

**The Promise and the Challenge:
An Account of a Campus-wide Integrative Learning Requirement and ePortfolios**

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Introduction

Santa Clara University places high value on integrative learning. This is reflected in the university mission emphasizing the education of the “whole person.” Integrated learning across disciplines is also an important goal of the university’s undergraduate Core Curriculum, realized in the “Pathway” requirement, in which students elect a suite of 3 or 4 courses from different disciplines linked by a common theme, and complete a culminating essay integrating learning from at least 2 of the classes.

Our project focused on the use of ePortfolios to promote integrative learning in the Pathway Core requirement. We sought to assess the role of ePortfolios in facilitating the achievement of students in cross-disciplinary integrative learning. We were interested in testing two different interventions and the impact of each on the students’ integrative skills. The first intervention involved the use of ePortfolios for students to create a “place” for their Pathway materials, where they could engage in ongoing critical reflections about their learning within and across Pathway courses and house their relevant assignments and work. The second intervention was to augment ePortfolio use with small group guided oral sharing, again with the objective of allowing students to practice the skill of integrating ideas and information from diverse courses prior to the final required integrative essay.

The research question we investigated was: *What are the contributions of periodic written reflection assignments and guided small group oral reflection on students’ integrative learning within an ePortfolio?*

This report describes our research efforts over the past two years as we sought to support and expand students’ integrative learning through ePortfolios, our observations drawn from this process, the challenges we’ve encountered, and our recommendations for future ePortfolio implementations.

Literature Review

Integrated Learning and ePortfolios

Integrative learning has become a more explicitly articulated goal of liberal education and with that, colleges and universities are becoming more intentional about how they promote the capacity for integrative thinking or connection making in their students (Huber, Hutchings, & Gale, 2005). Recently, the AAC&U has defined integrative learning as “synthesis and advanced accomplishment

across general and specialized skills,” demonstrated through the application of “knowledge, skills, and responsibilities to new settings and complex problems” (cited in Flaherty, 2015, para. 3). In a seminal report in 2004, Huber & Hutchings posit that learning that “helps develop integrative capacities is important because it builds habits of mind that prepare students to make informed judgments in the conduct of personal, professional, and civic life; such learning is, we believe, at the very heart of liberal education” (p. 1).

Peet, Lonn, Gurin et al. (2011) identify three different theoretically informed approaches to integrative thinking. The rationale for Santa Clara University’s “Pathway” requirement is solidly grounded in the idea that the requirement would support students becoming “intentional and reflective” learners (p. 13) through a process by which students identified a Pathway interest, chose relevant classes from multiple disciplines, and integrated their understandings into a culminating essay. Drawing upon the work of Baxter Magolda (1998), Peet, et al. describe this approach as “the development of self-directed learners who take responsibility for their learning, reflect on their experiences and intentionally develop self-authorship; that is, the ability to consciously create meaning and identity from their learning and life experiences” (p. 13). A second approach, the “process orientation for knowledge,” is also relevant to the Pathway requirement in that it asks learners to “apply their academic knowledge to real-world problems in order to understand what they know and how to use their knowledge in the future” (p. 13). The Pathway essay asks students to include reflection upon an important issue relevant to the Pathway and to show how their disciplinary knowledge applies to this, as well as reflecting on the meaning of their Pathway learning for their vocational, career or personal interests.

Thus, Santa Clara University’s requirement draws upon two approaches to integrative learning. To be successful in its goals, students should engage in integrative thinking all the way through the process, which can take up to four years. The challenges are not insignificant for faculty and students. As Peet et al. (2011) note, faculty may be trained very narrowly within their own disciplines and may not really know what integrative thinking is nor how to encourage it in their students. While it is encouraged as a goal, it is less often assessed independently of other learning outcomes (although the AAC&U VALUE rubric for integrative thinking is beginning to change that).

Electronic portfolios constitute one important pedagogical approach for developing integrative learning skills and dispositions as students draw connections across courses, disciplines, co-curricular activities, internships, and other aspects of their lives (Bass, 2014; Eynon, Gambino, & Torok, 2014; Peet et al., 2011). While implementing such an ePortfolio program has its own challenges, ePortfolios can become a site for the ongoing work of making connections.

Critical Reflection and ePortfolios

The idea of critical reflection as a vehicle for deeper learning and self-understanding as a learner has a long history in US education. Early proponents such as John Dewey (1933) emphasized the

value of both the experiential and reflective components of learning and were followed up by Schön's (1983) highly influential exploration of professional "reflection-in-action" and Kolb's (1984) now-famous work on learning as a process mediated by reflection on experiences, to name but a few.

Brazilian educator and social theorist Paulo Freire's (1970) concept of *praxis* (i.e., critical action and reflection on behalf of social transformation) connects quite closely with the meaning of reflection within Ignatian pedagogy. According to Korth, reflection is one of the key features of Ignatian pedagogy and is meant to shape students as people and "challenge students to action in service to others" (Korth, 2008, p. 281). This "promotion of justice" is what former Santa Clara University president Peter-Hans Kolvenbach (2008, p. 157) identified as the definitive commitment of Jesuit higher education.

Influenced by the potential for learning and social commitment possible through reflection, we strove to embed a framework of explicit and critical reflection within the Pathway ePortfolios at Santa Clara. Ash and Clayton (2009) articulated in their "DEAL Model" (Describe, Examine, Articulate Learning), mere description of events is insufficient for deep reflection. Students must also analyze the meaning of their experiences with respect to clearly articulated learning goals. Only then can they begin to come to understand and express their learning experience.

Through structured reflection and documentation of their work and learning processes within an ePortfolio, students develop as thinkers and learners what Penny Light, Chen, and Ittleson call "folio thinking" (2012, p. 10). This involves the deep integration of structured reflection into the learning ePortfolio in which students can analyze their academic work as well as their learning processes. As Penny Light, Chen, and Ittleson point out, students' process of constructing ePortfolios develops them as both intentional and integrative learners. "Advanced reflective thinking" within electronic portfolio construction has also been shown to develop and demonstrate students' critical thinking (Hamilton and Kahn, 2009, p. 95).

In order to integrate the principles of the DEAL Model and build students' "folio thinking" into the Pathway ePortfolios, we asked participating students to complete a brief structured written reflection after each course in their Pathway. In these reflections, they are prompted to identify key learning in the course and look for connections between courses or their course and other SCU experiences. Having students generate thoughts directly after completing each course allowed for a scaffolding model wherein students can then make deeper connections using their various earlier reflections.

Processes of Inquiry

The Pathway requirement at Santa Clara University originated with the class of 2013. Significant efforts were made during the initial implementation phase to engage faculty in creating Pathways with themes that would resonate with students. Students can choose a Pathway exploring themes as

diverse as Beauty, The Digital Age, Democracy, or Paradigm Shifts and the Nature of Human Knowing. The Pathways are designed to augment extensive University Core, School and major requirements. Faculty apply for Pathway inclusion for their classes, and a Pathway coordinator is responsible for reviewing syllabi and ensuring that the courses included are appropriate. In any particular course, a minority of students enrolled may be completing the course as a Pathway requirement, however. Though students receive grades for the course, the culminating Pathway essay is not connected to any particular course and is typically completed close to graduation. Trained readers score each essay as “exemplary pass,” “pass,” or “revise” using a rubric which is provided to students, and students can revise as many times as needed to meet the graduation requirement.

In order to investigate our research question about the contributions of periodic written reflection assignments and guided small group oral reflection on students’ integrative learning within an ePortfolio, we initially solicited the participation of students with two or more Pathway courses remaining in their program, with the hopes of obtaining results within the time frame of the Research Cohort. We originally planned a sample size large enough to allow us to divide the students into 2 groups: those who built an ePortfolio to track and facilitate the integrative learning task, and those who both built an ePortfolio and participated in a facilitated small group discussion to explore and share linkages between their coursework. The control group would be non-participants, who engaged in neither activity within their Pathway.

Recruiting volunteers proved unexpectedly difficult. We made in-person presentations in many classes, reminding students of all levels of the Pathway requirement and offering ePortfolio training and the prospect of an enhanced learning experience in meeting the Pathway requirement. Finally, we extended the sample frame to include students who were in their first year at Santa Clara. Some of these had been introduced to ePortfolios through one of their first-year Critical Thinking and Writing requirements; others had not, but seemed more open to participation than students in their later years. Our entire sample included 83 students. Nearly all participated in an initial orientation and ePortfolio training. Additional details about the composition of the sample and the progress to completion are included in the Appendix.

After the recruitment and orientation phase was complete, we found that—despite email reminders—the majority of students did not build and contribute to their ePortfolios as they completed Pathway courses. Additionally, we were also not able to implement our original plan of offering small group facilitated discussions due to low participation.

During the study period, only one student fully completed a Pathway ePortfolio. We hope more will do so—many of our final recruits are still one or two years away from completing the requirement. Because our original study design proved unfeasible, we turned to alternate assessment strategies in order to learn more about the relevant factors associated with low usage of ePortfolios and to better understand about what role, if any, ePortfolios might play in the future evolution of this requirement.

Three assessment strategies

Our first analysis involved a comparison of the students who had elected to participate in our study with students from the non-participant population in an effort to ascertain what characteristics were associated with the choice at least to begin an ePortfolio-based process. We surveyed participants who had just joined the study, capturing demographic data such as class level, GPA, Pathway chosen, and asked them the same battery of questions about their self-perceptions as self-regulated and integrated learners. We compared them to a group of non-participants pulled from the same recruitment population. This would allow us to determine any critical differences between participants and non-participants that would later affect our interpretation of results.

Secondly, we focused on the leaning styles and attitudes of the first cohort of Pathway completers, who completed the requirement in 2013. (These students did not have the opportunity to use an ePortfolio.) We wanted to understand more about students' perceptions of their integrated learning and how they perceived the Pathway requirement (including the role of the Pathway in integrated learning). Independent faculty evaluators assess culminating Pathway essays providing an evaluation of "exemplary pass," "pass," or "revise and resubmit." We imagined that with the use of an ePortfolio, students might be more likely to earn an exemplary pass or at least a pass. Although we did not have seniors who had completed their Pathway using an ePortfolio, we wondered if those who earned an exemplary pass differed from those who earned a pass. These data would provide us with valuable baseline data about the requirement and afford us the opportunity to test what difference, if any, an ePortfolio made.

Our final analysis involved an inventory of the contents of the partially completed ePortfolios and the one completed ePortfolio, along with an examination of the timing of additions to the ePortfolios to see if we could discern sticking points at which students tended to drop the process or patterns in the timing of ePortfolio use.

Results

Comparison of the study participants with non-participants

Relatively soon after joining the study, we asked the participants to complete an entry survey which captured demographic data (class level, GPA, Pathway chosen) and their self-perceptions as learners. We then surveyed the non-participants from the same recruitment list so that we could compare the participants' responses to a non-participant group. Eighty-four non-respondents completed the survey.

Our comparisons showed there were virtually no significant differences between the two groups. They did not differ by academic achievement, major group or school (arts, sciences, engineering, business), engagement in a second major or minor, or in their self-perceptions of learner style. From

this analysis, we can conclude that the participants—although self-selected—were very similar to their counterparts. Any differences we would find later in Pathway performance or later levels of reflective and integrated learning could be more confidently linked to their ePortfolio experience.

Perceptions and learning styles of first cohort of Pathway completers

In an online survey, we compared the learning styles and engagement of students who received an exemplary pass on their final essay to those who received a regular pass in either one or multiple attempts, drawing upon the first cohort of students who completed the Pathway requirement. This provided us with information about the students' attitudes to the Pathway requirement as well as baseline information about the differences in learning styles between those who were judged more skilled in integrative learning and those less skilled.

Our survey included 175 students who had completed the Pathway requirement. The sample included students who received an “exemplary pass,” as well as those who met the standards with a “pass.” Students were sent emails with a link to the survey, including close-ended questions as well as an open-ended question about the Pathway experience.

Eighty-one percent of the students who started the survey completed it, resulting in a sample of 175 with usable data (i.e., they answered a sufficient number of questions for their data to be included). Of these, 54 percent were female; 46 percent were male. Fifty-six percent of students were in the Arts and Sciences, 23 percent from Business, and 21 percent from Engineering. Nine percent of students reported GPAs under 3.0; 34 percent between 3.0 and 3.49; 23 percent between 3.5 and 3.69; and 34 percent between 3.7 and 4.0.

The questions on the survey were adapted from Peet et al. (2011) and were designed to measure students' metacognitive strategies in planning, monitoring and regulating learning—three key features of “self-regulated learning” (Abrami, et al., 2008). Twelve survey questions examined students' *self-regulated learning* (e.g., I set my own learning goals; I check my progress towards achieving my goals). Eight items focused more on students' metacognitive strategies related to how they *integrate their learning across experiences* (e.g., I often think about the connections between experiences across different courses I take; I am very aware of how my academic work connects to my interests or co-curricular activities). Indices were formed for each of these sets of questions, producing two variables that were both highly reliable: the alpha for self-regulated learning was .94 and the alpha for integrated learning was .85, respectively. The scale mean for self-regulated learning was 66.14, $SD = 11.67$; the mean for integrated learning was 45.05, $SD = 7.41$.

These data show that SCU students perceive themselves as self-regulated learners who use many different learning strategies: on a scale of 1-7, students' mean scores on the 12 goal-oriented learning questions falls between 5 and 6. Students also perceive themselves as integrated learners: on a scale of 1-7, students' mean scores on the 8 integrated learning questions falls between 5 and 6.

However, their perception of the role of the Pathways in helping them develop better integrative skills was more variable. Just over one-third disagree that they clearly see connections among their Pathway courses or between Pathway courses and other aspects of their education (Mean response 4.19 and 4.16 respectively). Thirty-nine percent did not complete a Pathway in an area they cared about (mean of 3.99). Most students do not perceive that their Pathway broadened their learning (mean of 2.65), nor that the Pathway added value to their overall SCU education (mean of 2.44). Only one-third of students believe that it broadened their learning and only 27 percent found that it added value. About half of the students (52 percent) tend to disagree with the statement that they will be able to transfer knowledge or skills from their Pathway (mean of 3.34) or that it helped them see how they can examine issues or problems from multiple perspectives (mean of 3.01), with 59 percent disagreement. About 40 percent felt that the culminating essay was a challenging task.

Students were also asked a battery of questions about actions they might have taken related to the Pathway; specifically, whether they did not do the action, did it once, or did it at least a couple of times. As the results show, the most frequently taken action was saving their work that would later be relevant for their Pathway reflection essay (65 percent of students did this at least a couple of times), but many students did not engage in the type of reflection or integrative thinking activities that could be easily integrated into an ongoing ePortfolio to strengthen Pathway learning.

Reflection activities

- 46 percent did not think about which assignments/course work were relevant right after finishing a Pathway course (28 percent did this once; 17 percent at least a couple of times).
- 50 percent thought about the important issues raised in a Pathway course at least once.

Integration activities

- 33 percent thought about connections between a Pathway course just taken and other Pathway courses or in the major once; another 33 percent did this at least a couple of times.
- About half (45 percent) thought about the relevance of the Pathway theme or courses for their lives or education more generally.
- Only 22 percent made notes about the connections between their courses at least once; 28 percent made notes about the important issues from a Pathway course; and 22 percent made notes about the relevance of their Pathway for their lives or education.

Differences between students earning regular and exemplary passes

We wanted to determine if there were any differences among the students who earned regular passes and those who earned exemplary passes. Again, we conjectured that we might see ePortfolio users earning proportionally more exemplary passes so these data would provide an interesting point of comparison for future analyses. T-Tests were used to examine differences between the 26 students earning exemplary passes and the 139 students who earned regular passes.

There were no significant differences between those earning an exemplary pass and those earning pass on the self-regulatory or integrated learning scales. However, students receiving exemplary passes on their essays were significantly more likely to engage in some integrative thinking and see more value in the Pathway requirement. Specifically, those with exemplary passes were more likely to:

- See connections among their Pathway courses
- See connections among their Pathway courses and other aspects of their education
- Agree the Pathway broadened their learning
- Agree they completed a Pathway in an area they cared about
- Think about the connections between a Pathway course and others in the major or Core or other Pathway courses
- Agree they will use the skills and knowledge developed in the Pathway in other areas of their life
- Agree that completing the Pathway helps them see how they can examine issues or problems from multiple perspectives

While the students earning exemplary passes were more likely to see connections and integrations between Pathway courses and other curricular areas than their counterparts, it is important to note that many of them were not overly positive about their learning in the Pathway.

In summary, from this survey data, we see that—at least for the first cohort of seniors completing their Pathway—students are confident that they are self-regulated and integrated learners in general, but a much smaller number perceive the Pathway as a strong integrative learning experience. Of those that do, they are more likely to be those earning exemplary passes.

Analysis of study participants' ePortfolios in progress

Students met with one or more of the researchers and a student research assistant to receive an orientation to the study and for an introduction to the Digication ePortfolio system. We had created a course ePortfolio for the study to which we asked students to upload their ePortfolios after each of the four Pathway classes they took. We provided them with sample questions to guide their reflections about each course taken for their Pathway. These questions were intended to stimulate analytic and integrative thinking. During training we reviewed the elements of the requirement and had the students create a draft ePortfolio and practice uploading it to the course ePortfolio. We were then able to monitor students' use of the ePortfolios through periodic checks. After the initial training was complete in April 2013, we sent periodic emails to students reminding them to use their ePortfolios when they had declared a Pathway and completed Pathway courses. We offered open-lab workshop time in November 2014 and February 2015. The appendix includes a table showing the progress of the participants in terms of participation, their Pathway declaration and course completion, and an overview of participants' ePortfolio activity.

Most students who volunteered to create ePortfolios did not return to their ePortfolio since the initial training. A handful of students did so, however, and an examination of their ePortfolios suggests several different motivations and practices in developing the ePortfolio.

An analysis of the ePortfolios of the eight students who have worked in their ePortfolios after the initial training shows that personalizing the ePortfolio is one of the first priorities. This happens most by changing the banner or uploading a personal image as an icon for the ePortfolio, or changing the color scheme. These actions are quite easy to perform within Digication, our ePortfolio provider. Some students even began making these changes during training and continued to tweak them on their own. A second common type of activity was to create a section for the Pathway courses, identify particular courses, and copy in the sample reflection question prompts we provided as part of the resource ePortfolio. It was rare to see students respond to all of the reflection prompts, however. Most typical was to jot down a few ideas about the course, but to leave the questions asking about integrations with other courses or the major blank. For some students this may have been due to the fact that the course in question was their first Pathway course and they had less to which to relate the course. However, most of these students have now completed more courses and have not gone back to the ePortfolio.

Of the students who went beyond giving the ePortfolio fairly minimal attention, two were business majors. Each of them clearly envisioned the purpose of their ePortfolio going well beyond the Pathway requirement: they created sections including extra-curriculars, future work goals, coursework and accomplishments in their major and a “contact me.” The imagined audience suggested a prospective employer. Both business students developed more extensive scaffolding or materials in the sections of their ePortfolios not devoted to the Pathway. One of the business students introduced his ePortfolio in this way:

My E-portfolio will outline and highlight my accomplishments and future goals. I will go into details with how each of my four Pathway courses interact with each other and how that has developed a new perspective that has proven to be very useeful (sic) in certain personal and professional aspects of my life and career. Please do not hesitate to contact me via LinkedIn (<http://www.linkedin.com/in/STUDENT NAME>) or my "Contact Me" tab on the upper right hand corner for any additional questions you have have (sic) with regards to the Design Thinking Pathway or my studies.

For another student, the Pathway ePortfolio was clearly a way to deepen her commitment and understanding of her Pathway theme and to share what she was learning. Her Pathway, Islamic Studies, is perhaps one of the more focused Pathways allowing for an integration and deep exploration of learning from distinct, but very clearly related courses. This student has approached her Pathway learning in the way in which we ideally imagined: she has completed reflections soon after completing each of her courses, and her reflections were extensive and clearly driven by her interests in the subject area. For example, regarding her second Pathway course in response to the

prompt asking to share how her learning in the Pathway course connects with her life experiences, her major, or education overall, she wrote:

I think I've learned more in this class than I ever had in a course. Despite this, I'll probably end up writing far less than I did for this question in my first reflection, simply because I feel I'll actually remember it pretty well.

This class has meant a lot to me. I've always wanted to study Islam and gain a knowledge deeper than an understanding of the 5 Pillars. This has been one of the most thorough, immersive learning experiences I have ever been a part of. At times it was a bit overwhelming given the amount of information there was to absorb, but I've never had the chance to feel like I have such a (relatively) deep understanding of a topic from a single class. It's only made me want to go out and study the subject to a deeper extent on my own. I feel like I'm walking away with a greater knowledge of Islam and the Muslim world as well as a new perspective with which to contemplate my own faith.

Our study of Islam this quarter has me excited about the future and I feel alight anew (sic) my desire to learn as much as I can about other faith practices, both to help me to understand and empathize with others, but also to support my own faith journey. This class was important to me as well, because one of my dear friends happens to be Muslim, and I finally feel like I have the vocabulary necessary to have a real conversation about our faiths. I can't wait to be able to talk with her about these things without having to ask her to explain every foundational detail.

I also can't wait to have a chance to really sit with everything I learned this quarter to contemplate my own faith tradition and personal spirituality in light of these new learnings. I've definitely been interested in Islam before, and have even wondered at times if it would be a faith practice I would want to pursue. While I have gained a greater appreciation for the religion, and while I'm excited to let what I've learned influence my own faith life, I feel that I've gained a better appreciation for my own religion: Catholicism. While the simplicity of Islam had been attractive to me-what with Catholicism's heavy doctrine and Church hierarchy-I understand much better now why I love my religion, and what parts of it I appreciate that are specifically not a part of Islam, such as the Trinity.

Our analysis of the work of the more active participants reinforces the importance of students finding value in the activity of creating an ePortfolio. For some students, this value may be career-directed and with an important external audience in mind, for others it may be to provide a platform for deepening and sharing learning that students feel quite passionate about. It will be interesting to see whether a commitment to a career interest or a commitment to the Pathway and its focus provides the motivation for future students to engage more often and more deeply with their ePortfolios. Since we know that many students to date have not chosen a Pathway to which they feel committed, it is probably unlikely to see much attention given to developing an ePortfolio to support their learning.

Analysis of the completed ePortfolio

We had just one example of a fully completed ePortfolio by a participant in the "Paradigm Shifts" Pathway. This student (with a 3.83/4.0 GPA) added personal images and text extensively to the "About Me" section of her ePortfolio—these were connected to her exploration of her identity as both a mathematician and an artist. Interestingly, she also references one of the math professor's explorations in the same areas.

In terms of the Pathway-specific elements, she completed the minimum required by the study. Unlike her personal page elements, there were no images or other linked media on any of these pages. Each of the four Course pages included a paragraph-long set of responses to the In-progress Reflection Prompt and an uploaded completed assignment from each course at the bottom. The connections the student identified between courses were fairly simple ones (e.g., both courses required critical thinking, both courses required a certain type of math). There didn't appear to be a progression of increasing depth or complexity across the four course reflections. Her reflections lacked connections to her Pathway or Pathway theme within the short reflections (although that was encouraged in one prompt). Finally, in her Pathway essay, although we found a similar fairly surface-level of integrative thinking among her courses and her Pathway, she did begin and end the essay by making a connection to her artistic interests and in the conclusion, brought the theme of paradigm of paradigm shifts most directly into this. Her essay earned a score of "pass." We observed that she completed one course reflection in May 2014, two in October 2014 and the last reflection and the final essay in December 2014. Perhaps the compressed timeframe allowed little time for growth in integrative skills and allowed her to provide more detailed recollections from each course but less reflection on connections across various experiences. Another explanation for the weaker level of integration was that the selection of courses taken to fulfill the Pathway offered her less rich material to incorporate.

Consistent with our exemplary survey responders, this student assessed herself as a strong integrative learner—her responses to the questions specifically about integrative learning and the questions about making connections across her educational experiences were all 7s (scale of 1-7, 1=Not at all like me, 7= Completely like me):

- I often think about the connections between experiences across different courses I take.
- I understand how to adapt and apply my skills, abilities, and knowledge to solving challenging problems or complex issues in original ways.
- Approaching a problem from different disciplinary perspectives has benefited my understanding of an issue.
- I am very aware of how my academic work connects to my interests or co-curricular activities.
- I can identify how what I'm learning in my major intersects with my studies in the Core Curriculum.
- I clearly see the connections among my Pathway courses.
- I see connections between my Pathway courses and other aspects of my education.
- I was able to take the classes in my Pathway that were of most interest to me.

- Completing my Pathway helped me see how I can examine issues or problems from multiple perspectives.

This student's self-ratings seem to support our hypothesis that students think of themselves as very skilled integrative thinkers and indeed her responses to Pathway-related questions were similar to those earning exemplary passes. Her responses to open-ended questions on the survey revealed that the student found that the greatest perceived value of the ePortfolio was as an organizational and planning tool (. . .it gave me a place to save my work and it forced me to prepare for the Pathway ahead of time). She wrote, "I had an incentive to reflect on my courses right after I took them instead of waiting several quarters. It helped a lot with my ability to remember what I learned." Still, there is an acknowledgment that reflection and integration were challenging: "It was difficult answering some of the prompts but that is because I had to reflect on my courses and how they connect to my Pathway theme." While the student seems to appreciate that completing the Pathway offered multiple opportunities to connect and reflect on her learning, it seems the most meaningful opportunity—one afforded by both the ePortfolio and included in her essay—was to connect two of her academic interests: Mathematics (also her major) and Art. Interestingly, the specific art class she mentioned in her ePortfolio and essay was not within her Pathway.

Conclusion: Value of Study and Participation in Cohort

ePortfolio Implementation in a Voluntary Setting

The literature on ePortfolio adoption in educational settings is very rich and details implementation in a variety of institutional settings. However, the literature seldom addresses issues to adoption in a purely voluntary setting, in which there is no shared initial or continuing program-embedded requirement for ePortfolio use. In one related study, Harper et al. (2007) detail the adoption of ePortfolios at Queensland University of Technology and focuses on the roles of external and internal motivations for adoption. Both motivations were present, along a continuum from independent adoption of an available tool to fully program-embedded. They conclude that where motivation is primarily internal, the students engage more deeply with the ePortfolio practice. External motivation of assessment alone is not sufficient. Together with these observations, they note that appropriate scaffolding and close connection to the curriculum are important, as are use of an organizing device (employability skills) that is relevant to students, and targeted internal marketing.

This study held particular value for our institution in that we have further identified contextual factors that would need to be addressed before expanding an ePortfolio program for the Pathway requirement or other programs. Our experience may also help inform other institutions by bringing more attention to factors affecting success of ePortfolio initiatives such as perceived value of using ePortfolios, the importance of embedding ePortfolios in structured learning experiences like courses, and student perceptions of the learning initiative supported by the ePortfolio. In our case, we learned that student responses to this new Pathway requirement were not favorable and given

that, adding in an ePortfolio component would face heightened resistance. We feel it is important that any large-scale ePortfolio project be developed around programs or requirements that are perceived in a positive (or at least neutral) light.

Specifically, in our context, the following were the key barriers we identified to initiating voluntary ePortfolio use:

1. *Perception of high existing levels of integrative learning.* Our survey results showed that SCU students perceived themselves to be integrated learners, though only 8% of students receive an exemplary pass on the final essay. Given the high level of belief in their own skills, it is likely to be difficult to persuade students to engage in additional processes to support learning in this area.
2. *Lack of an incentive system for students.* Because the requirement is pass/revise-resubmit until pass, there is no real reward structure, little recognition for the final product of the process, and no sense of immediacy associated with the requirement. Thus, students did not appear to feel any urgency in planning a step-by-step approach to the final Pathway task or learning new technology to support it. This is compounded by the widespread perception that the culminating essay is not a difficult task.
3. *Lack of a clear statement of purpose for the underlying process.* Though the University has improved communication with students about the Pathway, initial cohorts were provided with very little information on why the requirement was instituted and how it provides valuable supplementation to the primary Core. Most students in our survey did not perceive educational value in the Pathway process and therefore would be disinclined to make a greater investment in the process.
4. *Delay between process initiation and completion.* The lack of urgency is compounded by the long process to completion. Students may take the first Pathway course as early as their first year, but they are not prompted to complete the final essay until the quarter preceding graduation.
5. *Little exposure to ePortfolios in the course context.* Because few courses currently use ePortfolios at Santa Clara University, and even fewer are included in Pathway courses, there was little foundation to build on in introducing ePortfolios to support learning.

Kahn (2014) notes that new ePortfolio initiatives will require successive iterations for success. From our experiences, we conclude that programs considering the implementation of an ePortfolio requirement that is not directly connected to a course structure should carefully consider whether their institutional context includes:

1. A strong communication process with student participants that clearly delineates the skills to be gained and their value for the students' future;
2. A perception that the ultimate task tied to the ePortfolio usage is both important and deserving of effort;
3. A reasonable time to completion, which motivates students to embark on the process; and
4. Knowledge and practice in the ePortfolio environment within a course context.

Consideration of these elements should contribute to successful implementation of ePortfolios to support and deepen complex learning skills where it is not possible to fully embed usage in a course or program requirement.

In addition, what we are seeing through the ePortfolios encourages us to take a multi-faceted view of integrative thinking. The Pathway experience is seeking one type of integrative learning grounded in a set of student-chosen courses and its implications for learning in the major and students' education overall. What we saw in the case of the student who completed her ePortfolio may be that the ePortfolio allowed for a different, more capacious type of integrative thinking beyond the courses themselves. In that case, the ePortfolio was the means to share interests and intersections beyond all the courses in the Pathway, to go beyond the Pathway.

As a team we have benefitted from the interactions and suggestions of our cohort group and the three facilitators of the Inter/National Coalition for Electronic Portfolio Research. We were motivated by an interest in exploring ePortfolios as a vehicle for integrated learning and the role of structured reflection to develop and deepen integrative thinking. We have made great strides in learning how to approach ePortfolios as an integrative learning tool from initial design through final assessment, and continue to be inspired and excited by the many ways ePortfolios are being used nationally, internationally, and by our colleagues in the Cohort. Our project has allowed us to share information with many faculty about ePortfolios. The project has been one component of a diffusion process of ePortfolio use on campus. Our results have led to a deeper understanding of how students perceive the Pathway requirement and we have learned much about how to scaffold student learning experiences to help achieve the kind of integrated learning that is at the heart of this requirement.

As students in our study continue to use ePortfolios within their Pathway, we will analyze the additional data and draw further conclusions about the types of use, motivations for use, and impact on integrative learning. Pending additional results, we imagine submitting a proposal to present at an AAEEBL conference and as the data allow, submit an article to the International Journal of ePortfolio.

Appendix

Student Study Participants – 1/2014 to 03/2015

Initial Recruits	83
Less: Graduates	(3)
Students completing their ePortfolio	(1)
Students who have withdrawn from the study	(5)
Student Participants at Present Time	74

Eportfolio Activity

Student participants who have declared a Pathway (including grads, but not including withdrawn students)	36
Students who have completed 1 Pathway course to date	2
Students who have completed 2 Pathway courses to date	12
Students who have completed 3 Pathway courses to date	9
Students who have completed 4 Pathway courses to date	10
Students who participated in the drop-in refresher trainings in fall, 2014 or winter, 2015	7
Students who have submitted a “Course 1” ePortfolio page	3
Students who have engaged in any ePortfolio activity after the initial training session	8

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