentage points) and high pass—C and above (77.7%, + 9.9 percentage points)—rates than students in comparison courses. (LaGuardia Community College, 2014c, para. 14)

Meanwhile, other campuses have begun to document the relationship of ePortfolio use to student success. A constellation of C2L campuses now present ePortfolio-related student success evidence. Examples include:

- At Rutgers University (2014), in the Douglass Women's College, ePortfolio was introduced into a required first semester "mission" course in 2008-2009; student performance improved significantly. The average grade point in the course for the two semesters before ePortfolio was introduced was a B (3.213); in nine semesters with the ePortfolio, students earned an average of a B+ (3.508). Students' GPAs across all of their courses improved, as well. Before the ePortfolio, their average cumulative

- GPA was 2.933; in the nine semesters since, average cumulative GPA has been 3.095.
- San Francisco State University (2014) integrated ePortfolio into the Metro Health Academy, a learning community for high-risk students. Data shows that retention rates at every stage compare favorably with university-wide averages (see Figure 1).
 - Indiana University-Purdue University Indianapolis (IUPUI, 2014a) used ePortfolio in several areas of the University. In many sections of IUPUI’s First-Year Seminar, students completed an ePortfolio-based personal development plan (ePDP). Data IUPUI (2014c) analyzed with a linear regression to account for high school GPAs, SAT scores, and other variables shows that students in First-Year Seminar sections that required an ePDP had significantly higher fall cumulative GPAs (2.82) compared to students in sections that did not require the ePDP (2.73).
 - At CUNY’s Queensborough Community College (2014a), all incoming students were enrolled in First Year Academies. One sector of the Academies used ePortfolio, the other sectors did not. Compared to College benchmarks, the Academy approach demonstrated significant improvement in pass rates and next semester retention (Queensborough Community College, 2014b). The improvements in the ePortfolio group were larger still (see Figure 2).
 - Tunxis Community College (2014) in Connecticut, a year-long comparison between ePortfolio and non-ePortfolio sections of developmental English courses showed that At ePortfolio sections had 3.5% higher pass rates and an almost 6% higher retention rate. Meanwhile, data showed that students across the college who had taken multiple courses with ePortfolio, from first year to capstone, were more likely to be retained than students who had fewer or no ePortfolio exposures (Tunxis Community College, 2014; see Figure 3).

Figure 1
San Francisco State University Retention Rates of Metro Health Academy At-Risk Students Compared to University-Wide Averages

| San Francisco State University | | |
|--------------------------------|---|--|
| | Metro Academy, ePortfolio First Year/ First Time Students | All SFSU First Year/ First Time Students |
| 1 Yr Retention Rate | 90.0% | 79.3% |
| 2 Yr Retention Rate | 79.0% | 60.0% |
| 4 Yr Grad'n Rate | 24.6% | 14.9% |

Note. (San Francisco State University, 2014)

Figure 2
Improvements of ePortfolio Group Students at CUNY's Queensborough Community College

| Queensborough Community College | | |
|---------------------------------|---------|--------------------|
| Retention | Percent | Intervention |
| Fa 2006-Sp 2007 Retention | 65% | Benchmark |
| Fa 2009-Sp 2010 Retention | 88% | Freshman Academy |
| Fa 2009-Sp 2010 Retention | 97.8% | FY Academies w/ eP |

Note. (Queensborough Community College, 2014b, Table 3)

As discussed above, this data has limitations, and is not in any way conclusive. Nonetheless, this constellation of outcomes data does represent an emergent pattern, and compares well to the kinds of data widely used for decision-making by state agencies, funders, and higher education institutions. As such, it provides a suggestive body of evidence for the proposition that sophisticated ePortfolio initiatives can demonstrate a correlation between ePortfolio usage and improved student success.

Other aspects of this data are also worth noting. One is that positive outcomes are seen across institutional type. The impact on student success at the community college level is particularly notable. But positive outcomes have also been documented at private liberal arts colleges, urban public universities, and Research I institutions.

It is also notable that, in many of these cases, ePortfolio is used in conjunction with other high-impact practices (Kuh, 2008), such as First Year Experience programs, learning communities, and capstone courses. When sharing their data, SFSU leaders noted that the benefits for their students could not be attributed to ePortfolio alone, but might also be due to the learning community element of the Metro Health Academies. The QCC data, a comparison of first-year learning communities with and without ePortfolio, provides an interesting counter-point, as does data from Rutgers and IUPUI. And that underscores an interesting point. The fact that evaluation has been conducted on multiple campuses with a variety of approaches may limit direct comparability: but it also creates breadth and diversity that evaluation focused on one campus rarely displays.

In fact, across the C2L network, we find that much of the data comes from contexts in which ePortfolio use is linked with capstone courses, active learning pedagogy, and experiential learning. We suggest that this supports an emergent proposition that the most powerful ePortfolio practice is inherently connective and integrative; and that part of what it does is connect and enhance the impact of other High Impact Practices. In this sense, ePortfolio could be understood as what Kahn and Scott (2014d) from IUPUI have called a “meta-high impact practice.”

It is worth noting what this data does not show. If it begins to suggest that ePortfolio practice can support improved student success, it does not explain why or how. How does ePortfolio shape the student learning experience? Does ePortfolio use advance students’ sense of belonging to the campus community? Their sense of educational self-efficacy? Their ownership of their education? What kinds of ePortfolio pedagogies are effective? What support structures are required to

help students and faculty take advantage of the ePortfolio? Success data by itself cannot answer these questions. Other kinds of data can, however, help us begin to explore these questions and better understand the ways ePortfolio affects the quality of the student learning experience.

Proposition #2

Making Student Learning Visible, ePortfolio Initiatives Support Reflection, Social Pedagogy, and Deep Learning

Helping students reflect on and connect their learning across academic and co-curricular learning experiences, sophisticated ePortfolio practices transform the student learning experience. Advancing higher order thinking and integrative learning, the connective nature of ePortfolio helps students to construct purposeful identities as learners.

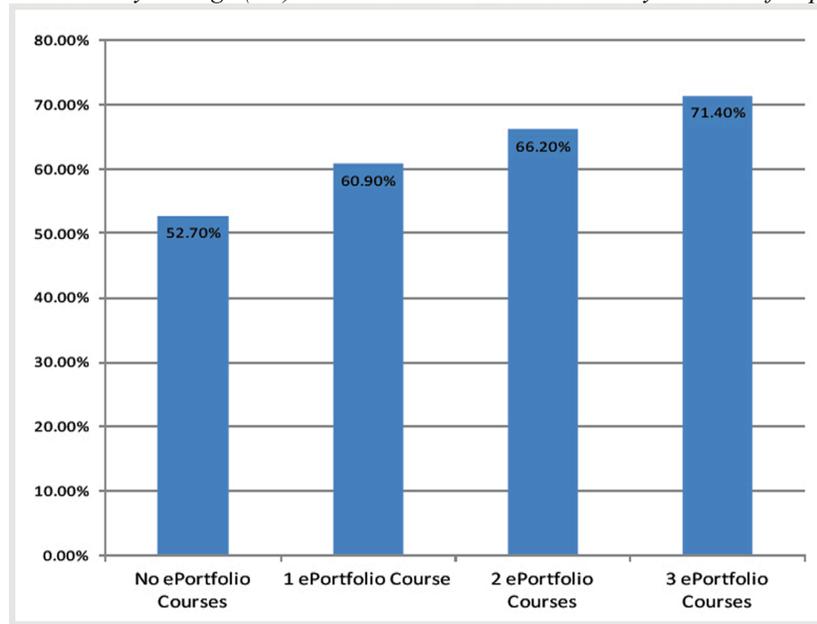
While student success data is important, it provides limited insight into the ePortfolio learning experience. Those who have less experience with ePortfolio may make a quick leap from such data to an assumption that implementing ePortfolio will automatically lead to improved student outcomes. Those with more experience know, however, that the value of ePortfolio for students depends on how it is implemented: the pedagogy and practices of faculty and staff, as well as broader support structures.

With this in mind, C2L has taken two steps. First, C2L campuses are documenting the practices they find most powerful for enhancing student learning. Available on the Catalyst website, this documentation illuminates the pedagogy used by ePortfolio faculty across campuses. Second, C2L campuses have also been surveying students, seeking insight into the ways students understand their ePortfolio experience. As outlined below, campus practices and the survey data both suggest that the value of the ePortfolio experience emerges from the ways it makes learning visible, facilitating connective reflection, sharing, and deeper, more integrative learning.

Making Learning Visible—Reflection

What does it mean to make learning visible? Most obviously, ePortfolios can make the learning process more visible to students themselves. Curating a body of their own learning artifacts, collected over time and in different settings, provides students with opportunities to examine and reflect on their learning. As experienced ePortfolio practitioners know, however, meaningful reflection does not just happen. Skillful and intentional pedagogy is required from faculty and staff.

Figure 3
Tunxis Community College (CT) Next Semester Retention Rates by Number of Exposures



To strengthen reflective pedagogy, C2L teams studied the ideas of John Dewey as summarized by Rodgers (2002). In “Defining Reflection: Another Look at John Dewey and Reflective Thinking,” Rodgers (2002) posited four criteria for meaningful reflection:

- Reflection as connection: Dewey posited experience and reflection as essential and complementary elements of learning. Rodgers (2002) wrote, “Reflection is a meaning-making process that moves a learner from one experience into the next with a deeper understanding of its relationship with and connections to other experiences and ideas” (p. 845). Reflection is critical to integrative learning: making links across semesters and disciplines—and between coursework and personal, family, and community life.
- Reflection as systematic and disciplined: Some see reflection as vague musing. But Rodgers argues that “Reflection is a systematic, rigorous, disciplined way of thinking, with its roots in scientific inquiry” (p. 845). She laid out Dewey’s reflective process, moving from experience to description, analysis, and application of insight to new actions.
- Reflection as social pedagogy: Our most familiar image of reflection is individual and solitary. But Dewey suggests that meaningful

reflection often happens in community, in conversation and interaction with others.

- Reflection as an attitude towards change: Reflection is not only cognitive but also affective, involving openness, curiosity, and a readiness to reconsider long-held ideas about oneself and the world. “Reflection” writes Rodgers, involves “attitudes that value the personal and intellectual growth of oneself and others” (p. 845).

C2L campus teams studied Rodgers and built her insights into reflective pedagogy and practice. Documented and discussed in the Pedagogy sector of the Catalyst website (<http://c2l.mcnrc.org/pedagogy/>), their practices take advantage of the ways in which ePortfolio makes student learning visible to prompt powerful reflective processes and help students integrate their learning. Reflective strategies used by C2L campuses include scaffolding designed to help students to:

- Connect diverse course-based experiences and build reflective skills. ePortfolio-based reflections at Pace University’s (2014a) Media and Communication Arts graduate program begin as lower-level reflection on specific artifacts; a reflective essay completed at semester’s end elicits higher level reflection, asking students to examine their own strengths and weaknesses. Staged assignments in Salt

Lake Community College's (2014a) Geospatial Program move students from simple process-based reflections to more integrative reflection and synthesis by the end of the program.

- Link course-based learning to co-curricular learning and advisement. At Rutgers University's (2014) Douglass College, advisors structured ePortfolios to help students connect academic pathways to co-curricular programs and service learning, building leadership skills. At IUPUI (2014a) and CUNY's Stella and Charles Guttman Community College (2014a), advisors used ePortfolio to support educational planning and facilitate an effective transition to college life.
- Connect their learning to academic competencies and professional standards. Boston University's (2014a) College of General Studies used ePortfolio to help students understand, focus on, and document growth around key general education competencies. In the Nursing courses at Three Rivers Community College (2014a), students used reflection to help demonstrate the ways they met professional accreditation requirements.

These strategies are not mutually exclusive, of course. In the First Year program of Virginia Tech's (2014) College of Natural Resources, students use their ePortfolios to deepen their understanding of the discipline, connect with peer advisors, and think about their personal commitment to sustainability and environmental protection. At Three Rivers Community College (2014a), nursing students use ePortfolio in every course offered by the program; they not only document competency-focused achievements, but also reflect on their clinical experiences, examine their personal attitudes and biases towards different types of patients, and work to develop their identities as nursing professionals.

As C2L campuses integrate such reflective strategies into their ePortfolio practices, they use survey data to explore student perspectives on the experience. In 2011, C2L leaders developed a C2L Core Student Survey, administering it in four subsequent semesters. Based in part on questions previously used at LaGuardia and campuses taking part in earlier projects led by LaGuardia's Making Connections National Resource Center (e.g., Bronx Community College), this instrument was designed to capture the attitudes and perspectives of students taking ePortfolio courses. Several additional items from the National Survey of Student Engagement were also included, with permission and slightly modified to fit the purpose of the C2L project. Data from four semesters of student

responses ($n = 9,542$) has now been collected from campuses across the C2L network.

The C2L Core Survey had three main goals: First, capturing student perspectives on ePortfolio courses, the survey offered evidence that can deepen our understanding of how ePortfolio usage affects the student learning experience. Second, survey evidence complemented and contextualized the individual student ePortfolios available on the Catalyst site. Lastly, the large data set offered by this multi-campus implementation created analytical opportunities that went beyond smaller surveys done only at individual schools and programs. As an overview of C2L's findings, this article can only begin to tap the richness of this survey data; articles examining this data in greater depth are planned.

Administered on campuses where faculty are implementing reflective strategies such as those listed above, some C2L Core Survey questions explicitly address the ways in which the ePortfolio experiences shaped student learning (see Table 1). For example, students used a four-part scale to indicate their level of agreement or disagreement with the statement "Building my ePortfolio helped me succeed as a student." Nearly two-thirds (63.3%) of respondents agreed or strongly agreed with this statement. Similarly, 65.6% agreed or strongly agreed that "Using ePortfolio has allowed me to be more aware of my growth and development as a learner." And, 70.0% agreed or strongly agreed that "Building my ePortfolio helped me to make connections between ideas." This suggests that the integrative ePortfolio experience helped students build a more holistic self-portrait, a way of understanding themselves as learners.

The C2L Core Survey included open-ended questions about the ePortfolio experience, asking students how it shaped their learning. The replies create a rich body of qualitative evidence; while this data is still being fully analyzed, it is clear that it extends patterns demonstrated in the quantitative data. Sample responses include: "ePortfolio has supported my growth and learning because I was able to bring my ideas together. I learned that I have accomplished a lot throughout my college career"; "ePortfolio has introduced me to my hidden goals in my life. Jotting down my goals in a place helped me work on them"; "I got to show who I was. While creating my ePortfolio, I learned more about myself"; and

The best part was to be able to apply my own work into it . . . I love how it links to assignments that you have done because these assignments can help other students continue their education. I also enjoy that I grew from a learner and I developed skills that I didn't know before. It helps me connect between new ideas and old ones.

Table 1
Student's Integrative ePortfolio Experiences

| C2L core survey items | % Agree or strong agree |
|---|-------------------------|
| Building my ePortfolio helped me think more deeply about the content of the course. | 62.0% |
| Building my ePortfolio helped me succeed as a student. | 63.3% |
| Someday, I'd like to use my ePortfolio to show what I've learned and what I can do to others, such as potential employers or professors at another college. | 70.0% |
| Using ePortfolio has allowed me to be more aware of my growth and development as a learner. | 65.6% |
| Building my ePortfolio helped me to make connections between ideas. | 70.0% |

Table 2
Deep Learning Questions Drawn from the National Survey of Student Engagement

| C2L core survey items | % Quite a bit or very much |
|---|----------------------------|
| To what extent has your experience in this course . . . | |
| contributed to your knowledge, skills, and personal development in writing clearly and effectively? | 73.5% |
| contributed to your knowledge, skills, and personal development in understanding yourself? | 74.1% |
| emphasized applying theories or concepts to practical problems or in new situations? | 73.6% |
| emphasized synthesizing and organizing ideas, information, or experiences in new ways? | 78.3% |

These ePortfolio-specific questions were flanked by questions drawn from the National Survey of Student Engagement (see Table 2). Asked how much their coursework “Contributed to your knowledge, skills, and personal development in understanding yourself,” 74.1% responded with *quite a bit* or *very much*, reinforcing the idea that reflective ePortfolio experiences supported self-understanding, or what Baxter Magolda, Hodge, and Haynes (2009) termed “self-authorship.” Student responses were also strong on questions related to integrative and higher order thinking, key elements in deep learning. Drawing on the work of Tagg (2003) and others, Laird, Shoup, and Kuh (2005) linked these questions to what they call deep-level processing: reflection on relationships between pieces of information; focusing on substance and underlying meaning; and personal commitment to understanding. Asked, for example, about engagement in “synthesizing and organizing ideas, information, or experiences in new ways,” the percentage of C2L students who responded with *quite a bit* or *very much* was 78.4%.

The practices and data from C2L campuses, while not conclusive, suggest that reflective ePortfolio pedagogy helps students make meaning from specific learning experiences and connections to other experiences, within and beyond the course. Integrative ePortfolio strategies prompt students to connect learning in one course to learning in other courses, co-curricular activities, and life experiences. Ultimately, students recursively connect their learning to

consideration of goals and values, constructing a more intentional and purposeful sense of self.

Making Learning Visible—Social Pedagogy

While students' integrative reflections on their own learning are invaluable, making learning visible has other facets, as well. Used with what Bass (2014b) has called “social pedagogy,” the ePortfolio can facilitate collaboration and exchange, learning-centered connection with faculty, students, and other viewers outside the campus. In a working paper shared with C2L campuses, Bass and Elmendorf (2012) wrote:

We define social pedagogies as design approaches for teaching and learning that engage students in authentic tasks that are communication-intensive, where the representation of knowledge for an authentic audience is absolutely central to the construction of knowledge in a course . . . By extension, through the use of integrative strategies such as ePortfolios, social pedagogies are also design approaches that help students deepen their reflections, build links across courses and semesters, and bridge between formal curricular and co-curricular learning. (p. 2)

Responding to Bass and Elmendorf's (2012) paper, C2L faculty developed activities that used ePortfolio with social pedagogy and shared them on the Catalyst website. Reviewing these practices, Bass (2014b) found

four ways in which campuses were using social pedagogy with ePortfolio:

- Peer response and social interaction deepen individual work. In Guttman Community College's (2014a) Arts in NYC assignment students were asked to respond to each other's comments via the course ePortfolio and to use each other's ideas to generate insight and analysis into their own writing. A staged reflective process was used in Northeastern University's (2014a) master's level education courses, starting with social exchange and leading towards more individual reflections.
- Team-based work creates a collectively produced artifact. In Boston University's (2014a) General Studies second-year capstone team project, students spent the last 4 weeks of their sophomore year working in groups of five to seven to research a contemporary problem; they created a presentation that described the problem and its contexts and proposed a real-world solution. Using an ePortfolio facilitated the collaboration and shared the presentations for review by the class.
- The use of an external audience raises the stakes for production. For example, the University of Delaware (2014a) had teacher candidates create a "defense of mastery," presentation-style ePortfolio for review by external viewers, thus creating a high stakes setting that replicated a position interview process.
- The organization of students into an expert-like knowledge community of practice engages them with their learning. In Pace University's (2014a) microbiology course, students spent 8 weeks developing expertise on a species of bacteria, which they presented as a resource to other courses using ePortfolio. In IUPUI's (2014a) art history capstone course, students engaged in an extensive peer review process of each other's portfolios and reflected on what they saw and learned. Through this process, they began to understand that their own paper was part of a wider research possibility, and that research is a way of thinking rather than a page and word limit.

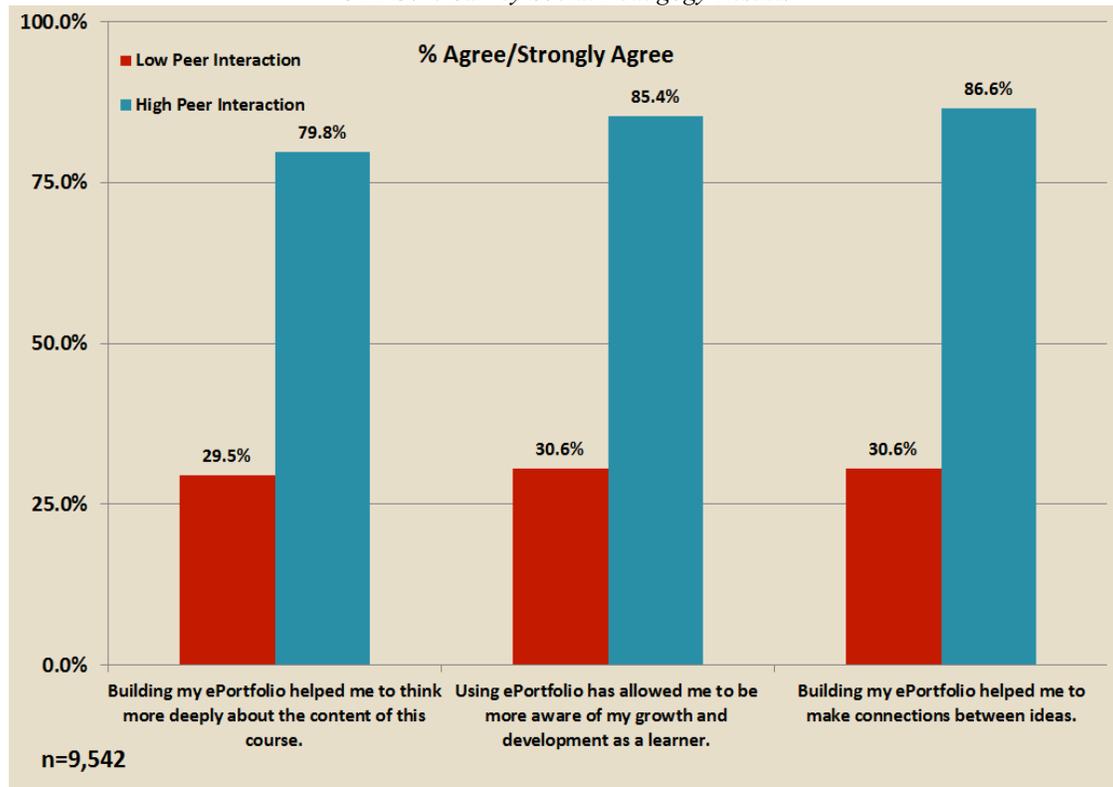
Based on his review, Bass and Elmendorf (2012) argued that a social pedagogy for ePortfolio—asking students to use ePortfolio to articulate their insights into learning to authentic audiences—can help them engage more deeply with content and concepts, integrate their understandings, and develop a more purposeful approach to learning.

Four semesters of C2L survey data supports the idea that the ePortfolio experience is enhanced when an audience looks at and responds to the ePortfolio. The role of audience was explored from two perspectives: instructors and peers. The role of instructors in ePortfolio-based interaction was analyzed based on students' reports that instructors had reviewed, discussed, and given feedback on their ePortfolios. A scale was created by taking the mean responses to three instructor-related items, such as "My instructor provided useful feedback on my ePortfolio." The Cronbach's alpha for these three items was .85. The values for the instructor feedback were normalized on the same scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). *Strongly disagree* and *disagree* were collapsed into what is described as "low instructor feedback," and *agree* and *strongly agree* were collapsed into "high instructor feedback." An independent-samples *t* test was conducted to compare the impact of low and high instructor feedback on these items. For each item, students who recognized instructor feedback as an important component of their ePortfolio development (high feedback) reported significantly higher course experiences, as compared to their peers in the low feedback group. Across four semesters, 75.4% students with high levels of instructor feedback agreed or strongly agreed with the statement "Using ePortfolio has allowed me to be more aware of my growth and development as a learner." For students with low levels of instructor feedback, the comparable figure was 20.6%.

Similarly, a peer feedback scale was created by taking the mean of the responses to two comparable peer-related items, asking students whether other students had reviewed and given them feedback on their portfolios. The Cronbach's alpha for these items was .81. Again, *strongly disagree* and *disagree* were collapsed into what is described as low peer feedback and *agree* and *strongly agree* were collapsed into high peer feedback. An independent-samples *t* test was conducted to compare the impact of low and high peer feedback on these items. For each item, students who recognized peer feedback as an important component of their ePortfolio development (high feedback) reported significantly higher course experiences, as compared to their peers in the low feedback group. This data reveals that 85.4% students who reported high levels of student feedback agreed or strongly agreed with the statement "Using ePortfolio has allowed me to be more aware of my growth and development as a learner." The figure for students who received low levels of student feedback was 30.6%.

This striking pattern is also found in response to other items, such as "Building my ePortfolio helped me think more deeply about the content of this course," "Building my ePortfolio helped me succeed as a student," and "Building my ePortfolio helped me make

Figure 4
C2L Core Survey Social Pedagogy Results



connections between ideas.” When students know someone is looking at their ePortfolio, its value as a vehicle for deepening contextualized learning is enhanced dramatically (see Figure 4).

A similar pattern emerged around questions in the C2L Core Survey that were drawn from the NSSE and associated with higher order and integrative thinking. For example, asked how much their course involved “applying theories or concepts to practical problems or in new situations,” 82.4% students with high levels of instructor interaction said quite a bit or very much; for students with low levels of instructor interaction, the figure was 36.4%. On the same question, among students who reported high level of student interaction around the ePortfolio, 86.7% agreed or strongly agreed. Among students who reported low levels of interaction, the figure was only 56.0%.

This data further suggests that a social pedagogy for ePortfolio enhanced the integration of academic learning with the processes of identity construction. Asked how much their course “contributed to [their] knowledge, skills, and personal development in understanding [oneself],” 85.3% of students who reported a high degree of ePortfolio-based interaction with other students said quite a bit or very much. Of

students who reported a low degree of interaction, the comparable figure was 55.5%.

Qualitative data from the Core Survey included many responses highlighting the importance of audience and interaction to the portfolio experience. “ePortfolio has allowed me to receive feedback and criticism of my work from fellow classmates. I have learned where my weaknesses and strengths are as a designer,” commented one student. “The best part was seeing other students’ ePortfolios and getting to know them and their experiences,” noted a second. Wrote a third: “The best part of working with ePortfolio is that I can share this with people and they can see what I have done in school.”

This preliminary data analysis suggests that ePortfolio processes shaped by reflective and integrative social pedagogies make learning visible, helping students to link different parts of their learning and connect their own learning to others. A large majority of students reported that building an ePortfolio “helped me to make connections between ideas” and “apply theories or concepts to practical problems or in new situations.” This supports the argument that ePortfolio’s value is rooted in its connective power, its ability to help students to link a range of experiences. In

“It Helped Me See a New Me: ePortfolio Learning and Change at LaGuardia Community College,” Eynon (2009a) did a close reading of multiple ePortfolios and examined survey data to argue that integrative ePortfolio practice engaged LaGuardia students in a process of identity construction, helping them understand themselves as learners and emerging professionals. The C2L data further indicates that interacting on ePortfolio helps students understand themselves as learners, suggesting that ePortfolio experiences shaped by integrative social pedagogies help students take ownership of their learning, building not only academic skills but also the more affective understandings of self seen by Keeling (2006), Baxter Magolda et al. (2009), and others as critical to student success and meaningful education.

In recent decades, cognitive researchers and educational theorists from Keeling (2006) to Baxter Magolda et al. (2009) have redefined the dimensions of learning and development. Championed by the Association of American Colleges and Universities and others, a broad educational movement has emerged around what could be called the Quality Agenda, highlighting the importance of pedagogies and high-impact practices that engage students as active learners, constructing knowledge and understanding and developing as complex thinkers who connect learning within and beyond the classroom to address new challenges in education, career, personal, and community life. C2L findings suggest that ePortfolios can play a major role in helping colleges and universities address not only Completion but also the Quality Agenda, advancing and supporting higher order thinking and integrative personal growth.

Much analysis remains to be done on the C2L data. Even at this early stage, however, C2L evidence suggests that students engaged with sophisticated ePortfolio pedagogies are more likely to engage in higher-order thinking, integrative learning, and other high impact learning behaviors. These findings suggest that, by helping students to deepen and integrate their learning, sophisticated ePortfolio initiatives can help institutions address the Completion Agenda and Quality agendas.

Proposition #3

ePortfolio Initiatives Catalyze Learning-Centered Institutional Change

Focusing attention on student learning and prompting connection and cooperation across departments and divisions, ePortfolio initiatives can catalyze campus cultural and structural change, helping the institution move towards becoming a learning organization.

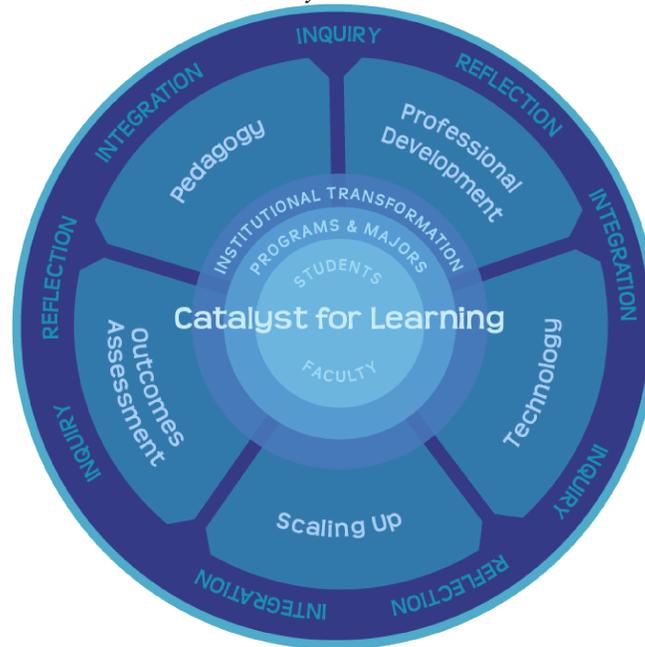
C2L’s findings show that reflective, integrative, and social pedagogies are key to improving student learning, engagement, and success. Yet we also found that on most C2L campuses, the work of ePortfolio innovators extends beyond pedagogy. Working with faculty, staff, departments, and centers, C2L teams have addressed institutional structure and culture from multiple angles. C2L research suggests that effective ePortfolio initiatives build vibrant programs with work in five interlocking sectors:

- Integrative social pedagogy: As discussed above, the theory and practice that guides the use of ePortfolio to support and deepen student learning;
- Professional development: The active processes (e.g., workshops, seminars) that help faculty and staff learn about ePortfolio technology and pedagogy;
- Outcomes assessment: The use of ePortfolio and authentic classroom work to support holistic assessment of programs and General Education outcomes;
- Technology: The choices campuses make about ePortfolio platforms and related support mechanisms;
- Scaling up: Planning, Building and Evaluating an ePortfolio Initiative: The active work by campus ePortfolio leaders with students, faculty, departments, administrators, and other stakeholders to build their initiatives.

Actively addressing all five sectors of what C2L labels the Catalyst Framework (see Figure 5) is a demanding task for ePortfolio teams. But it has a payoff. We find that campus teams that work effectively across the Framework build more robust and sustainable ePortfolio initiatives. The ability of campus ePortfolio leaders to organize meaningful professional development, for example, shapes the curricular and cultural context for broad enhancement of student learning. Effectively engaging faculty, departments and college stakeholders is key to attracting the support needed to sustain an ePortfolio initiative. Moreover, there is a bonus. Because an integrative ePortfolio initiative requires collaboration across multiple sectors of the campus, it has the potential to engage diverse campus groups, who may otherwise rarely connect, in a shared conversation about student learning. Coordinated and cohesive ePortfolio projects have the capacity to advance an integrated learning culture and catalyze institutional change.

If C2L’s first and second propositions address, respectively, the Completion and Quality agendas, the third proposition speaks to what could be called the Change agenda. While the Completion and Quality

Figure 5
The Catalyst Framework



agendas are well known, this third agenda for higher education is perhaps equally important. How can colleges and universities build their capacity to respond and adapt to changing conditions and new possibilities? How can they thoughtfully engage faculty and staff expertise to advance institution-wide innovation that is focused on student learning? How can they build learning cultures and become more integrated and adaptive learning organizations? C2L's findings suggest that ePortfolio initiatives have the potential to help colleges and universities address these increasingly pressing needs.

This third proposition is qualitatively different than the first two—both more sweeping and more difficult to assess. Our work around it is at a more formative stage, and the evidence is more complex. The evidence for this proposition derives primarily from the practices shared by C2L teams who have documented their work in each sector of the Framework and described how it contributed to their campus initiative. This self-report data does not support hard and fast conclusions, but it is fascinating and meaningful; and, even at this early phase, we believe it deserves careful consideration.

Professional Development

Much could be said about the strategies employed by C2L campuses in each sector. In this article, we can do only a brief review. Having discussed pedagogy above in Proposition 2, we will start here with professional development.

C2L findings suggest that the most vibrant ePortfolio campuses paid sustained attention to professional development. Faculty development was instrumental to ensuring the quality of ePortfolio practice and to helping faculty explore, test, and adapt integrative, social ePortfolio pedagogy for the needs of their disciplines and courses. C2L teams used a range of professional development structures, including workshops, sustained seminars, summer institutes, and on-line tutorials. Across diverse structures, their processes sought to engage faculty in an inquiry into learning and teaching and to encourage reflective practice. Salt Lake Community College (2014b) described a relatively typical approach, which helped faculty prepare to teach with ePortfolio and reflect on the experience:

At SLCC, we take a “rooted in community” approach to our faculty and staff professional development on ePortfolios by fostering intensive conversations and collaboration across the curriculum. Now, we have collaborative “Boot Camps,” in which faculty and staff from diverse disciplines spend a day working together to reshape the ways that they use ePortfolios in their classrooms . . . Members of the cohort share draft assignments and reflection prompts with the group, and receive feedback from their colleagues as well as from the cohort leader. This fall we had support cohort members build their own ePortfolios and design course pages to share with students. The

purpose of this was to help faculty walk the talk with their students. (para. 1-2)

Critical to advancing effective ePortfolio practice, effective professional development can also have a broader impact. Working with student ePortfolios can transform the impact of professional development. C2L leaders often develop activities that ask faculty to collectively examine examples of student work related to particular pedagogical innovations. Doing so through ePortfolio can help deepen a professional development conversation, moving it from a focus on what teachers do to what students do, from a teaching-focused conversation to one that focuses on student learning—and on the complex, reciprocal relationship of learning and teaching. C2L leaders from the University of Delaware (2014b) reported that having faculty collectively examine student work in an ePortfolio context was a powerful experience:

Faculty observed that they gained new insights into the way students interpreted and completed assignments. They also reported being able to more comprehensively gauge students' knowledge acquisition based upon reading students' written reflections in addition to reviewing the students' work. They in turn used this obtained knowledge to adjust their curricula accordingly. (para. 3)

Similarly, at San Francisco State University (2014), the C2L team noted:

The use of the ePortfolio has aided curriculum development across departments and has allowed us to move from a more faculty-centered approach to a more student-centered one where we analyze what they are learning specifically. It has also helped us have conversations in developing pedagogical strategies as well as a more in-depth look at assignments and how they can be modified to reach the desired outcome. (para. 2)

In students' ePortfolios, faculty can view not only student work, but also student reflections on that work. Also, they can set that work in a richer context. If students are building an ePortfolio across courses and semesters, faculty can compare the work done in current courses to work done earlier or in different disciplines. They can consider the learning that takes place in co-curricular and off-campus experiences. In this context, the inquiry shifts from the individual faculty or course to programs, departments, and to interdisciplinary (and inter-divisional) discourse. Examining student learning that crosses traditional boundaries can catalyze a broader conversation about learning and pedagogy,

going beyond courses and credits to focus on students and student learning.

The C2L team from Manhattanville College (2014a), for example, has brought together faculty and staff from traditional departments (e.g., English, psychology and Fine Arts) with leaders of the Center for Career Development, the Athletics Department, undergraduate research initiatives, and others. The open and integrated nature of the process, they suggested, deepened and changed its impact:

In all of our professional development programs, we actively recruit faculty and staff from across the disciplinary and programmatic spectrum. We work hard to disrupt “one size fits all” conceptions of ePortfolio by asking these diverse groups to collaboratively investigate the ways in which ePortfolios can meet their individual and collective goals for teaching, learning, programming and professionalism. In this way, ePortfolio professional development has become a catalyst for bringing faculty and staff who perform vastly different functions across our campus together to build an understanding of ePortfolio as a . . . way of thinking that can serve a complex web of interconnected goals and objectives. (Manhattanville College, 2014b, para. 12-13)

ePortfolios bring diverse student work together in ways that ask students to relate different dimensions of their learning. Often conferring a different sense of audience from what drives conventional coursework, ePortfolios ask students to relate the parts of their learning to the construct of a larger whole. Integrative ePortfolios make student learning visible in ways that are contextualized and personalized, conferring significance on choices and intentionality on consequences. Placing ePortfolios at the center of sustained and creative professional development processes has the potential to not only build ePortfolio initiatives and advance sophisticated pedagogy, but also change and deepen the campus conversation about teaching and learning.

Outcomes Assessment

Outcomes assessment is a crucial and demanding area of work for many ePortfolio initiatives, including those in the C2L network. A new study (Kuh, Jankowski, Ikenberry, & Kinzie, 2014) showed that, as pressure for accountability mounts and a growing number of educators come to understand the value of meaningful outcomes assessment, the number of campuses using ePortfolio for program review and assessment of General Education was exploding—more

than tripling between 2009 and 2013. On some campuses, institutional support for ePortfolio is primarily based on its use for outcomes assessment. C2L campus teams invested considerable energy in working with a range of faculty and other stakeholders to support meaningful outcomes assessment.

While challenging, the linkage between ePortfolio and outcomes assessment is crucial in broadening ePortfolio's impact and encouraging systemic thinking about student learning. Building outcomes assessment around ePortfolio can ground the process in student learning artifacts. In contrast to standardized national examinations, ePortfolio-based approaches link assessment to the authentic work of students and faculty. This connection creates opportunities to move beyond assessment OF learning and move towards assessment FOR learning—student learning, professional learning, and institutional learning (Penny Light, Chen, & Ittelson, 2011). Many C2L campuses are making progress in this regard.

The C2L campuses most advanced in assessment engage faculty in an inquiry process that uses ePortfolio-generated student artifacts to connect assessment to everyday classroom learning and teaching. At Boston University (2014b), “the assessment committee in charge of this project, made up of 11 faculty members, met once a month for a year to assess student ePortfolios as a group” (para. 5). Each summer, this team lead a broad faculty group in assessing 100 student ePortfolios. In the Nursing program at Three Rivers Community College (2014b), “ePortfolio [were] reviewed through rubrics, attainment of program outcomes, and qualitative statement analysis” (para. 4). Individual students' portfolios provided the data, which was then reviewed and discussed during the College's faculty retreats.

At IUPUI (2014b), assessment of student learning outcomes was conceptualized as “a faculty-led inquiry into student learning” (para. 13). A key value that ePortfolios add to common practice, according to IUPUI (2014b) leaders, is that they “support[ed] nuanced understandings of strengths and areas for improvement” (para. 13). Similarly, in the assessment process at LaGuardia Community College (2014b), faculty asked the questions, “what do we want students to learn, why, and how can we measure that learning?” (para. 8). The philosophy for outcomes assessment is one of “‘appreciative inquiry’ that asks the questions: ‘What do you do well? What can you do better?’” (Polnariiev, 2014, para. 15).

Leaders at LaGuardia and at Guttman Community College have linked inquiry-based assessment with discussion of curriculum change. Guttman Community College (2014b) explained:

Guttman's two main outcomes assessment structures – Assessment Days and GLO Teams – incorporate the design principles of inquiry, reflection and integration. These principles allow us to focus on assessment for learning and improvement across the college, keeping student learning visible at each phase of our work. Our Assessment Days provide the community ample opportunities to use ePortfolio-based outcomes assessment as a point of inquiry for asking the larger questions about how the integrated curriculum is impacting student learning. (para.20-21)

Using ePortfolios to put faculty-guided student learning at the center of an outcomes assessment structure makes it easier for faculty to reflect on assessment findings and make connections to their own everyday practice. In this way, ePortfolio can facilitate “closing the loop.” Implementing changes in curriculum and practice is widely understood to be one of the biggest challenges in the outcomes assessment field (Banta & Kuh, 1998). In a widely cited study of closing the loop, Trudy Banta (Banta, Jones, & Black, 2009) found that only 6% of campuses nationwide actually used assessment evidence of student learning to design and implement change. Using ePortfolio to support assessment can help campuses meet this challenge and make assessment more meaningful.

On some C2L campuses, linking ePortfolio-based outcomes assessment to reflective professional development facilitates closing the loop. LaGuardia offered professional development mini-grants, supporting the implementation of faculty recommendations emerging from the Periodic Program Review. Guttman Community College had mid- and end-of-semester Assessment Days built into their calendar. These days, they reported, are used for assessment-related professional development, guiding faculty and staff through a systematic, collaborative reflection process focused on institutional learning:

Through an intentional focus on student learning, the college is developing a culture of evidence and assessment that drives individual, team, unit and institutional growth and change In our inaugural year, reflection was largely centered on anticipated outcomes. This type of calculated anticipation led to several changes between the fall and spring semesters and in preparations for the incoming class of freshmen for fall 2013 As we celebrate our first graduating class in spring 2014, our reflections will naturally shift to questions related to the ways Guttman prepared students for success at four-year colleges and in careers. (Guttman Community College, 2014b, para. 21-22)

C2L leaders at Northeastern University (2014a) described a similar process, in which education faculty built ePortfolio into assessment and engaged in a deep process of inquiry and reflection. This led them to redesign their curriculum to better achieve their goals. Now, they reported on the site and in a recent article (Matthews-DeNatale, 2014), noted that each course had designated a signature assignment, each one progressively different—what they described as variation within continuity. These added up to a fully integrated curriculum:

The first three to four courses in each concentration have been co-designed by faculty as an integrated suite that takes students through a “cognitive apprenticeship” in the skills, understandings, and capabilities of professionals within the field. They are designed to foster connected learning, in which each course builds upon and complements the next, and the faculty have a clear understanding of how “their” courses intersect with and reinforce other courses in the program. (Matthews-DeNatale, 2014, p. 10)

C2L campus leaders realize that in order for their institutions to become true learning colleges, outcomes assessment must involve inquiry into authentic student work, connected to real classroom activity. Reflecting on ePortfolios and student work, faculty and staff can more easily identify realistic recommendations and integrate changes into curriculum and pedagogy. An ePortfolio-based cycle of inquiry, reflection, and integration helps faculty and institutions close the loop with changes that improve student learning. Moreover, such a process can spur a larger conversation about student learning. Building assessment processes so that they engage faculty and staff in sustained and structured inquiry into student learning can play an important role in helping an entire institution become more of a “learning college,” a place where everyone is focused on learning and changing, a place where the college itself is a learner, continuously learning how to deepen and advance student learning in every aspect of its practice.

Technology

Each sector of the Catalyst Framework is important, but they are important in different ways and play different roles in shaping a campus ePortfolio initiative. The technology sector is important to the extent that ePortfolio technology supports and enhances integrative student learning and links it to professional development and outcomes assessment. Those less familiar with ePortfolio often consider it primarily a platform or application. More experienced practitioners

know that pedagogy drives technology and that ePortfolio is more of a process, a way of teaching and learning. Accepting the importance of pedagogy and process, it is important to note that technology plays a role in that equation. ePortfolio technology has the potential to support change by facilitating a campuswide focus on pedagogy and student learning.

If sophisticated ePortfolio pedagogy asks students to document, reflect on, and integrate their learning, the most effective ePortfolio technology supports this process, helping students to: (a) connect different elements of their learning, bringing together curricular, co-curricular and experiential learning; and (b) share their contextualized learning with students, faculty, and other authentic audiences. Moreover, effective ePortfolio platforms also help faculty, staff, and other stakeholders connect to and focus on student learning. Facilitating the integration of artifacts into both professional development and outcomes assessment processes, quality ePortfolio platforms help deepen faculty, staff, and institutional learning.

On C2L campuses where ePortfolio initiatives are thriving, these complex goals guide the selection and management of an ePortfolio platform, bringing stakeholders from across institutional sectors together for a collective conversation about learning. For example, ePortfolio leaders at Pace University (2014b)

formed an ePortfolio advisory board and under the guidance of our CIO, created a “bucket list” of what we wanted our ePortfolio tool to do and look like . . . The advisory board consisted of about 25 faculty and staff from across the institution . . . To sum up the selection process, the pedagogy came before the technology. We determined our needs first and then selected Mahara based on that, and that was critical. (para. 13)

ePortfolio technology that facilitates a focus on pedagogy allows faculty and staff to easily examine student work in a more holistic context, supporting learning about and the improvement of pedagogy. As C2L’s Matthews-DeNatale (2013) explained about Northeastern University’s (2014b) program, “when positioned properly within a conversation about pedagogy, ‘ePortfolio as tool’ can expand the dialogue about teaching and learning . . . the conversation shifts from ‘learning within courses’ to ‘learning across courses’” (para. 32).

An effective ePortfolio technology can help deepen faculty, staff, and institutional learning by facilitating professional development and outcomes assessment processes on a campus. Moreover, an ePortfolio platform has the potential to support the scaling and growth of ePortfolio initiatives, enhancing a campus’s ability to make student learning visible across an entire

institution and catalyzing institutional learning and change.

Scaling Up

To build a successful ePortfolio initiative, C2L teams develop reflective social pedagogies, manage new technologies, and lead professional development and outcomes assessment processes. They also attend to a range of other tasks, issues, and processes that build campus engagement and institutional support—what C2L terms Scaling Up. By scaling up, we mean the strategies and approaches by which ePortfolio projects begin within small segments of an institution and then expand, as additional faculty and programs begin to work with ePortfolio. These tasks are instrumentally important, in and of themselves. In bringing together diverse campus constituencies for collaboration focused on student learning, they also create opportunities for deeper systemic change.

In “Disrupting Ourselves: The Problem of Learning in Higher Education,” Randy Bass (2012) argued that “students will learn to integrate deeply and meaningfully only insofar as we design a curriculum that cultivates that; and designing such a curriculum requires that we similarly plan, strategize, and execute integratively across the boundaries within our institutions” (p. 32). The process of developing an effective ePortfolio initiative, Bass has gone on to suggest, both requires and facilitates this integrative process:

ePortfolio increasingly serves as a network of connections—among students and faculty, and programs and majors, and integrating with institutional initiatives, such as General Education, outcomes assessment, and high-impact practices . . . [ePortfolio initiatives] provide a context for bringing together stakeholders from across boundaries, creating a network of connections that respond to the ecosystemic nature of institutions. By their integrative nature, ePortfolio initiatives foster collaborations across silos, connecting faculty, academic staff, student affairs professionals, advising, writing centers, technologists, librarians, employers, alumni, internship coordinators, community partners, and many more. (Bass, 2014a, p. 1-2)

Reviewing campus practices, C2L identified ten core strategies teams use to scale their initiatives. A partial list of these demanding, recursive tasks includes: engaging institutional leaders to help them understand ePortfolio’s value; securing internal and external funding; managing meaningful evaluation processes; building alliances with departments and programs; linking to High Impact Practices; and building a campus-wide ePortfolio culture. Northeastern

University’s (2014b) team, for example, described the strategic value of building alliances with key programs in building the campus initiative. They have established strong relationships with the undergraduate Writing Program, the Honors Program, and the Graduate School of Education. They explained their approach in their Scaling Up story:

When a school elects to institute ePortfolios program-wide, the initiative is more likely to succeed during times of change and wavering support. Once one program has an ePortfolio requirement, and the system of support is put into place, it becomes easier for other programs to adapt the innovator’s materials and systems for their own purposes. Diffusion of Innovations Theory predicts that successful programs in one area of an institution will breed similar programs within other areas of the institution. (Northeastern University, 2014b, para. 31)

The Northeastern University story highlights qualities that they believe advanced the Scaling process—vibrancy, stamina, and interpersonal relationship-building. They stressed the need for both bottom-up and top-down support. “Scale,” they wrote, “springs forth from growth within the hearts and minds of many people within an organization, from intrinsic motivation and consensus that change will be beneficial. Scale is a manifestation of organizational learning” (Northeastern University, 2014b, para. 3).

Scaling up and the work that campus teams do around pedagogy, technology, professional development, and outcomes assessment together demand sustained and intentional work. These efforts prompt teams to build partnerships and facilitate collaboration, bringing together faculty from diverse disciplines, advisors and co-curricular staff, IT staff and professional development facilitators, and executives from multiple divisions. The C2L team at Pace University (2014c) addressed the need to bring these groups together with an Advisory Board that encompassed “members from each of our academic areas and also the Library, Information Technology Services, Center for Teaching Learning and Technology, Office of Students Success, and Assessment Office” (para. 22). For the Pace team, this was part of a broader change effort:

One of our major goals has been to have ePortfolios permeate our Pace culture . . . Integrating learning and making connections have been our mantras . . . We have built partnerships with faculty, staff, and administrators from all schools, many disciplines, as well as Student Life, Office of Assessment, and Career Services . . . ePortfolios have been used by Student Life on one

campus as part of a new Leadership Certificate Program; students in the program—first year and second year students, and their upper class mentors, used the ePortfolio to document and reflect on their activities, workshops, and leadership development . . . We are also using ePortfolios for Tenure and Promotion review, which has been helpful in getting faculty experienced with the platform. (Pace University, 2014c, para. 4-8)

Our most successful C2L campus teams facilitate connection and collaboration across the institution, encouraging systemic conversations about student learning. Such sustained efforts to building an ePortfolio culture are critical to the ability to broaden and deepen ePortfolio initiatives. But such effort also yields dividends. The conversations and collaborations required for ePortfolio success can help to illuminate the holistic nature of the student learning experience, sparking structural change and building campus-wide commitment to learning-centered activities and processes.

Growing commitment to a learning culture and related changes in institutional structure and culture are evident on campuses across the C2L network, taking different forms on different campuses. As described earlier, in the Education School at Northeastern University (2014a), ePortfolio-based assessment is leading to visionary curriculum change focused on integrative learning. At Manhattanville College (2104b), the ePortfolio team initiated sustained professional development, “the first on our campus after a long period of no professional development” (para. 19). The power of the ePortfolio-based process sparked faculty interest in new opportunities for inquiry into teaching and learning. And this in turn led to administrative support. The College recently created a new campus-wide Center for Teaching and Learning, responsible for ePortfolio and broader pedagogical support.

At San Francisco State University (2014), the success of the integrative Metro Health Academies and the work of the ePortfolio team encouraged SFSU to rethink the way it supported entering students. Beginning in Fall 2013, an ePortfolio-based learning community approach was being expanded to serve 40% of the incoming student population. The Provost of Boston University (2014a) recently highlighted the ePortfolio initiative of the College of General Studies as an assessment model for other BU Colleges. Similarly, at Three Rivers Community College (2014a), the success of the ePortfolio effort in Nursing led the College to expand the use of ePortfolio and initiate a more powerful and authentic learning-centered assessment process for the campus as a whole.

At LaGuardia Community College (2014a), the ePortfolio effort has long advanced the importance of integrative learning, addressing the whole student. In 2012 LaGuardia Community College announced a sweeping institutional change effort reflecting a similar perspective, aligning student affairs and academic affairs, rethinking advisement, and rebuilding the First Year Experience. ePortfolio’s capacity to highlight holistic learning, support educational planning and identity development, and link curricular and co-curricular experiences can help create bridges between academic and student affairs. These two areas are now collaborating with academic departments to launch a new, discipline-based, credit-bearing First Year Seminar, incorporating ePortfolio as a required and central element.

Observing campus developments across our network, particularly those related to scaling up processes, we see that the growth of an ePortfolio initiative both requires and spurs broader changes in institutional culture and structure. In “Scaling Strategies and ePortfolio as a Catalyst for Change,” Bass (2014a) argued that ePortfolio initiatives have grown and deepened most successfully when they have aligned themselves with efforts to build a campus-wide culture of learning. Bass (2014a) suggested that integrative ePortfolio initiatives can serve as a catalyst for positive change, and highlighted three layers or dimensions of such a change:

- The shift to a student-organized view of learning, bridging curriculum and co-curriculum, where learners pull from knowledge resources and offerings to construct an increasingly customized educational experience that is both professionally productive and personally meaningful;
- The development of an institutional conversation on student learning, moving towards a learning-centered culture and structure;
- A shift in decision-making, investment, and allocation of resources and energy that encourages the institution to be responsive to high-impact learning.

While the C2L evidence is preliminary, it suggests that ePortfolios promote learning-centered connection, making student learning visible to faculty and staff across institutional boundaries. Requiring and facilitating collaboration across disciplines and departments, ePortfolio initiatives can help to break down traditional institutional silos. Supporting a richer, more holistic view of learning, encouraging a learning-centered institutional conversation, and catalyzing broad institutional change in structure and culture,

ePortfolios can help colleges become more adaptive learning organizations.

Conclusion

We live and work in a time of straitened budgets and heightened pressures on higher education. To survive and thrive in this demanding, high stakes context, ePortfolio innovators must develop new capacities. As a field, we must identify, share, and deploy effective strategies for growing and deepening our initiatives. We must also strengthen our ability to articulate persuasively the value and importance of our work for students, faculty, and institutions. In its work with 24 leading ePortfolio campuses, the C2L project represents a significant commitment to this effort.

We believe that ePortfolio has the potential to play a vital role in the evolution of higher education. But the future of the ePortfolio field depends on our collective ability to gather, analyze, and share evidence of the difference ePortfolio initiatives can make. C2L has analyzed an array of evidence that supports three propositions discussed in this article: we find that integrative ePortfolio initiatives can build student success, deepen student learning, and catalyze institutional change. These findings can add significantly to our collective understanding of the power of integrative ePortfolio practice. They underscore the value of thoughtful investment in the development of sustained and sophisticated ePortfolio initiatives, engaged in collaborative communities of practice and exchange. Moreover, they suggest a host of promising avenues for further research, analysis, and theory building. With this in mind, we offer these propositions for broad consideration, testing, refinement, and improvement. As a field, we believe, our shared engagement in this process will shape our capacity to advance a brighter future for students and colleges nationwide.

References

- Banta, T. W., Jones, E. A., & Black, K. E. (2009). *Designing effective assessment: Principles and profiles of good practice*. San Francisco, CA: Jossey-Bass.
- Banta, T. W., & Kuh, G. D. (1998). A missing link in assessment. *Change*, 30(2), 40-47. doi:10.1080/00091389809602606
- Bass, R. (2012). Disrupting ourselves: The problem of learning in higher education. *EDUCAUSE Review*, March/April, 23-33. Retrieved from <https://net.educause.edu/ir/library/pdf/ERM1221.pdf>
- Bass, R. (2014a). *Scaling strategies and ePortfolio as a catalyst for change*. Retrieved from http://c2l.mcnrc.org/wp-content/uploads/sites/8/2014/01/Scaling_Strategies.pdf
- Bass, R. (2014b). *Social pedagogies in ePortfolio practices: Principles for design and impact*. Retrieved from <http://c2l.mcnrc.org/pedagogy/ped-analysis/>
- Bass, R., & Elmendorf, H. (2012). *Excerpt from: Designing for difficulty: Social pedagogies as a framework for course design in undergraduate education*. Retrieved from SocialPedagogiesWhitePaperExcerpt_C2L_2012.pdf
- Baxter Magolda, M. B., Hodge, D., & Haynes, C. A. (2009, March). *Engaged learning: Enabling self-authorship and effective practice*. Paper presented at the Conference on Liberal Education and Effective Practice at Mosakowski Institute for Public Enterprise, Worcester, MA. Retrieved from <http://www.clarku.edu/aboutclark/pdfs/Hodge%20et%20al.pdf>
- Boston University. (2014a). *A Connect to Learning campus ePortfolio*. Retrieved from <http://bu.mcnrc.org/>
- Boston University. (2014b). *Outcomes assessment module C*. Retrieved from https://c2l.digication.com/boston_universitys_project_portfolio/Outcomes_Assessment_Polished_Practice
- Bryant, L. H., & Chittum, J. R. (2013). ePortfolio effectiveness: A(n ill-fated) search for empirical support. *International Journal of ePortfolio*, 3(2), 189-198. Retrieved from <http://www.theijep.com/pdf/IJEP108.pdf>
- Cambridge, D., Cambridge, B., & Yancey, K. (Eds.) (2009). *Electronic portfolios 2.0: Emergent research on implementation and impact*. Sterling, VA: Stylus.
- Connect to Learning Project. (2014). *Catalyst for Learning: ePortfolio research and resources*. Retrieved from <http://c2l.mcnrc.org/>
- Dahlstrom, E., Dziuban, C., & Walker, J. D. (2013). *ECAR study of undergraduate students and information technology, 2013* (Research report). Louisville, CO: EDUCAUSE Center for Analysis and Research. Retrieved from EDUCAUSE website: <https://net.educause.edu/ir/library/pdf/ERS1302/ERS1302.pdf>
- Eynon, B. (2009a, January 7). "It helped me see a new me": ePortfolio, learning, and change at LaGuardia Community College. *Academic Commons*. Retrieved from <http://www.academiccommons.org/2009/01/it-helped-me-see-a-new-me-eportfolio-learning-and-change-at-laguardia-community-college/>
- Eynon, B. (2009b). Making connections. In D. Cambridge, B. Cambridge, & K. Yancey (Eds.), *Electronic portfolios 2.0: Emergent research on implementation and impact* (pp. 59-68). Sterling, VA: Stylus.

- Eynon, B., Gambino, L. M., & Török, J. (2013). Connect to learning: Using ePortfolio in hybrid professional development. *To Improve the Academy*, 32(1), 109-125. Retrieved from http://c2l.mcnrc.org/wp-content/uploads/sites/8/2014/01/c07_new.pdf
- Guttman Community College. (2014a). *A Connect to Learning campus ePortfolio*. Retrieved from <http://gcc.mcnrc.org/>
- Guttman Community College. (2014b). *Outcomes assessment: Making student learning visible*. Retrieved from <http://gcc.mcnrc.org/oa-story-1/>
- Hakel, M., & Smith, E. (2009). Documenting the outcomes of learning. In D. Cambridge, B. Cambridge, & K. Yancey (Eds.), *Electronic portfolios 2.0: Emergent research on implementation and impact* (pp. 133-136). Sterling, VA: Stylus.
- Indiana University-Purdue University Indianapolis (IUPUI). (2014a). *A Connect to Learning campus ePortfolio: Who we are*. Retrieved from <http://iupui.mcnrc.org/>
- Indiana University-Purdue University Indianapolis (IUPUI). (2014b). *Assessment is everyone's business*. Retrieved from <http://iupui.mcnrc.org/oa-story/>
- Indiana University-Purdue University Indianapolis (IUPUI). (2014c). *Evidence*. Retrieved from <http://iupui.mcnrc.org/what-weve-learned/evidence/>
- Indiana University-Purdue University Indianapolis (IUPUI). (2014d). *Scaling Up ePortfolios at a Complex Urban Research University: The IUPUI Story*. Retrieved from <http://iupui.mcnrc.org/scaling-story/>
- Keeling, R. (Ed.). (2006). *Learning reconsidered 2: Implementing a campus-wide focus on student experience*. Retrieved from <https://www.nirsa.org/docs/Discover/Publications/LearningReconsidered2.pdf>
- Kuh, G. (2008). *High impact practices: What they are, who has access to them, and why they matter*. Retrieved from <http://www.aacu.org/leap/hip.cfm>
- Kuh, G. D., Jankowski, N., Ikenberry, S. O., & Kinzie, J. (2014). *Knowing what students know and can do: The current state of student learning outcomes assessment in US colleges and universities*. Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment.
- LaGuardia Community College. (2012). *Title V annual report*. Unpublished report submitted to the U.S. Department of Education.
- LaGuardia Community College. (2014a). *A Connect to Learning campus ePortfolio*. Retrieved from <http://lagcc.mcnrc.org/>
- LaGuardia Community College. (2014b). *The story of a learning college: The evolution of outcomes assessment at LaGuardia*. Retrieved from <http://lagcc.mcnrc.org/oa-story/>
- LaGuardia Community College. (2014c). *What we've learned*. Retrieved from <http://lagcc.mcnrc.org/what-weve-learned/>
- Laird, T., Shoup, R., & Kuh, G. D. (2005, May). *Measuring deep approaches to learning using the National Survey of Student Engagement*. Paper presented at the Annual Meeting of the Association for Institutional Research, Chicago, IL. Retrieved from http://nsse.iub.edu/pdf/conference_presentations/2006/air2006deeplearningfinal.pdf
- Manhattanville College. (2014a). *A Connect to Learning campus ePortfolio*. Retrieved from <http://mville.mcnrc.org/>
- Manhattanville College. (2014b). *Faculty development offered with a lot of "TLC."* Retrieved from <http://mville.mcnrc.org/pd-story/>
- Matthews-Denatale, G. (2013). *The ecology of support*. Retrieved from <http://neu.mcnrc.org/tech-story/>
- Matthews-Denatale, G. (2014). Are we who we think we are? ePortfolios as a tool for curriculum redesign. *Journal of Asynchronous Learning Networks*, 17(4). Retrieved from http://c2l.mcnrc.org/wp-content/uploads/sites/8/2014/01/Are-We-Who-We-Think-We-Are_1_6_14.pdf
- Northeastern University. (2014a). *A Connect to Learning campus ePortfolio*. Retrieved from <http://neu.mcnrc.org/>
- Northeastern University. (2014b). *Ingredients for scale*. Retrieved from <http://neu.mcnrc.org/scaling-story/>
- Pace University. (2014a). *A Connect to Learning campus ePortfolio*. Retrieved from <http://pu.mcnrc.org/>
- Pace University. (2014b). *Mahara: From bucket list to implementation*. Retrieved from <http://pu.mcnrc.org/tech-story/>
- Pace University. (2014c). *Scaling up story: Picking up the pace with ePortfolios*. Retrieved from <http://pu.mcnrc.org/scaling-story/>
- Penny Light, T., Chen, H., & Ittelson, J. (2011). *Documenting learning with ePortfolios: A guide for college instructors*. San Francisco, CA: Jossey-Bass.
- Polnariev, B. A. (2014). *LaGuardia Community Colleges (CUNY) C2L project portfolio: Outcomes assessment module C*. Retrieved from https://c2l.digication.com/laguardia_community_colleges_cuny_c2l_project_portfolio/Outcomes_Assessment_Polished_Practices
- Queensborough Community College. (2014a). *On the threshold of the American dream: A Connect to Learning campus ePortfolio*. Retrieved from <http://qbcc.mcnrc.org/>

- Queensborough Community College. (2014b). *What we've learned*. Retrieved from <http://qbcc.mcnrc.org/what-weve-learned/>
- Rodgers, C. (2002). Defining reflection: Another look at John Dewey and reflective thinking. *Teachers College Record*, 104(4), 842-866. doi:10.1111/1467-9620.00181
- Rutgers University. (2014). *A Connect to Learning campus page*. Retrieved from <http://c2l.mcnrc.org/category/rutgers-university/>
- Salt Lake Community College. (2014a). *A Connect to Learning campus ePortfolio*. Retrieved from <http://slcc.mcnrc.org/>
- Salt Lake Community College. (2014b). *Making it real . . . Helpful: SLCC's professional development story*. Retrieved from <http://slcc.mcnrc.org/pd-story/>
- San Francisco State University. (2014). *Project dashboard*. Retrieved from <http://sfsu.mcnrc.org/what-weve-learned/project-dashboard/>
- Tagg, J. (2003). *The learning paradigm college*. Boston, MA: Anker.
- Three Rivers Community College. (2014a). *A Connect to Learning campus ePortfolio*. Retrieved from <http://trcc.mcnrc.org/>
- Three Rivers Community College. (2014b). *Decide to assess: Where can it go?* Retrieved from <http://trcc.mcnrc.org/oa-story/>
- Tunxis Community College. (2014). *Evidence*. Retrieved from <http://tcc.mcnrc.org/what-weve-learned/evidence/>
- University of Delaware. (2014a). *A Connect to Learning campus ePortfolio*. Retrieved from <http://ud.mcnrc.org/>
- University of Delaware. (2014b). *Evidence*. Retrieved from <http://ud.mcnrc.org/what-weve-learned/evidence/>
- Virginia Tech (2014). *A Connect to Learning campus ePortfolio*. Retrieved from <http://vt.mcnrc.org/>

BRET EYNON is a historian, the Associate Dean for Academic Affairs at LaGuardia Community College (CUNY), and the founder of the LaGuardia Center for Teaching and Learning, LaGuardia's ePortfolio project, and the Making Connections National Resource Center. Author of multiple books and articles, from 2000-2004 he co-led (with Georgetown's Randy Bass) the Visible Knowledge Project, a 20-campus scholarship of teaching and learning project that produced *The Difference that Inquiry Makes: a Collaborative Case Study on Technology and Learning*. An AAC&U senior faculty member, Eynon's work has been honored by the American Council on Education, the Community College Futures Association, and the Carnegie Foundation for the Advancement of Teaching; most

recently, he was named the Distinguished Humanities Educator of the Year by the national Community College Humanities Association. He can be reached at beynon@lagcc.cuny.edu

LAURA M. GAMBINO is an inaugural faculty member at Stella and Charles Guttman Community College (CUNY) which opened in August 2012. Prior to moving to Guttman, Dr. Gambino worked for 13 years at Connecticut's Tunxis Community College as a Professor of Computer Information Systems and their ePortfolio Coordinator. As the Faculty Scholar for Teaching, Learning, and Assessment, she is responsible for implementing ePortfolio pedagogy throughout the curricular and co-curricular areas of the college, as well as developing, implementing, and evaluating Guttman's learning outcomes assessment work. Dr. Gambino also serves as the Research Coordinator for the Connect to Learning project. She can be reached via e-mail at laura.gambino@guttman.cuny.edu

Dr. JUDIT TÖRÖK is the Co-Director of LaGuardia's Making Connections National Resource Center, working with its Connect to Learning and the Making Transfer Connections projects; and she leads multi-disciplinary faculty development for LaGuardia's Center for Teaching and Learning. She teaches courses in ethics and critical thinking; she edited and published the Project Quantum Leap Sampler, a basic skills math curriculum resource, and has presented on professional development at international conferences. She can be reached at jtorok@lagcc.cuny.edu

Acknowledgements

This article reports on, highlights, and begins to analyze the extensive documentation shared by ePortfolio leadership teams on the 24 campuses of the Connect to Learning (C2L) project. As a part of the C2L process, each campus team created a portfolio, which they used to share a wide range of reports, stories, and practices. These portfolios are available at the project website, *Catalyst for Learning: ePortfolio Resources and Research* (<http://c2l.mcnrc.org>), along with an array of cross-cutting analytical essays that examine issues of ePortfolio pedagogy and practice and offer insights to practitioners across higher education. The authors are pleased to thank the faculty, staff, stakeholders and students of the Connect to Learning network for their generosity and their sustained and intensive collaborative work, and for teaching us so much. We also thank our C2L Senior Scholars, Randy Bass and Helen Chen, and our partners at the Association for Authentic, Experiential, and Evidence-Based Learning (AAEEBL) for everything they did to advance this work. We are

grateful to LaGuardia's President Gail Mellow and Provost Paul Arcario, who inspired and encouraged this work. C2L designer Mikhail Valentin, Instructional Designer Priscilla Stadler, Niranjan Khadka, and the staff of the LaGuardia Center for Teaching and Learning

made key contributions. And the Fund for the Improvement of Post-Secondary Education (FIPSE) of the US Department of Education provided the funds that made C2L possible. We are pleased to have this opportunity to express our gratitude to all.