

The Application of a Portfolio in Financial Accounting: An Experimental Approach

Keith Howson¹

and

Michael Kinnen

Tom and Vi Zapara School of Business
La Sierra University
Riverside, California

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¹ **Corresponding Author:**

Keith Howson, Tom and Vi Zapara School of Business, La Sierra University 4500 Riverwalk Parkway, Riverside, CA 92515-8247. Ph: 951 – 785 2066. Email: khowson@lasierra.edu

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Abstract

The use of portfolios as part of an education program is well documented with extensive applications in the secondary and elementary school environment. Portfolios are seen to a lesser level in the university sector. This study traces the implementation of a portfolio in a financial accounting class in a degree program. An explanation is provided of the various tools used to assess progress by students including the final evaluation and reporting method. An assessment of this particular approach shows mixed results. Some recommendations are made for further consideration. The paper should be of interest to accounting educators interested in alternative approaches to engaging their students.

Keywords: Portfolio, financial accounting, accounting education, assessment techniques.

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1. Introduction

Far too often we have gazed with dismay across classrooms to see many disengaged and seemingly indifferent financial accounting students. This creates a more challenging environment for teaching; it also indicates an environment that is less hospitable to learning and production of quality work product, and ultimately which inhibits the lasting transformation of those in our classrooms. And yet we believe that teachers must be the ones who take responsibility for creating the conditions that heighten student engagement in order to fuel learning. We agree with Sanders *et al* (2011) that:

...students are indeed capable of doing much more than they usually demonstrate. In addition, we believe that it is one of our primary responsibilities as teachers is to empower our students in ways that increase their engagement and learning. Therefore, as teachers we must create conditions for learning that energize our students and increase their motivation to learn (Sanders, Boss, Boss, & McConkie, 2011, p. 495).

Recently our teaching colleagues discussed the question of how to engage freshman students with the concepts, study, and assessment tasks covered in the first financial accounting course.² Anecdotal evidence suggested that many students have a fear of numbers and, as this course appears early in the degree program, they are deeply concerned about their ability to successfully complete this course content.

Further complicating this is that the financial accounting class is frequently populated with students in a wide cross section of majors and who might not have the benefit of other business courses that might

² Course is the same as subject.

complement the contents of the financial accounting course.³ The diversity of enrollment for the course that is analyzed in this paper includes the following:

Biomathematics	1	Religious Studies	1
Biomedical Science	1	Pre-Physical Therapy	1
Accounting	6	Undeclared	1
Mathematics	1	Pre-Health Information	
Finance	3	Management	3
Biology	1	Pre-Law	1
Management	5	Business Administration	
Marketing	2	(Customized)	1
History	1		
Exercise Science	1	Total 37 Students	
Biochemistry	1	7 Majors in the School of Business	
Health Care Management	4	7 different science courses	
Business and Society	2	4 different arts courses	

Our desire to maintain academic rigor while at the same time increase student engagement led to a discussion about piloting the use of portfolios in the financial accounting class. We viewed the portfolio as a tool that would help students experience both identifiable outcomes and at the same time possibly reduce their stress by focusing them to reflect on their own process of learning. The principal intent of following this methodology was to provide the instructor and students with insight into students' progressive grasp of the subject matter of the course.

This paper sets out to relate the experience of implementing a portfolio in the first course within the financial accounting sequence. The paper firstly develops the theoretical framework for portfolios as a vehicle for influencing student engagement, then documents the portfolio's place in this course, and then delineates students' responses to this structured experience. It concludes with an overall review of the implementation along with some recommendations for consideration. The paper adds to the

³ In the United States, all undergraduate degrees require completion of a general education curriculum that emphasizes critical thinking and problem-solving competencies, effective communication skills, and an understanding of civic responsibility.

literature relating to the use of a portfolio in the education process and serves as encouragement to other teaching staff to test similar implementation.

2. Prior literature, theory and method

A great deal of ink has been spilled on the topic of portfolios in the past 20 years. While much of the research has focused on secondary school classes and students, there is a growing trend toward the use and analysis of portfolios within undergraduate and graduate educational programs. Portfolios and ePortfolios have been implemented in courses spanning many academic disciplines: English, engineering, marketing, nursing, and even medical schools (Buckley, et al., 2009). Far from being contained merely to the classroom, portfolios have penetrated the ivy walls and are now part of the fabric of academic advising departments, who are piloting the use of the portfolio as a unifying project across the entire degree program at institutions such as Stanford University (Chen & Black, 2010).

And yet, for a topic that has generated so much focus in the academic community, there is a remarkably divergent span of definitions about what “portfolios” actually are. These divergent definitions perhaps explain why at times the topic of portfolios has generated far more heat than light.

Perhaps this should be considered quite fair. The advocates of student learning provide, at great length, a rich analysis of portfolio projects and their impact on student competence (Kryder, 2011), engagement (Zubizarreta, 2009), self-awareness (Buckley, et al., 2009), persistence (Chen & Black, 2010), and desire to collaborate with others (Tiwari & Tang, 2003; cited in Buckley, et al., 2009, p. 350). By way of contrast, Buckley et al (2009) found three studies that report no changes in students’ self-awareness and ability to engage in reflection, two studies that report no change in students’ ability to learn independently through use of portfolios, and one study that reported portfolio projects resulted in no

enhancement of students' communication skills (p. 347). The authors summarize the following as the basis for their research on the effects of portfolios on undergraduate student learning:

In recent years, the use of portfolios as learning and assessment tools has become more widespread across the range of health professions. Whilst a growing body of literature has accompanied these trends, there is no clear collated summary of the evidence for the educational effects of the use of portfolios in undergraduate education (Buckley, et al., 2009, p. 340).

The broad set of opinions regarding even an essential definition for portfolios may indicate why there is such varied experience in the analysis of portfolios and eportfolios themselves:

- “The...eportfolio...is a technology, a pedagogical approach, and a process, as well as a product.” (Chen & Black, 2010).
- “A portfolio can be defined as ‘a collection of evidence that learning has taken place’ (Challis, 1999).
- “The term is used to describe a plethora of learning tools that differ widely in content, usage, and assessment requirements” (Rees, 2005a and Reese, 2005b, cited in Buckley, et al., 2009, p. 341).
- “[W]e have adopted a definition that takes into account two broad categories of content: The assembly of a collection of evidence of student learning and achievement, and the requirement for students to complete a learning journal or diary” (Buckley, et al., 2009, p. 342).
- “A portfolio is “a compilation of papers that represent the quality of one’s work” (cited in Campbell, 2002, p. 43).

- “A learning portfolio is a flexible, evidence-based process that combines reflection and documentation. It engages students in ongoing, reflective, and collaborative analysis of learning” (Martinez & Gutierrez, 2013, p. 197).
- “A portfolio, electronic or paper, is simply an organized collection of completed work” (Batson, 2002).
- “A portfolio is defined as “a purposeful collection of student work that exhibits the student’s efforts, progress, and achievements in more than one area” (Paulson, Paulson, & Meyer, 1991, p. 60)

Some of the definitions are as aspirational as others are merely tactical. The single point of agreement across these definitions appears to be that a portfolio contains “work” or “product.” As a community, it seems we have some way to go before we achieve unity on the definition of portfolios. The definition seems to merit much further discussion, for surely until we can broadly agree on what exactly it is we refer to when discussing a “portfolio,” it will be more difficult to accurately measure the tools being used or consistently gauge the outcomes related to portfolios’ implementation.

While definitions of portfolios diverge, the benefits of portfolios are more clearly identified:

Benefits of Portfolios to Students	
They increase students' self-esteem and help students monitor their goals.	(Okoro, Washington, & Cardon, 2011)
They motivate students to better prepare themselves for the workplace.	(Okoro, Washington, & Cardon, 2011)
They flesh out students' resumes both before and after graduation.	(Batson, 2002)
They lead to self-directed learning.	(Mummaleneni, 2014)
They prepare students for interviews.	(Moody, Stewart, & Bolt-Lee, 2002)
They stimulate community, conversations, and group learning.	(Kryder, 2011)
They build students' competence and ability to perform tasks required in the professional domain of business administration.	(Martinez & Gutierrez, 2013)
They are vehicles for networking.	(Kryder, 2011)
They help students discover, document, and develop skills that will demonstrate their value to prospective employees and help boost their employability.	(Campbell, 2002, p. 44)

Table 1: Benefits of Portfolios to Students

The teaching contract itself is a “learning partnership” where both students and instructor are actively involved in the process of creating knowledge. Portfolios provide an active link in this process that moves students along the Crawl – Walk – Run continuum as will be outlined below.



Figure 1. The Crawl-Walk-Run Continuum.

Crawl:

Students who arrive to college are often conditioned toward being dependent, having been told what to do and think through elementary, middle, and high school. Lecture-based teaching reinforces dependence, as it tends to emphasize the instructor’s knowledge and the student’s lack thereof. It is quite possible that students who arrive at college have, to some degree, embrace some degree of ‘learned helplessness,’ which positions them to be much less engaged and more overtly dependent. Portfolio projects are designed to engage students by providing them with a path to begin the experience of moving themselves from dependence to independence.

Walk:

Portfolios engage students and move them toward independence. Portfolios that require students to document learning, to report challenges, and synthesize their discoveries along the way are a tacit step toward empowerment. Students, while learning a new subject, are invited to think critically and to develop the skill of communicating results and articulating the significance of their work. It appears that most research on portfolios has to date focused on this stage: boosting students’ individual engagement so that they learn how to become involved in cultivating their own learning process. Doing so increases

motivation to become involved, and this causes engagement to grow (cited in Molinari & Huonker, 2010, p. 4). But research on portfolios indicates a nascent but growing trend toward moving students toward interdependence.

Run:

Portfolios, for all their benefits, appear to be utilized primarily to cultivate a student's growth in isolation from those around him or her. Our research, which began with over 60 articles focused on portfolios in higher education, revealed only scant mentions of using teams and collaboration to heighten engagement and learning of portfolios by fostering interdependence. Not only can portfolios be conversation starters (Kryder, 2011, p. 339), they can be used to foster collective dialogue and discovery. For instance, the learning experience could be elevated by providing students with a rubric to measure portfolio quality and having students meet in small groups to review each other's work, provide feedback to each other based on their rubric and their experience, and to glean new ideas from their colleagues' portfolios to synthesize or expand their own portfolio project (Campbell, 2002, pp. 48-54). "When samples of the documents were shown in class, students expressed their amazement at what they and their peers were capable of and felt motivated by each other's work" (Campbell, 2002, p. 50). This Crawl-Walk-Run continuum lies at the heart of self-directed learning and engagement. Portfolios provide students the ability to document their learning and, in so doing, to embark upon the journey of reflective dialogue that moves them toward discovery (Zubizarreta, 2009, p. 6). And these, when combined with critical thinking and feedback that are the product of deliberation with colleagues reviewing their portfolios together, extend the power of self-directed learning toward team learning. The Crawl-Walk-Run continuum, which lies at the heart of self-directed learning and engagement, is expressed in the graphic below. **Document:** Portfolios provide students a structured approach for intentionally documenting their learning. **Discovery:** The portfolio process prods students toward

reflecting on the skills they have learned as they apply the class content to projects and assignments in the progressively expanding portfolio. Portfolios help students to embark upon the journey of reflective dialogue that moves them toward discovery (Zubizarreta, 2009, p. 6). **Deliberation:** And these, when combined with critical thinking and feedback that are the product of deliberation with colleagues reviewing their portfolios together, extend the power of self-directed learning toward team learning.

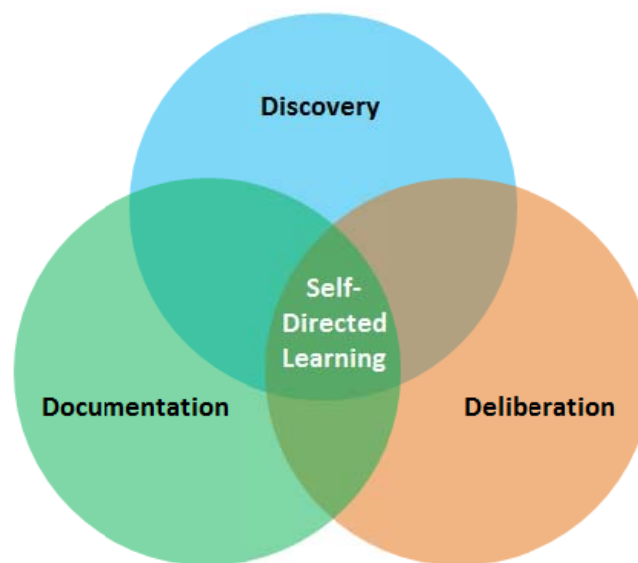


Figure 2. The components and influences of self-directed learning through portfolios.

Companies actively seek to hire people who can articulate identifiable outcomes (Cunningham, 1995). Instructors and schools of business should “design a curriculum to assist students to achieve identifiable outcomes” (Errey & Wood, 2011, p. 150), and be able to do so in the team environments so prevalent in the professional world. Extending portfolio assignments to give college students experience helping each other and learning from each other is a meaningful way to help them take tangible steps on the path from dependence, to independence, and finally toward the interdependence required in life and work. In so doing, active learning can help students move from surface learning to deep learning (Healy & McCutcheon, 2008, p. 33) by being actively involved in a self-directed process of discovery and taking meaningful action (McCarthy & McCarthy, 2003, p. 65).

The goals of creating self-directed learners are expressed well by C. Roland Christensen:

The aim of teaching is not only to transmit information, but also to transform students from passive recipients of others people's knowledge into active constructors of their own and others' knowledge...Teaching is fundamentally about creating the pedagogical, social, and ethical conditions under which students agree to take charge of their own learning, individually and collectively.

So we are responsible not just for teaching our view of the subject, but also for giving a sense of how that view fits with those of a broader professional community. Moreover, the main value that students take away from our classes is not their knowledge of the subject, but a predisposition to learn. If this predisposition is not consistently communicated across the curriculum, then we have failed students, both intellectually and ethically (Elmore, 1991, pp. xv-xvi).

In the next section the implementation of the portfolio is explained along with the various evaluation strategies.

3. Implementation and Evaluation

During the break at the end of the fall term (late September to early December) our quest commenced to find material related to the use of portfolios for business classes (in general) and accounting classes (in particular). This search identified a number of resources related to the application of portfolios in the secondary school system, arts and design, and humanities, though it revealed a relative paucity of

information about the application of portfolios to business or accounting. One paper that surfaced – “Use of Portfolios in Accounting to Improve Instruction,” by Gary T Harper who presented this paper at Wayne State University as a part fulfillment of the requirements for the degree, Master of Arts in Teaching, June 2003 – provided some useful material around which to build and implement portfolios in the financial accounting course.

On the first day of classes in the winter term (January to March) 2014 students received their course syllabi in which details were provided regarding the shape of the course. A key feature was that students could develop a portfolio and thereby avoid taking the final examination. The following excerpt from the course syllabus explained the minimum requirements for the portfolio:

Each student will maintain a portfolio of relevant materials. The portfolio will always contain:

1. *The homework assignment as indicated in the Class Activities section of this syllabus.*

In order to further demonstrate your engagement with materials you will also:

2. *Select two or three key definitions from the chapter studied each week. You will explain what you understand these definitions to be saying.*
3. *Review the list of objectives for each chapter studied, choose one and explain how you understand that item.*
4. *Tell in a short paragraph how the material studied in the chapter contributed to your understanding of your own major field of study, i.e. HRM, Marketing or Accounting.*

5. *Include one or more worked examples from the Exercise section at the end of each chapter in the textbook on the proviso that the exercise chosen has not been used in a tutorial.*
6. *Respond to a question at the end of each chapter that specifically addresses an ethical issue.*

These instructions provided students with a basic framework around which to build their engagement with the project and hopefully with the course. Of necessity this would be a paper document as the e-portfolio option was simply not available. The hope was that by adding this option students would take more responsibility for their own education experience and also give them a sense of accomplishment in delivering a product over which they had spent some time. In several class sessions additional explanations were provided on how students could enhance their portfolios by, for example, including business news items to which they could add their own comments or explanations, by adding comments on ethical issues they found of interest or by practicing their graphic presentation skills so as to enhance package of the portfolio in a way that made for easy understanding. The overall intent was to ensure that students could meet the spirit of a useful definition of a portfolio as used in the course syllabus:

A portfolio is a purposeful collection of student work that exhibits the student's efforts, progress and achievement in one or more areas (Paulson, Paulson, & Meyer, 1991, p. 61).

An early indication of a willingness to undertake this project is that 30 of 36 in the class decided to submit a portfolio. It might be that this is also an early indication of enhanced/increased engagement.

Most importantly the portfolio would also contribute to the students meeting some of the outcomes for the course as set out in the syllabus. These could indicate that amongst others they can:

- demonstrate understanding of the role and function of accounting in business and society;
- recognize accounting as an information-decision model;
- develop and demonstrate an understanding and knowledge of the technical skills involved in basic accounting processes;
- examine the assumptions and choices involved in the design, operation and development of efficient recording and controls systems;
- isolate specific elements and significant relationships among the financial statements and explain their role in financial accounting and control;
- identify and explain various concepts and issues to do with recognition valuation and alternative methods of accounting for specific assets such as cash, receivables, inventory, fixed and non-current assets.

A helpful suggestion in the Harper paper was the use of a pre-survey and a follow-up post-survey.

Within the first week of the teaching term students received a short survey based on the one used by Harper in his paper. The questions have been designed to ask students for their opinion on how well they thought they might like the portfolio and what their reactions might be. Thirty-six students attended on the day the survey was taken; all students responded. The pre-survey is shown here with mean responses for each question.

Pre-survey

ACCT221 Financial Accounting I

Winter Term 2014

This survey is anonymous. Do not show either your name or student ID number. You do not have to complete this survey so your participation is entirely voluntary.

Please circle the number that best approaches your response.

N = 36

1. Will developing a portfolio help you understand the chapter objectives?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.42

Mean response

2. Do you think the use of a portfolio in Accounting will be a useful learning activity?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.47

Mean response

3. Will you benefit from keeping a portfolio in Accounting?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.40

Mean response

4. Do you think portfolios should be used as an assessment tool for this class instead of the final examination?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.36

Mean response

5. Will using a portfolio help you attain the results or grade that you want to achieve in this course?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.36

Mean response

6. Should this portfolio project be in used in other accounting classes?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.25

Mean response

Thank you and even if you chose not to complete the survey please return this to me before you leave the lecture hall.

14 January 2014

These responses indicate that at the outset of the course the broad sweep of student opinion was positive with aggregate responses falling within the Agree to Strongly Agree range. It appears that there is a general consensus as to the value of portfolios and it might be that as some of these students may have prepared portfolios in their secondary or elementary education and they are therefore positively oriented to the concept. A few students (6) made it clear from the outset that they would not develop a portfolio and instead would take the final examination. This may also reflect the fact that some were quick to realize that taking a test would require less work than preparing a portfolio especially if they see themselves as better at test taking than designing and preparing a portfolio.

Initial enthusiasm certainly seemed to energize students. From time to time students would ask for advice on inclusions and as the course progressed they received verbal reminders that they should maintain a regular review of the portfolio.

One of the challenges that quickly emerged once the portfolio project was set in motion was the issue of how to evaluate the end product. A review of various models of assessment approaches to portfolios showed incredible diversity of methods of evaluating the final product. The situation became more urgent given that in a ten week teaching cycle the mid-term evaluation point was approaching fairly rapidly so some grading rubric had to be developed fairly promptly.

Typically students are keen to know what their grades will look like. So while it would be important to provide pointers on the elements used to evaluate the portfolio they would need to see how that all translated into a letter grade. About mid-way through the term students participating in this exercise were asked to submit their work for a preliminary 'draft-in-progress' assessment. Students received the following indicative assessment of their record:

ACCT221 Financial Accounting

Report on Progress in course

Name: ____ **Student Name** ____

Homework to date (28 February)

P1-4A ____ **✓** ____

P2-3A ____ **✓** ____

P3-4A ____ **✓** ____

P4-1A ____ **Not** ____

P5-2A ____ **✓** ____ Grade at the moment: ____ **82.65%** ____ Weight 30% ____ **24.8%** ____

Mid-term Test Grade: ____ **94%** ____ Weight 35% ____ **32.9%** ____

Final Examination Grade: ____ **90%** ____ (Predicted) Weight 35% ____ **31.5%** ____

Total Grade Forecast ____ **89** ____ % ____ **B+** ____

However: If you complete the Portfolio and using the indicative grade I reported last week your grade at this moment (28 February) could look as follows:

Portfolio Grade at the moment: ____ **78%** ____ Weight 65% ____ **50.7%** ____

Mid-term Test Grade: ____ **94%** ____ Weight 35% ____ **32.9%** ____

Total Grade Forecast ____ **84** ____ % ____ **B** ____

Please note that this is purely an indication and does not imply that your grade will definitely fall at this level. It might just show you how much effort will be required on remaining homework or the preparation of the portfolio. I am happy to talk through your options. Just come and see me in my office.

The rubric that follows was developed in order to provide a guiding framework both to the instructor in the course and students submitting their work and this rubric was also used to make the final evaluation of the portfolio. The important point is that the guiding framework was just that as it allowed the instructor to exercise some judgment when evaluating each submission. As each portfolio was read and

assessed it was matched against each of the major explanatory boxes in the rubric. The instructor translated the check marks in each box to arrive at a letter grade.

Graded Evaluation of Portfolios

Name: _____

The following broad framework is used to evaluate the portfolio presented.

Especially high quality work A	Creative/colourful and effective organization of materials	All required homework items included with full grades	Additional practice materials inserted with full grades
	Extended responses to supplementary materials	Excellent ethics materials inserted	Own materials inserted in support of the submission
Good solid work B	Really good organization of materials	All required homework items included with good grades	Some additional practice materials inserted with passing grades
	Thorough responses to supplementary materials	Very good ethics materials included	
Needs Strengthening C	Organization readily apparent	Most Homework assignments included	Minimal additional practice materials
	Basic responses to supplementary materials	Average responses to ethics issues	
Needs significantly more work D	Little or no organization	Minimal required homework	Little additional practice materials presented
	Little or no supplementary materials	Ethics issues not well represented if at all	

Comments:

Date: _____

Instructor: ACCT221

Towards the end of the Winter term students were asked to complete a survey⁴ that asked three questions:

- What did they like about the class,
- What they didn't like about the class, and,
- What recommendations would they suggest on how to improve the course?

The intent of this survey is to obtain insight into how students felt about the overall delivery of the course of study. It was not anticipated that the survey would gather data in relationship to the portfolio but it is clear that students thought that this was an ideal opportunity to do precisely this. Of the 32 who provided comments, 14 included positive comments in respect of the portfolio approach as reported above. The following are the responses about what they liked in the course with particular reference to the portfolio:

The main thing I liked about this class was the portfolio and the way everything is scheduled.

I liked that there was a portfolio option for the final (8 comments like this)

The portfolio helped me understand each chapter

I really enjoyed the portfolio. I thought it was very helpful. It definitely helped me understand every aspect of each chapter

⁴ Class size, 37. 32 responses received with 5 absences on the day the survey was circulated. 86% participation.

I liked the portfolio. It kept me engaged in the class & helped me better understand the lectures.

The portfolio was a brilliant idea!

One last thing I like was the portfolio because it helped affirm my understanding of the class.

However not all were positive. The following single comment in respect of the portfolio appeared under the question, what they didn't like about the course:

I didn't like the strictness of grading on the mid-term, portfolio and homework.

This student appears to be more concerned about the grading rather than the content, the shape of the portfolio, or its fairness of measuring performance/alignment of learning outcomes.

Under the question relating to recommendations some interesting views emerged with seven comments specifically in relationship to the portfolio:

Because portfolio is replacing final exam, people tend to pay less attention because they are not taking the final exam anyway. So after midterm, the interest went down and didn't participate fully enough. So my general idea: portfolio is good but should not replacing final test.

More guidelines on the portfolio (two comments like this)

I recommend to keep the portfolio idea.

The portfolio explin(sic) it better.

Be a little bit loose. Less work in the portfolio.

*Perhaps a stricter grading policy to motivate the students to stay up to date and on time
with submissions of homework/portfolio.*

Within a week of completing this survey students submitted their final portfolios for evaluation. Immediately after receiving the written final evaluation they were asked to complete the survey as used at the outset of the course, now slightly modified to reflect the past tense. The intent of the survey is to document what student responses after going through the process of developing the portfolio and receiving their graded assessments. The survey, showing the slightly modified questions, is included here once again with mean scores of student responses.

Post-survey

ACCT221 Financial Accounting I

Winter Term 2014

This survey is anonymous. Do not show either your name or student ID number. You do not have to complete this survey so your participation is entirely voluntary.

Please circle the number that best approaches your response.

N = 29

1. Did developing a portfolio help you understand the chapter objectives?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.34

Mean response

2. Do you think the use of a portfolio in Accounting was a useful learning activity?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.48

Mean response

3. Did you benefit from keeping a portfolio in Accounting?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.38

Mean response

4. Do you think portfolios should be used as an assessment tool for this class instead of the final examination?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.34

Mean response

5. Do you believe that using a portfolio helped you to attain the results or grade that you wanted to achieve in this course?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.31

Mean response

6. Should this type of portfolio project be in used in other accounting classes?

1	2	3	4
Strongly disagree	Disagree	Agree	Strongly agree

3.66

Mean response

If you would like to add any additional written comments please do so on the reverse side of this page.

Thank you and even if you chose not to complete the survey please return this to me before you leave the lecture hall.

13 March 2014

There were 33 students present on the day this survey was distributed. Of this group 29 completed the survey and four students did not complete it as they were not submitting portfolios. The aggregate scores summarized on the previous page show that student opinion at the end of the term after completion and submission of the portfolio still lies within the Agree and Strongly Agree range. These scores are illustrated in the following graph which charts both the pre-portfolio and the post-portfolio scores.

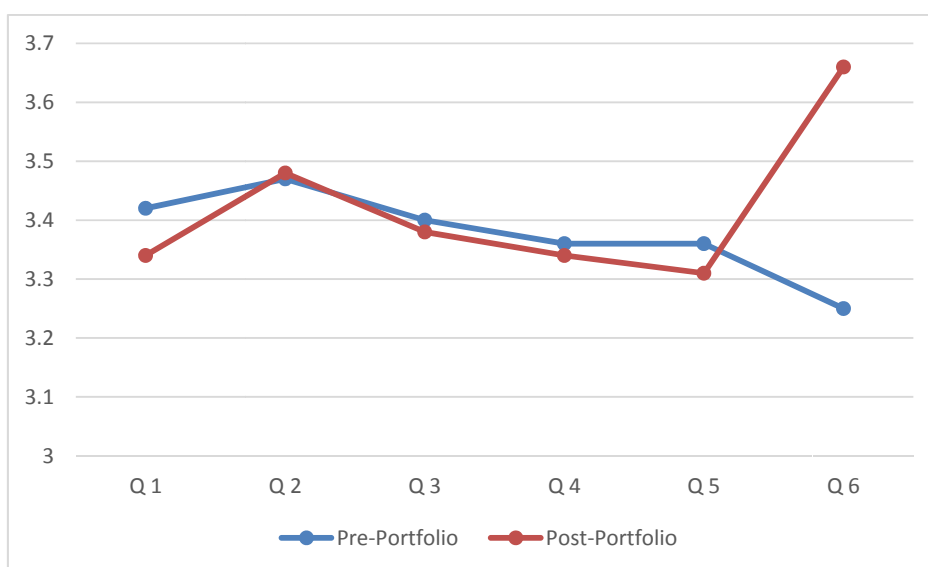


Figure 3. Graph of survey scores

This graph of results shows that the scores for the earlier pre-portfolio scores are relatively optimistic with question 3 to 6 all below the peak response of 3.47 for question 2. The later post-portfolio scores mirror the earlier responses but at slightly lower levels. These slightly lower responses nonetheless may indicate that students felt that they did not learn as much of the chapter objectives as they thought; that they did not benefit from the portfolio; that the final examination should be retained; and disenchantment with the grade awarded –as the only negative survey respondent articulated above:

I didn't like the strictness of grading on the mid-term, portfolio and homework.

Maybe other students felt similarly but they did not report this view.

The interesting contrast of opinion is that student responses to question 6 in the post-portfolio survey regarding the use of the portfolio has soared and that it should be used in other courses even although their own estimation of its value have declined since setting out on the journey.

When assessing whether students were more successful using this approach as compared to those who did not prepare the portfolio the results are not very clear. The grades for the portfolio averaged a B-. The total grade for students completing a portfolio, taking into account the other components assigned in the course, averaged a C+. The students who only took the final examination earned an average of a C. Students who completed the portfolio performed only marginally better than those students who did not complete the portfolio, earning better overall grades by only half a symbol. It is possible that the conclusion can be drawn that the portfolio enhanced learning.

Having completed this review of the portfolio experience, we draw conclusions and make the following recommendations.

4. Conclusion and Recommendations.

The principal reason for using the portfolio approach in the financial accounting class was to try heighten student engagement by 1) helping students experience identifiable outcomes and 2) reflect on their own process of learning. Students' comments in the evaluations affirm that the project's design did help them establish identifiable outcomes. Regrettably, the survey did not directly ask students to report back on their process of learning from the portfolio experience; indeed, students' responses focus primarily on content acquisition, and provide no insight into their processes of learning. This

oversight in the construction of the survey leaves this question about students' processes of learning unanswered.

As an overarching goal, the instructor sought to evaluate if the portfolio methodology provided students with increased insight into the course subject matter. The evidence, as reported above, conveys a mixed message.

After completing this experimental project some recommendations for consideration could include the following:

1. If an instructor wishes to use the portfolio approach more time needs to be spent on developing a clear understanding of what is involved.
2. A very clear grading rubric must be developed before the task is undertaken. If this is shared with students they will also have a clearer picture of course expectations.
3. Portfolios should be developed by the student using their own initiative in respect of content, design and delivery. Instructor input should not be prescriptive. In this report students were unfamiliar with the concepts and needed some guidance.
4. Providing exemplar portfolios to students in advance can lessen their stress about this new undertaking and likely increase the quality of their portfolio product and the learning gleaned from this process.
5. Individual conferences with students might provide improved opportunities to guide student efforts.
6. There is much wisdom to be gleaned from classmates. Rather than making portfolios a project to be completed in isolation, give students a clear evaluation rubric and then have them meet together at

least four weeks before the project is due in order to give feedback to each other and learn from each other's efforts.

7. Students need more training and active guidance in reflective writing. Training should be either included as part of the course or provision should be made in a general education course.
8. Use electronic submissions – e-portfolios. If this methodology is applied students and teaching staff will require training in the use of the software.
9. Instructors should develop their own portfolios as examples of the approach so as to mentor students in the process.

Upon reflection there is another recommendation but it does not naturally flow from this study. The portfolio methodology could be a very useful tool for students to develop their overall learning processes across the curriculum and perhaps be an additional way of demonstrating to potential employers what their learning outcomes have been from their degree study. This would be true if a portfolio approach is applied across the degree program and is developed through key courses of study. This might fit well with the need to demonstrate competency skills on completion of degree study and the portfolio could provide an avenue for compiling that information. This area warrants further study and investigation. A written comment from one student provides some insight:

I really like the idea of a portfolio! It helps us, who are a very visual 😊 and gives EXTRA practice.

It seems that the portfolio was a mixed success in this particular course. Students who participated in this project who continued into the next term of financial accounting were curious to know if a portfolio

might be used in the subsequent financial accounting course. They appeared disappointed to find out that a portfolio would not be used in the subsequent course.

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