

## Designing and Evaluating “Portfolio Practice I,” a Course for Online Graduate Students

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*This research aims at proposing design principles for the support of portfolio activity through implementation of a portfolio course. Taking our implementation of a new course entitled “Portfolio Practice I” for online graduate students as a practical example, we reviewed the course results from actual students’ portfolios and questionnaire survey results. By reviewing the trends in the created portfolio have, we confirmed that students utilized the samples presented by the course instructors and customized them to fit the situational context. They get habituated to the e-portfolio system (Mahara) as they use it more. Through the questionnaire surveys, we found that the students understood the value of portfolio creation activities and the course goals. We suggested that the operability of the e-portfolio has significantly influences the learning load and that support for the creation process is important. Per these results, we propose suggestions for implementers at the conclusion of this paper.*

*Keywords: portfolio, showcase, reflection, course design*

### Introduction

“Portfolio” is becoming a common term in higher education. The purpose and methods of portfolio use vary. The goal can be formative (learning) and/or summative (assessment) (Trevitt, Macduff, & Steed, 2014; Van Tartwijk & Driessen, 2009). Capable of being adapted to the specific purpose of a target program or organization, portfolios provide a flexible and influential tool. While a number of studies on teacher education have dealt with (e-)portfolios, the majority of these focus on the development process (Balaban, Mu, & Divjak, 2013). Recent studies have been more focused on learner perspectives, with researchers exploring successful factors in the development and use of the Electronic Portfolio Students Perspective Instrument (Ritzhaupt, Ndoeye, & Parker, 2010); investigating factors that influence student use of personal, academic, and professional development portfolios (Ahmed & Ward, 2016); and developing an instrument for assessing the e-portfolio (Balaban et al., 2013). Given that the aims and goals of portfolio stakeholders vary, it is difficult to satisfy the needs of everyone (Parker, 2012). Indeed, this is one of the main challenges in bringing portfolio usage into successful operation.

This paper discusses our implementation of “Portfolio Practice I,” a new course for online graduate students aimed at proposing design principles to support portfolio activity. After a trial year, we introduced the course as a mandatory part of our curriculum. Our focus was on both the learning process and the summative assessment provided by the students themselves. After describing the design of the course, we review the results of actual portfolios to see how

they develop the outcome and how the learners perceived the course implementation and reported on their overall experiences, considering the balance of implementation intention and learner experience.

## **Portfolio Course Design**

The target of this study was an online master's program aimed at training practitioners to become professionals in e-learning in corporate and/or university settings. Most participants were adult students working full-time, and they took all their courses online with Moodle. The program has 12 core competencies that represent the basic knowledge and skills to be fulfilled by completing the required course as well as seven optional competencies obtained through elective courses (Suzuki, 2009). Portfolio Practice I is designed for first-year online graduate students as a required course. The annual course was first offered in 2015. Its design is based on a prior year's test operation in which we offered the students at the target graduate school several reflection activities throughout the trial period. The current course design is based on what we learned from this trial year. The main purpose of the course as it is currently designed is to provide opportunities for students to revisit what they were required to do in the program and reflect comprehensively on the learning activities involved. It is intended as a vehicle for students to think about all the activities in graduate school in an integrated manner. This critical reflection is introduced on a regular basis throughout the term, while showcase development and a competency-based reflection—essentially a rehearsal for the final exam—occur at the end of each semester. All full-time master's students are automatically registered for this course; however, to complete the course, students need to successfully finish other required courses, because all the activities of this portfolio course are premised on those courses.

In conducting the course, we use Moodle as our learning management system and Mahara as our e-portfolio system. Moodle is employed for course activities such as submitting the reflection report, and Mahara is used to implement the final practice exam and the development of the showcases. All students are required to take an orientation course soon after the announcement of student application results. Students in the program learn the basic concepts related to portfolio development and how to use an e-portfolio system by working with it to introduce themselves.

Course activities focus on students revisiting activities from their other courses, both separately and in an integrated manner. The course consists of two parts: (1) reflection activities related to specific mandatory courses and (2) a competency-based reflection (a rehearsal for the final exam) and showcase development, which provide a means of summarizing the learning results by showing the student's work, together with appropriate supporting evidence. Combining both types of activities was one of our primary points of emphasis in designing the course.

As shown in Figure 1, the portfolio course is divided into two blocks: first semester and second semester. Students take the course concurrently with other courses. In fact, the first part of each block involves a reflection on each student's other required courses. These course reflections are performed on a regular basis. Activities such as rehearsal for the final exam and showcase development are conducted at the end of the semester after students have completed their other required courses. These activities are intended to integrate what the students have learned throughout their program of study. Rehearsal for the final exam consists of a competency-based reflection activity. Submission of a competency-based reflection report is a requirement for completing the program, and the rehearsal is included as preparation for the final exam. Showcase activity is intended for the students to organize or summarize what they have learned for the target readers. Students develop showcase under the assumption that they are applying for a job. Between the first and second semester, we offer an optional activity for students to introduce and exchange views on their showcases with peers, seniors, and instructors at a study camp. Study planning for the second semester is also included as an activity of the course.

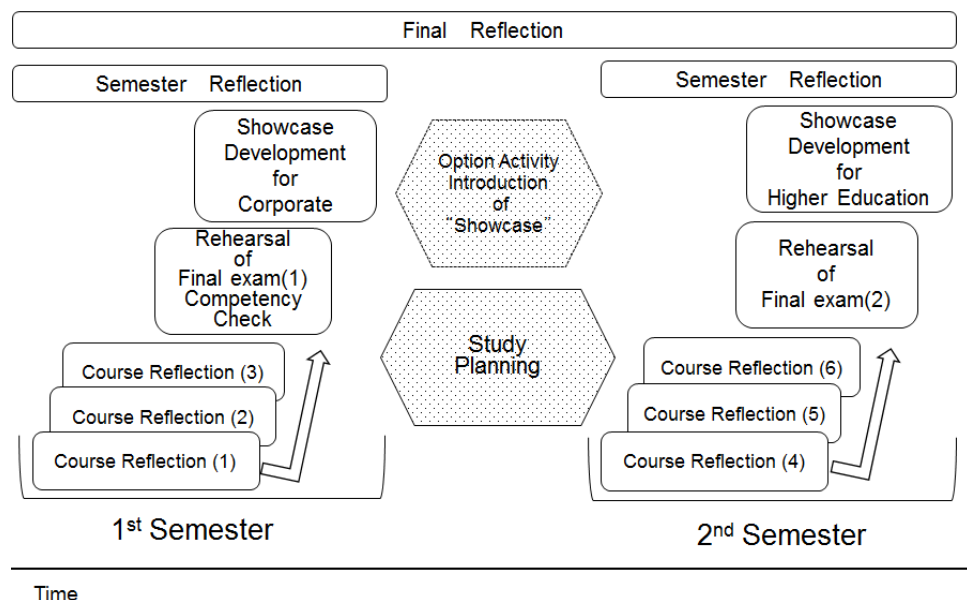


Figure 1. The structure of activities for "Portfolio Practice I."

## Results from Students' Activities and Perspectives on Course

### Participants and Methods

Out of the 22 students registered for the portfolio course, 12 learners completed it in 2015. Ten students failed to complete the course because they had not finished the other required courses that form the foundation of the portfolio course. These 10 students did not engage in any activities in the portfolio course. All 12 participants who completed the first course activity finished all the course activities.

After implementation, we confirmed the results of the course activities from two perspectives. One perspective concerns the content of the students' actual portfolio: what is the quality of the portfolio of students who participated in the activities and what are the characteristics of the deliverables? We reviewed each student's portfolio to see the features. The second perspective concerns the questionnaire survey administered at the end of each semester to see how the students responded to the course activities.

### Competency-based Portfolios

Considering the operability of Mahara, for the competency-based portfolio, we recommended that students copy and use the prepared sample template that provided two types of examples, a "fulfilling example" and a "minimum example." As a result, everyone completed a competency-based portfolio (rehearsal for the final exam) with this sample template (Figure 2). The first page gives a summary of the target semester activities with an explanation of what the student learned, how they learned, and a circular radar chart of the student's self-evaluation based on the competencies (left part of Figure 2).

Because the same layout was used in all the portfolios, there was very little difference among them in visual appearance, but the units of evidence were different, as shown in Table 1. Many students modeled their portfolio after the sample but customized it according to their own situation. In addition to the top page, the students prepared evidence pages for each competency as support for their self-evaluation (right part of Figure 2). The unit or amount of evidence attached varied depending on the student. The unit or amount of evidence increased in order of task, assignment, and course. Tasks included class activities such as discussion, minireports, and so on.

There was a tendency for there to be a higher number of sentences in the overall explanation in the second semester than in the first semester. In particular, this tendency was seen in students who had less sentence volume in the first semester than the second one. Because less time is required to operate the system (Mahara) in the second semester, there is a possibility that it helped to have work in a careful manner.

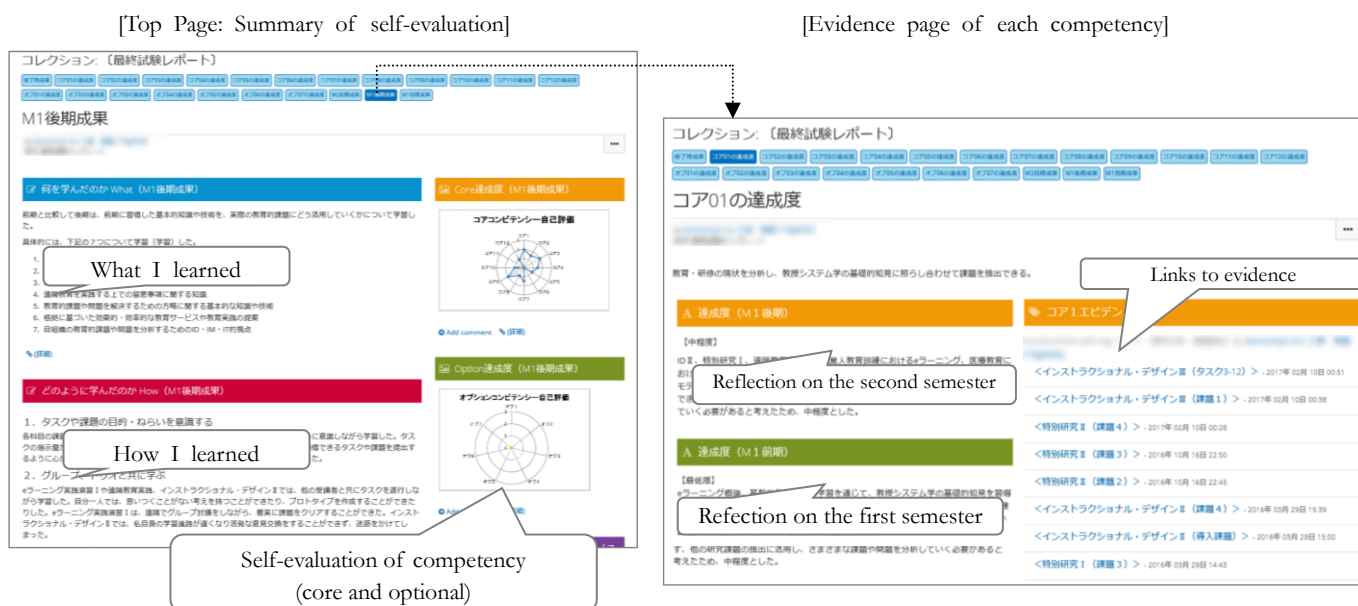


Figure 2. Student example of a competency-based portfolio in the second semester.

Table 1

Units of Evidence Refereed in Competency-based Portfolio

Unit of evidence	Number of Students (N = 12)	Proportion
By assignment and unit task	5	41.7%
By assignment	5	41.7%
By subject or assignment	1	8.3%
No evidence (only a list of evidence)	1	8.3%

## Showcase Portfolio Development

In this activity students choose opening position of a company in the first semester, and a university in the second semester, and then develop a showcase portfolio for the target position. We prepared three samples for the showcase portfolio, but unlike in the case of the competency-based portfolio, we did not prepare a sample template. We made this activity freely except for preparing an explanation of the purpose of the showcase, in addition to the portfolio development. Therefore, the composition of the showcase reflected individual differences, as shown in Table 2.

Overall, a top page with a brief profile and appealing points was prepared, plus one or more pages summarizing the evidence tailored to the opening position (or offering content). Type A in Table 2, "TOP page summarizing the whole picture, with skills and experience page on work," was structured using a part of sample A. It was confirmed that other students referred to the earlier developed portfolio with reference to sample A rather than being made with reference to sample A.

Also, there was no imitation of sample B and sample C in the first semester. Sample B seems to have not been copied because English was used as an example of an application to a foreign company. Sample C was based on the curriculum of the graduate school, and it was not used because it was similar to the final examination (competency-based portfolio).

In the second semester, there were students who are with the same composition of the first semester, even if not copied, some referred to sample A. Three students developed an original structure. In other three cases, students partially used the reporting page in sample B. We found no use of sample C. There is a possibility that master's students avoided using sample C because evidence based on research achievements was not relevant for first-year students. Each student created their own portfolio according to the contents of the public offering, and there were six people in the same pattern of the first and second semester.

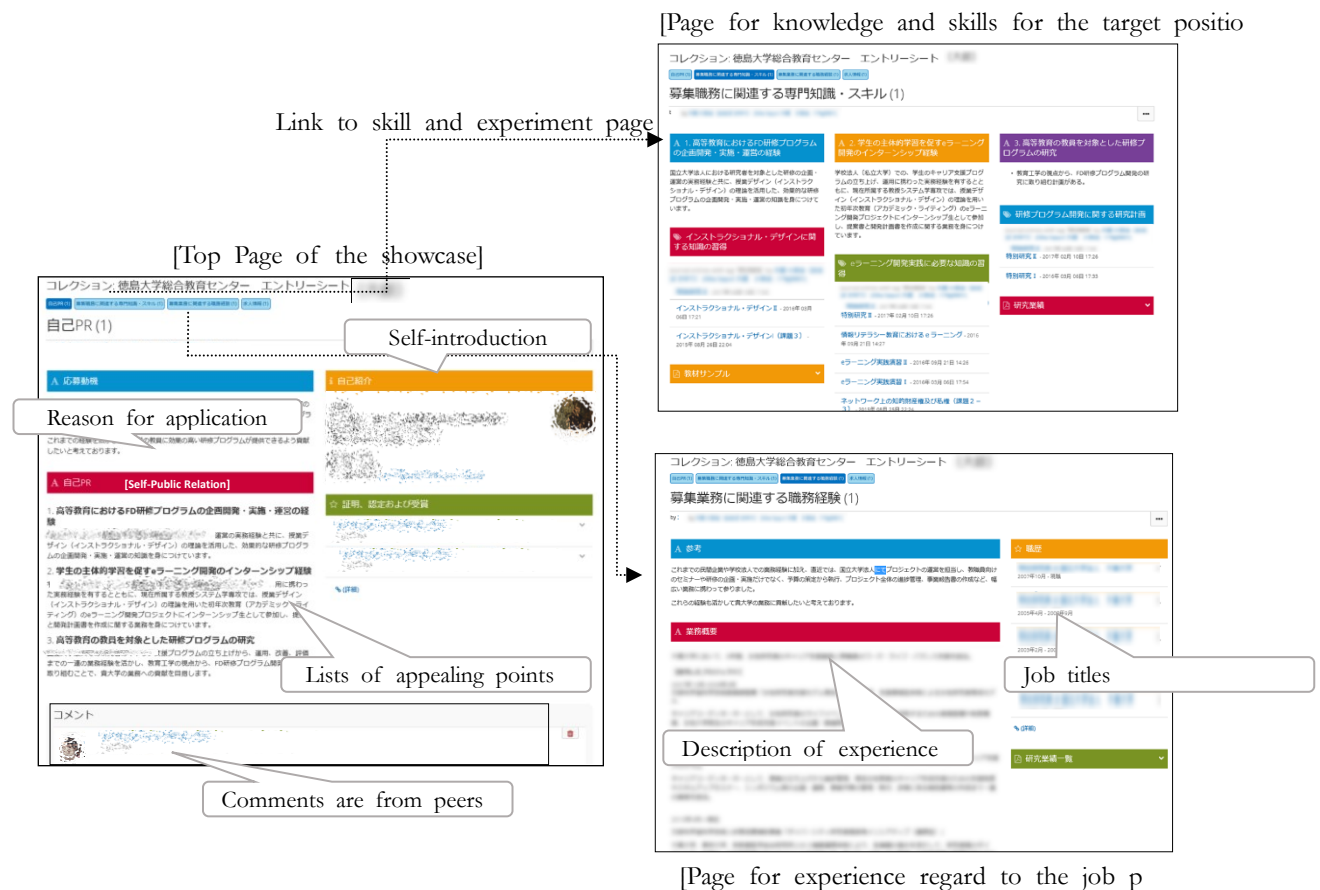


Figure 3. Student example of showcase developed in the second semester (Type A).

Table 2

Comparison of Structure of Showcase Portfolio

Structure of showcase portfolio	1 <sup>st</sup> Semester		2 <sup>nd</sup> Semester	
	n	%	n	%
Type A: TOP page summarizing the whole picture, and skill and experience page on work <sample A>	5	41.7	2	16.7
Type B: TOP page summarizing the whole picture with pages for each sales point <sample Aα>	3	25.0	4	33.3
Type C: All on one sheet (including course evidence)	3	25.0	1	8.3
Type D: All on one sheet (including course evidence) and (Report required to be submitted for job offering) <sample B>	0	0.0	3	25.0
Others	1	8.3	2	16.7

Note: < > means the sample referred, N = 12

## Survey of Students' Perspectives

We administered questionnaire surveys at the end of each semester. The surveys consisted of Likert scale-type questions and written questions asking students to explain the reason for their selected response. Both question types were included in each section. Students answered the Likert scale questions using a 5-point scale (5: applicable, 1: not applicable). Table 3 shows questionnaire results reflecting the students' experience and perceptions of the two-semester course. Overall, the results indicate that both semester courses were generally found to be quite acceptable. By way of comparison, scores for the first semester were higher than those for second semester, although the scores for four of the questions (A-2, E-6, E-7, and E-9) were higher in the second semester. "I enjoyed portfolio development with Mahara" showed a higher agreement score, while "Portfolio development with Mahara was difficult"

Table 3.

*Students' Perceptions through Course Activities*

The usability of Mahara as a course tool	1st Sem. Av. (SD)	2nd Sem. Av (SD)
1. I am glad to use Mahara as a learning tool for a half a year.	4.3(0.7)	4.0(0.7)
2. I enjoyed portfolio development with Mahara.	3.2(0.9)	3.8(0.6)
3. Portfolio development with Mahara was difficult.	4.2(0.7)	3.5(0.9)
4. I think activities with Mahara will be of help when becoming a portfolio designer in the future.	4.5(0.7)	4.3(0.9)
Effect of participating in "Portfolio Practice I"	1st Sem. Av. (SD)	2nd Sem. Av (SD)
1. In this course, "Portfolio Practice I," there are opportunities, situations, and experiences for continuous learning reflection.	4.6(0.5)	4.3(0.7)
2. Through this course, "Portfolio Practice I," I recognized the importance of opportunities, situations, and experiences for continuous learning reflection.	4.6(0.7)	4.3(0.8)
3. I think my reflection skill was improved by opportunities, situations, and experiences for continuous learning reflection in this course.	4.0(0.7)	3.9(0.9)
4. Continuous learning opportunities, situations, and experiences in this course were useful for improving learning reflection.	4.3(0.7)	4.2(0.6)
5. Continuous learning opportunities, situations, and experiences in this course will be useful for improving future learning reflection.	4.7(0.5)	4.2(0.6)
Effect of linking other courses in the course	1st Sem. Av. (SD)	2nd Sem. Av (SD)
1. In this course, "Portfolio Practice I," there was a situation in which I could consider the meaning of attained knowledge, skills, and values, and then link those.	4.4(0.7)	4.3(0.8)
2. Through this course, "Portfolio Practice I," I discovered the importance of consideration and of linking the meaning of attained knowledge, skills, and values.	4.3(0.8)	4.3(0.9)
3. Experience in this course, such as considering and linking the meaning of learned knowledge, skills, and values, helped me improve learning activities.	4.3(0.8)	4.0(0.9)
4. Experience in this course such as considering and linking the meaning of learned knowledge, skills, and values will help me improve future learning activities.	4.6(0.7)	4.3(0.8)
Effect of interaction with peers in the course	1st Sem. Av. (SD)	2nd Sem. Av (SD)
1. In this course, "Portfolio Practice I," there are opportunities to recognize one's own strengths and weaknesses, and one's standing through interaction with others.	4.3(0.8)	4.1(0.8)
2. I learned the importance of recognizing one's own strengths and weaknesses, and one's standing through interaction with others.	4.3(0.7)	4.2(0.8)
3. I improved my skills at recognizing my own strengths and weaknesses, and my standing through interaction with others.	4.1(0.7)	3.8(1.0)
4. Recognizing my own strengths and weaknesses, and my standing through interaction with others in this course helped me improve my learning skills.	4.0(0.7)	3.8(0.9)
5. Recognizing my own strengths and weaknesses, and my standing through interaction with others helped me improve my learning skills in this course.	4.2(0.7)	4.1(0.7)
Reflection/connection/feeling/motivation	1st Sem. Av. (SD)	2nd Sem. Av (SD)
1. [Reflection] Rehearsal for the final exam helped me reflect on my own learning.	4.4 (0.7)	4.3 (0.8)
2. [Reflection] Showcase development helped me reflect on my own learning.	4.3 (1.0)	4.3(0.8)
3. [Connection] Course reflection enables rehearsal of final exams to go smoothly.	4.2(0.6)	3.4(0.8)
4. [Connection] Rehearsal of the final exam enables showcase development to go smoothly.	4.1(0.9)	4.1(0.8)
5. [Feeling] Course reflection helped me recognize which part of my ability was enhanced.	4.1(0.7)	3.3(0.9)
6. [Feeling] Final exam helped me know which part of my ability was enhanced.	4.2(0.7)	4.3(0.8)
7. [Feeling] Showcase helped me know which part of my ability was enhanced.	4.0(1.0)	4.3(0.9)
8. [Plan] Rehearsal of the final exam helped me consider my future learning and career.	4.1(0.8)	4.0(0.6)
9. [Plan] Showcase development helped me consider my future learning and career.	4.0(1.0)	4.3(0.8)
10. [Motivation] Sharing the outcome of showcases and competency checks motivated me to improve on my own.	4.2(0.8)	4.1(0.9)

Note: N = 12

in Section A of the questionnaire had a lower score in the second semester. In the written comments, some students mentioned that the second-semester activities were easier than the first because they were more used to the Mahara e-portfolio system, as the iterative activities had acclimated them to Mahara. Because the e-portfolio software controls, restricts, or enhances portfolio development (Barrett, 2000), ensuring the usability of the e-portfolio system is essential for success. Written comments show that many students experienced difficulty in getting accustomed to the system, indicating that continuous improvement in the functionality of Mahara is one of our future challenges.

Results in Section B of the questionnaire indicate that students felt that course activities were a good opportunity for learning, but when compared to other questions, the scores for question B-3, “I think my reflection skill was improved by opportunities, situations, and experiences for continuous learning reflection in this course,” were relatively low. The reason was not clear from the written responses. Although most students commented positively on the reflection activity and its effect, some mentioned the time limitation and workload. Section C results indicate that learners believed that the course helped them review other courses in an integrative way. In the comments section, one student mentioned that “understanding of competency was one of this activity’s outcomes.” We believe that linking courses would also help when considering curriculum design. Regarding peers in Section D, while students believed that peers were useful resources for improving their course activities, some felt that they had not received enough feedback from their peers. Some students also felt that giving comments to others was difficult, and some noted the limited time for discussion. In their written comments, many students mentioned the usefulness of showcase development.

The reasons varied regarding why showcase development was positively received. Many found that summarizing and supporting their ideas in discussions with others helped them recognize their own strengths and weaknesses. Some students were encouraged by the chance to review their thoughts with others and receive constructive feedback. In this way, they appeared to gain insight and were able to reconfirm and/or reevaluate the importance of self-assessment. However, students generally felt that the rehearsal for the final exam was more of a formality, because the main activity of the rehearsal was following instructions rather than presenting their own feelings or exercising their own creativity. There were exceptions, however. For example, one student expressed her view that “the rehearsal of the final exam helped integrate learning outcomes and competency.” Overall, the combination of a flexible approach, such as showcase development, and a formal approach, such as the rehearsal for the final exam, was positively received.

## Discussion

In this practice, portfolio activities were implemented as a course, and two types of portfolios were created at the end of the first and the second semester based on a regular review of other compulsory courses in the portfolio course. It is suggested that providing portfolio activities as a course helps regularly performing activities on a portfolio.

Through our preparing a sample template, every student was able to create a portfolio in this system. This suggests that the template is effective as a scaffolding strategy for students who are learning to use the portfolio for the first time. Even when students are given the opportunity to make a portfolio freely, it was confirmed that they can make their own portfolio more efficiently using examples than making one from scratch. In particular, in the case of adult learners, the students emphasized performing the portfolio work efficiently in a short period of time, so similar trends can be expected in the context of teacher education.

When portfolios were reviewed on a continuous basis, the amount of the contents, which is an accumulation of reflection activities, increased. When students create a portfolio a number of times, the process becomes more efficient for them and the volume of the review increases.

The results of the questionnaire conducted with the students showed that they worked on these activities based on an understanding of the advantages that portfolio activities could have for them. We believe that portfolio activities are effective in deepening students’ understanding of what they have learned so far. Regarding an operational perspective, many students mentioned the e-portfolio system Mahara. The ease of the system is an important factor for students in doing portfolio activities. The more students used Mahara, the less difficulty they had with it. The results of the questionnaire confirmed that the degree of difficulty declined as they used Mahara. It appears that providing an explanation of how to use Mahara in the orientation course at the beginning of the curriculum, letting students use the system continuously, and providing templates and examples also helped improve operability.

Both showcase and competency-based reflection are effective as ways of using self-reflection to confirm achievement, although learners tend to feel that showcase development is more worthwhile. For assessment, competency-based reflection is essential for accumulating learning outcomes and reviewing individual lessons and assignments. The design of our course included both participant and practitioner views, which was important in achieving our intended course goal. If the observation of Ritzhaupt, Singh, Seyferth, and Dedrick (2008) is correct—that understanding the

purpose of a portfolio is the key to successful e-portfolio development—then, our practice will be successfully implemented. Although satisfying all stakeholders' needs or expectations is not easy, our approach shows a way to overcome this difficulty by integrating summative and formative activities (Ritzhaupt et al., 2008).

## Conclusion

The following are suggestions on activity support, from our practice, for designing and conducting portfolio courses in the future.

*- For information technology, lower the barriers as much as possible*

Regarding information and communications technology in particular, both instructors and students need time to get used to operating the e-portfolio. After they feel comfortable with the technology, they can concentrate on the reflection activities. In our practice, we provided the activities related to operating Mahara at an early stage of the curriculum in the orientation course. Teaching complicated operations gradually is effective in helping users become accustomed to the system.

*- Prepare multiple examples to support students' portfolio development*

By preparing multiple examples and showing them to learners, rather than providing just one example, we can help learners think about how they can create their own portfolio. In our practice we present multiple cases both on a competency basis and a showcase portfolio. Even when the format is fixed, it is possible to offer variations as examples.

*- Prepare multistage activities for portfolio development for students*

Even if the final goal is for the learner to freely create a portfolio, it is better to show a general framework of the portfolio initially and make it all the way through. In this practice, we started with a competency-based portfolio with templates and then gave students a high degree of freedom to make showcases. Consider the combination of free performance and prescribed performance according to the situation and purpose of the student.

*- Consider the role of the portfolio for the target learners*

A portfolio has two roles: formative (learning) and/or summative (assessment). Instructors can include portfolio activity in the target curriculum and adopt the necessary one. Two types are good but can become stressful on the situation.

*- To design throughout the curriculum, schedule according to the curriculum*

Portfolios are implemented after other course activities have been done. Portfolio course activity may be done during a vacation, such as the summer break. Long-term implementation is difficult unless we accept a flexible schedule and evaluation.

*- In the case of new implementation, do not develop the course all at once, but prepare them step by step*

In order to conduct full-scale portfolio activities, periodical reflection activities are essential for bringing self-regulated activities. It is necessary to coordinate portfolio activity with the existing curriculum in order to incorporate it as a new activity.

*- In designing portfolio implementation, the multiple viewpoints of the stakeholders should be considered, such as the intentions of the practitioner and the needs of the students*

Portfolio activity requires higher-order skills and cognitive loading, because the activity concentrates other learning activities. Designing considering advantage and disadvantage is essential. A system thinking approach (Senge, 1990) for analysis and design can be useful.

Further research is needed because only limited studies have thus far been conducted. Although this course was implemented for a year, it is necessary to determine how students improved their reflection skills by keeping track of the change in their work over the long term, until the completion of the program, and how it appears in the actual portfolio. This practice is employed by a small number of graduate schools, and there would likely be many similarities among other graduate schools and on a small scale, but there is a possibility that there are some differences, especially in undergraduate education.



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