



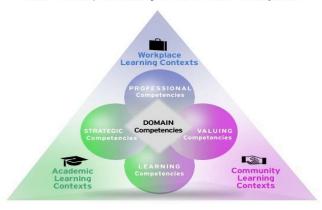
I/NCEPR Cohort III - Final Report University of Waterloo

Tracy Penny Light, Bob Sproule, Katherine Lithgow, Pam Charbonneau

Project Overview: Electronic Portfolios and Our Research Question

The research question that we addressed with this project was: *How do ePortfolios provide evidence of integrated learning and student engagement?* Specifically, we explored how ePortfolios could be used to help students in our Bachelor of Accounting and Financial Management (BAFM) program to develop competencies important for their careers. Our focus, based on feedback from the Canadian Accounting professional societies, was the development of "soft-skills" like teamwork and oral and written communication. Our goal was to use ePortfolios to help students to integrate their learning and engage with course concepts (particularly as they related to the soft-skills we wanted them to develop and then demonstrate in their ePortfolios) in a deeper, more holistic way. This was particularly important for us as we looked for ways to "close the loop" between student learning experiences in their academic, workplace (co-op education work terms), and community environments.

UW Competency Portfolio Project



The ePorfolio is used as a repository for assignments and reflections supporting both course specific learning outcomes and the "soft skills" of teamwork, leadership and verbal and written communication. Ultimately, we want to foster a culture shift wherein students move beyond regarding the university experience as a series of a unrelated courses which they must complete with an average of 75%+ in order to graduate, to a

more, well-rounded and holistic understanding of their personal development in a wider range of competencies as they make connections between the academic, workplace and community/social learning environments.

Our hypothesis at the beginning of the study was that ePortfolios would provide a space for students to make these connections. Implicit in this approach is that the ePortfolios are more than a repository for assignments or an on-line resume. A key feature is the ability to share the ePortfolio and receive feedback from peers, instructors, and mentors which helps students plan for future growth and development. Rather than regarding their university experience as a series of unrelated courses, students can use the ePortfolio to think about all aspects of their university experience.

Electronic Portfolios provide students with a place where they can present evidence demonstrating the development of the competencies of a University of Waterloo BAFM graduate - evidence of well-honed problem-solving and critical thinking skills and examples showing their ability to build relationships and work effectively in teams. Commitment to continuous improvement and assessment can be evidenced by the plans they have created for personal growth and development and how they have acted upon the feedback from peers, mentors and instructors. By encouraging students to use the ePortfolio as a place to document and reflect upon the lessons they have learned, the feedback they have received, and to consider how that will affect their future actions and reactions, students will benefit from a more holistic approach to their university education and a deeper level of understanding.

Reflection in the Career of an Accounting Professional

Nearly all of the graduates from the BAFM program will pursue a professional accounting designation. Professional accounting organizations are focusing more and more of their attention on life-long professional growth and development. They want their members to be perceived as "value adders" who acquire a certain level of proficiency when they enter the profession and continue to grow and nurture competence throughout their professional career. They also value the importance of measureable outcomes, which they refer to as competencies. They are expecting that graduates from university will possess a set of competencies that the professions will attest through an accreditation process.

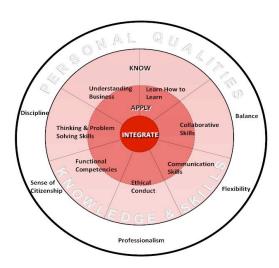
Each professional accounting organization has devised a set of competencies that are fairly consistent. One set focuses on enabling or pervasive competencies that focus on how a professional accountant will do their job. Issues surrounding behavior, leadership and communication make up this group. A second set of competencies focuses on what a professional accountant does and these are referred to as functional or specific competencies. Skill in the areas of: risk management, financial performance measurement and reporting, along with financial management make up this group of competencies. Each organization also includes levels of proficiency they are measuring in terms of any competency. Overall, they are expecting that all members of their respective professions will be able, when first entering, and then throughout their career,

to continually assess and develop their professional competencies. They believe that competencies are measureable and can therefore be demonstrated. Reflection becomes the tool for a professional accountant to support their development as they integrate all their life experiences on an ongoing basis.

Therefore, within our BAFM program our challenge is to foster the initial development of these competencies, but more importantly, to establish a methodology (reflective practice) that our graduates can transfer into their careers.

A Learning Model within the BAFM Program

In the BAFM program, we are currently finalizing a learning model that reflects a set of learning outcomes. One set deals with personal attributes including: discipline, sense of citizenship, professionalism, flexibility and balance. Another set focuses on performance including: functional competencies, understanding business, thinking and problem solving, communication skills, leadership and collaborative skills, learning how to learn, and ethical conduct. Like the professional accounting organizations we also consider levels of proficiency, moving from knowledge to application to integration. Again, accountability is established which is also compatible within our overall academy, which has identified a set of Degree Level Expectations.



We see reflection as being pivotal to our students' development, and their personal ePortfolio as a tool for showcasing and supporting their growth. Reflection is central to the professional development that students will need to undertake in their careers so we want to scaffold their learning of this skill during their undergraduate education,

encouraging them to make connections and transfer their knowledge between learning experiences.

Reflection as a Tool for Developing Competencies

In order to facilitate the kind of deep learning and knowledge transfer that professional accountants need to develop, we incorporated reflection as a key attribute to our ePortfolio work with the students. Reflective activities were integrated into the work that students needed to complete in different learning settings (in academic coursework, co-op learning work term reports, and community learning via a living learning community in residence). The goal was to scaffold opportunities for learning how to be a reflective practitioner throughout their program of study.

Initially, both students and faculty viewed reflective activities as "fluffy" so we searched for ways to legitimize this practice. We found an article written by Carol Rodgers to be particularly useful in this regard. Rodgers writes that, "Dewey reminds us that reflection is a complex, rigorous, intellectual, and emotional enterprise that takes time to do well."² She summarizes Dewey's concept of reflection in these four criteria:

- 1. Reflection is a meaning-making process that moves a learner from one experience into the next with deeper understanding of its relationships with and connections to other experiences and ideas. It is the thread that makes continuity of learning possible, and ensures the progress of the individual and, ultimately, society. It is a means to essentially moral ends.
- 2. Reflection is a systematic, rigorous, disciplined way of thinking, with its roots in scientific inquiry.
- 3. Reflection needs to happen in community, in interaction with others.
- 4. Reflection requires attitudes that value the personal and intellectual growth of oneself and of others³

For Cohort one students, 3 ePortfolio reflections have been coded to date:

- 1. Year 1 reflection on teamwork (academic)
- 2. Year 2- reflection on concept map activity (academic)
- 3. First work term reflection (co-op)

For Cohort 2 students, 3 eportfolio reflections have been coded to date:

- 1. Year 1 reflection on teamwork (academic)
- 2. First year Living Learning Community Group reflection (community living learning)

¹ Carol Rodgers, "Defining Reflection: Another Look at John Dewey and Reflective Thinking," *Teachers* College Record, 104, 4 (June, 2002): 842-866.

² *Ibid*., 844.

³ *Ibid.*, 845.

3. Year 2- reflection on Future's Conference (workplace)

The reflections were coded using the following 3 categories and guiding questions as a framework:

- 1. Meaning Making/systematic, rigorous, discipline way of thinking with roots in scientific inquiry
 - Is the student providing more evidence to justify claims made?
 - Is s/he making more connections to previous learning experiences? Is there evidence that the learner is using lessons learned in one context to make meaning of experiences in another context?
 - Are more connections being made between theory and practice?
 - Is the student making plans for future actions based upon past experiences?
 - Are there indications of goal setting with a plan to achieve those goals?
- 2. Reflection in community, interaction with others.
 - Is there evidence that the student is using feedback from others as a way to plan for future actions?
 - Is there evidence that shows the student is learning from interactions with others?
- 3. Attitudes that value the personal and intellectual growth of oneself and of others
 - Is there evidence that the student values personal and intellectual growth?
 - What, if any, are the big "aha" moments- the moments that the student suddenly has a significant insight that moves him from a superficial to a deeper understanding?

NB. Rogers' reference to "reflection is a systematic, rigorous, disciplined way of thinking, with its roots in scientific inquiry" was not specifically coded. Guidelines for the reflections were explicit and often detailed. We assumed that if the guidelines were followed, the student was going through a 'systematic, rigorous, and disciplined way of thinking' and felt this would be captured under the first category of meaning making.

The Study Groups: A Pilot Group and our Test Group

To investigate how well this approach worked, students from two cohorts in the BAFM program were asked to participate in this longitudinal research study. Twenty two students from cohort one (the pilot group), and forty two students from cohort two (our test group - a group that began the BAFM program 2 years after cohort one) consented to participate. Consenting to participate in the study meant that these students agreed to

-

⁴ Ibid.

have the submissions they made to their ePortfolio analysed over the four year BAFM program. To this end, selected reflective statements that they had added to their ePortfolios during the four-year BAFM program were reviewed and coded using the above-mentioned framework.

Specific Findings from Initial Coding using Rodgers' Framework

Types of Data Collected

- Student reflections from different learning contexts (academic, workplace, community)
- Focus group data
- Student concept maps
- Employer evaluations
- Student testimonials

Inferences

- Inferences reflection a developmental ability
- Integrative learning needs to be scaffolded throughout the students' program in order to create a culture that values life-long/wide learning
- Timely feedback to students is key

Findings

N=37 students

Meaning Making/systematic, rigorous, discipline way of thinking with roots in scientific inquiry

- Is the student providing more evidence to justify claims made?
- Is s/he making more connections to previous learning experiences? Is there evidence that the learner is using lessons learned in one context to make meaning of experiences in another context?
- Are more connections being made between theory and practice?
- Is the student making plans for future actions based upon past experiences?
- Are there indications of goal setting with a plan to achieve those goals?

37 students	Reflection 1	Cmap	Со-ор
	Teamwork	32 students*	workterm 1
Evidence to justify claims	15	4	29
Connections to prior learning	4	0	34
experiences			
Connections between theory	1	2	29
and practice			
Making future plans based	2	1	21
upon past experiences			
Goal Setting with a plan	19	0	17

Reflection in community, interaction with others.

• Is there evidence that the student is using feedback from others as a way to plan for future actions? Is there evidence that shows the student is learning from interactions with others?

	Reflection 1	cmap	Co-op 1
Using feedback from others as a way to	3	0	14
plan for future actions			
Learning from interactions with others	5	4	21

Attitudes that value the personal and intellectual growth of oneself and of others

- Is there evidence that the student values personal and intellectual growth?
- What, if any, are the big "aha" moments- the moments that the student suddenly has a significant insight that moves him from a superficial to a deeper understanding?

	Reflection 1	cmap	Co-op 1
Evidence that the student values	4	7	14
personal and intellectual growth			
"AHA" Moments	0	0	1

Traditionally, BAFM students are highly motivated and focus on the technical aspects of accounting. Professional societies and institutes recognize, however, that technical knowledge alone is not adequate for a career as an accountant and financial management. One of the reasons for using ePortfolios in the BAFM program was to help the students focus on non-technical skills such as written and oral communication, professional ethics and interpersonal skills such as teamwork and leadership. Directed reflective ePortfolio activities gave students the opportunity to direct their attention towards the 'soft skills'. The vast majority of students have referenced how critical teamwork is to their profession, the importance of conflict resolution skills, and how social/community aspects such as camaraderie and collegiality can impact their working environment helping them cope with the long work hours, demands and stress that are associated with the role of an accountant.

Overall Conclusions

While our work is far from over, we have drawn the following conclusions from the data that has been coded to date:

1. Reflection is a learned skill. Students do not necessarily "know" how to reflect effectively on their learning and use those reflections to make connections

between the learning that occurs in different contexts (academic, workplace, community). Indeed, we found that the majority of students in our study groups did not begin to make connections, despite being encouraged to do so, until they moved from one context (academic) to another (workplace). This indicates that we need to carefully scaffold opportunities for reflection into academic programs for students so that they have time to develop this ability. Providing feedback upon which they can act, and providing it in a timely manner is critical to the development of the capacity to reflect. With the expectation that learning is a lifelong endeavor, students must become more aware of how they learn if they are to continue their personal growth and development after they graduate. Developing the capacity to reflect is key to this outcome.

2. Integrative learning is not a goal of beginner university students. In fact, students today seem to resist the call to integrate what they are learning in different contexts. This is fundamentally a cultural issue that needs to be addressed early in students' university careers. Transition programming will help in this regard and we are finding that adding opportunities to develop this skill (such as developing a living-learning community and professional conferences like the Professional Futures Conference) are not only needed but required. Facilitating a culture-shift takes time and we envision that, as the School of Accounting and Finance finalize their learning model and communicate this to incoming students, we will begin to see a change occurring.

Future Work and Recommendations

Given that our study was a longitudinal one, we will continue to follow the students from our test group (cohort 2) through to the end of their degree. We also would like to follow-up with students from both groups after graduation and once they are working to determine whether they are continuing to use either their ePortfolios or some other means of reflecting on and integrating their learning as they continue to develop as professionals.

Because our goal is to help students integrate learning that takes place in the academic environment with learning that takes place outside the classroom, another key aspect of this research is working with employers on the workplace side and community leaders (specifically, those in residence life who are part of the living-learning initiative) on the community/social side to determine the most effective ways of using ePortfolios to allow students to make connections between their learning in different contexts. Some of this work is already underway. For instance, we are working with St. Jerome's University (a small liberal arts college on our campus) to implement first-year transition programming using ePortfolios as the vehicle by which students can begin to integrate their learning and then carry it throughout their programs of study. Target programs for this work are programs in Sexuality, Marriage, and Family Studies and Arts and Business. In another instance, ePortfolios are being used in the School of Pharmacy to help students integrate learning and document development of competencies during the co-op and community service learning terms. Analysis of the students' reflections and artifacts supporting their

development in these settings will add to our knowledge of how best to use ePortfolios to help students integrate learning and engage more fully with their academic programs.