

College Students' Participation in E-Portfolio Learning in Relation to Academic Ability and Motivation

Linda Kwok

(Linda.Kwok@inet.polyu.edu.hk)

The Hong Kong Polytechnic University, PR China

Abstract

E-portfolio has been implemented for students to take responsibility for their studies and to chart student progress but little research has been done on the effectiveness of e-portfolio learning of college students in Hong Kong in relation to their academic ability and motivation. For a group of 84 university students, an electronic-learning portfolio system (e-portfolio) was developed to consolidate learning and guide students to develop specific language skills as they only had two hours of classroom teaching once every two weeks in a professional English language course. To encourage participation, bonus marks were given to students for e-portfolio tasks completed, formative feedback was also given and self-evaluation was fostered by the system. The research aims to find out the impact of e-portfolio on students' academic performance, their learning styles and motivation. It is found that the e-portfolio tasks have no correlation with students' academic performance, the students show rather homogeneous learning styles, and self-determination for improvement can drive the students to do a few e-portfolio tasks voluntarily.

1 Introduction

Benefits of incorporating portfolios in the learning process have long been documented. For example, this approach is student-centred as the learners have to take responsibility over the selection of evidence and tasks to work on. The end products or pieces of evidence included will show a learner's progress and effort (Barrett, 2000) as well as personal preferences in learning and temperament. With rapid technological advancements, portfolios have been gradually replaced by e-portfolios which allow greater storage capacity for students' records of accomplishments for the purposes of learning, showcasing, assessment and employment (Martyn, 2007). In Hong Kong, e-portfolios began to be considered as campus-wide components of tertiary education in 2005 (Chau, 2007) and the English Language Centre of The Hong Kong Polytechnic University started to implement the e-portfolio system in four language courses to enrich student learning experience (Chau & Cheng, 2010).

This research will analyse the relationship of students' academic performance and their participation in the voluntary e-portfolio system designed for an ESP language course offered by the English Language Centre mentioned above. Also, the motivation and learning styles of students participating in the e-portfolio system will be gauged in relation to bonus marks allocated to students meeting the criteria. The research questions are as follows:

1. Do students perform better on the language course if they complete more e-portfolio tasks?
2. With the element of bonus marks, how do students consider this e-portfolio system?

3. Are students motivated by the bonus marks to complete more e-portfolio tasks?

Of these questions, the second and third questions are more inter-related and connected to students' views on the e-portfolios.

1.1 Definition and advantages of e-portfolios

With the advancements in information technology and the introduction of web technologies, the platform of learning has expanded with the inclusion of e-learning tools and virtual environments, and become computer mediated (Benson, 2009). Portfolios which embrace electronic or digital elements have become e-portfolios with accompanying changes in the format of display and interaction between learners and teachers. The physical objects once submitted by students such as written essays or reports for pedagogical purposes are replaced by technological and digital end-products (Markham & Hurst, 2009) and e-portfolios are perceived as the "great fit between" portfolio and the web (as cited in Kimball, 2003, p. xvi). An e-portfolio "is essentially an electronic version of a paper-based portfolio, created in a computer environment" (Butler, 2006, p. 10) and is "a digital container" (Benson, 2009, p. 12) storing multimedia effects like visual and auditory contents – text, images, videos, sounds and some social software such as blogs, social bookmarks, and social networking services which allow online users unprecedented interconnectedness and interactivity for pedagogical and assessment purposes. E-portfolios can be used for career planning and integrating students' course work and co-curricular activities, and are proved to be conducive to the cultivation of transferable skills useful for academic programs and future employment (Lumsden, 2007).

The benefits of adopting e-portfolios have been much lauded by educational experts. Mostly, e-portfolios are adopted to support user learning (Garis, 2007) since the e-portfolio is highly powerful in storage and can incorporate evidence of work in diverse and more appealing media such as graphics and audio inputs and outputs (Barrett, 2006), and they take up minimal physical space and are much easier to handle and store more than paper portfolios (Kimball, 2003). A learner can better enhance his ability to organize information, make decisions about learning and possess a well-structured picture of his learning progress (Knight, Hakel, & Gromko, 2006). This self-managed ownership of learning experience presumably inspires enthusiasm and joy to learning. Also, the e-portfolio helps students make connections between learning experiences (Goldsmith, 2007), as it conveniently facilitates content integration and provides "active hyperlinks between artifacts and reflections ... both for themselves and the audiences" (Kimball, 2003, p. xvi). In a similar vein, Ahn (2004) and Albert (2004) argue that the e-portfolio as an instrument of reflective practice leads to more meaningful reflection on learner strengths and weaknesses and encourages dialogue between students and teachers.

Apart from its pedagogical value, learners benefit from the affective advantages of the e-portfolio as they build confidence in approaching their learning and achieve higher self-esteem from the evidence of their achievements (Young, 2002). In addition, as the e-portfolio can resist fading and be "perpetually polished" (Butler, 2006), it provides the opportunity of life-long learning (Markham & Hurst, 2009).

1.2 E-portfolios and tertiary education

In Dalton's (2007) view, colleges and universities are in the initial stages of integrating e-portfolios into tertiary programs. It has been noted that using e-portfolios can "deepen and integrate learning in higher education" with their potential for internalizing and synthesizing "thinking and experience, intellect and emotion" (Dalton, 2007, p. 101) and their relative ease in recording and evaluating collegiate learning experiences. Goldsmith (2007) argues that college students are more likely to develop into autonomous learners, as they exercise control over their own learning in the process.

In Hong Kong, for over a decade there has been interest in experimenting with e-portfolios as a learning and evaluation tool. However, greater embrace of e-portfolios in universities came after secondary students were required to produce learner portfolios and a joint project was embarked in 2005 by the eight universities in Hong Kong to develop a template for the implementation of a “sector-wide but flexible e-portfolio or language passport system” for the eight tertiary institutions in 2010 with the elements of “a learning portfolio and ... an exit portfolio” (Chau, 2007, p. 145).

To date, most studies on Hong Kong e-portfolios have focused on the design problems and challenges faced by e-portfolio designers or developers, and teachers’ and students’ analyses of how the inclusion of e-portfolios enrich their learning or teaching experience (Chau, 2007; Chau & Cheng, 2010; Lai, Lee, Mackay, Tam, & Thomas-Szczyпка, 2009; Martyn, 2007). Little research has been conducted on learner academic results and e-portfolio participation. Similarly, most research undertaken in western institutions on e-portfolios has been related to issues of reliability and validity, models of e-portfolio for various courses in different fields and language skills, especially writing skills, pre-employment training and workplace performance (Albert, 2006; Dalton, 2007; Garis, 2007; Nicholson, 2004). However, according to Reardon and Hartley (2007), there has been limited research on the effectiveness of e-portfolio use by college students. This research aims to investigate the relationship between the e-portfolio participation of a group of Hong Kong university students and their academic results in an English language course to examine if a student’s language ability will progress more and be reflected in his overall grade for the language course, when he completes more e-portfolio tasks.

1.3 E-portfolios, motivation and bonus marks

E-portfolios usually contribute to students’ overall grade for respective subjects (e.g. Marty, 2007) or are part of the assessment or evaluation (e.g. Corbeil, Pan, & Sullivan, 2005; Mason, Pegler, & Weller, 2004). When such stakes are involved, Chau (2010), in her study of e-portfolios submitted to a competition as discrete items independent of any course, argues that “[W]here the students’ desire to meet evaluation criteria prevails, the potential of e-portfolios for individualised developmental performance is eroded” (p. 941). She observes that the “tension” (p. 939) between students’ eagerness to conform to the evaluation criteria and their individual journey to pursue progress, thus resulting in some students producing “clone” (p. 940) e-portfolios very similar to one another despite differences in their abilities or preferences.

This issue of stakes in relation to e-portfolios is worth considering since e-portfolios are generally considered as a means of self-directed, independent learning allowing students to take risks in meeting their personal pursuit of excellence and demonstrating individual creativity (Lai et al., 2009). They may seem restricted by or incompatible in spirit with the imposition of high-stakes marking criteria on the selection and arrangement of artefacts, and perhaps even more so with the inclusion of bonus marks in the design of an e-portfolio system.

The bonus mark practice is generally accepted in education and examination fields. For example, in the high-stakes Hong Kong Certificate Examination of Biology, beginning from 1995, bonus marks have been given to scripts that are satisfactorily presented to credit or encourage candidates’ communication skills and organization strength (Yip, 1996). Similarly, in the State Certificate Examinations run by the Irish government, a candidate who answers in Irish at the written examination in various subjects may get a maximum bonus mark at the rate of ten per cent in addition to the marks gained in the subject (Junior Certificate). In Shen, Wang and Pan’s (2008) study of mobile learning involving 1,000 on-campus or online students, bonus points were added towards their grades for their continuous participation. It reports that when an instant poll was administered to find out students’ motive for participation, the top reason identified was the desire to get the bonus points.

In an e-portfolio system, when the bonus marks are not part of the original full marks, they are rewards for extrinsic motivation when “motivation is based on something extrinsic to the activity”

and when "motivation is based on something extrinsic to the person" (Sansone & Harackiewicz, 2000, p. 445). In contrast, when an activity is performed for fun or interest, or for the sake of the activity itself, it is called intrinsic motivation (Ryan & Deci, 2000). Therefore, if a student enjoys the e-portfolio tasks and completes them, because this "satisfies basic human needs for competence and control" (Sansone & Harackiewicz, 2000, p. 444), he is motivated by intrinsic values. It is believed that whether a learner is intrinsically motivated or not is pedagogically significant. According to Leper, Condry and Chambers (1978, as cited in Lumsden, 1994), intrinsically motivated learners put in more effort and employ more logical and complex strategies for learning, hence engaging in deeper learning when compared with extrinsically motivated learners. Also, unlike their extrinsically motivated counterparts who shy away from more demanding tasks, the intrinsically motivated learners welcome challenging tasks and rise to the occasion with more varied learning strategies.

However, the dichotomy between these two types of motivation may not be as rigid as it seems. When the learning process or environment fosters learners' autonomy and independence, the learners will incline towards intrinsic learning with the assertion of self-determination (Toci, 2000). According to Deci and Ryan's self-determination theory (2000, as cited in Brophy, 2004), when learners' needs of autonomy, competence and relatedness are met, external values and regulations can be internalized and integrated, and become aligned with the learners' sense of self, which will resemble or become intrinsic motivation. For example, a death row inmate who, despite the imminent execution, asserts his autonomy and chooses to make friends with other prisoners, tidy up his cell and keep fit in the remaining days, is self-determined even if any extrinsic motivation is absent or limited or in other cases present.

Deci and Ryan define intrinsically motivated actions as purely self-determined and autonomous, interesting or important to the realization of one's sense of self and "define intrinsic motivation in terms of the presence of subjective perceptions of self-determination rather than in terms of the absence of extrinsic incentives or pressure" (2000, as cited in Brophy, 2004, p. 185). They argue that by development, extrinsic motivation can be internalized and integrated into intrinsic motivation, and distinguish four levels of intrinsic-resembling motivation through self-determination, namely external regulation, introjected regulation, identified regulation and integrated regulation. The latter ones are higher on the scale of resemblance to intrinsic motivation, and the actions are perceived as "important" or "means to attain separate goals" (Brophy, 2004, p. 188). For instance, when a student thinks that he will be punished or slighted by his teacher or classmate if he does not attempt any e-portfolio task, it is external regulation. When a student attempts the e-portfolio because he will feel a sense of guilt or he will fear disappointing his teacher or parents if he does not, it is introjected regulation. Identified regulation is when a student attempts the e-portfolio task as he thinks that the feat is "personally important and valuable" as the tasks can be important for his chosen goal of improving English or entering a particular occupation (Brophy, 2004, p. 187). Integrated regulation is the most self-determined and intrinsic-resembling motivation as external demands or regulations are integrated into a student's sense of self, so that adjustments are made to "achieve harmonious coexistence" of the self values and to resolve any clashes arising from the values and associated actions (Brophy, 2004, p. 187). For instance, a student may desire to complete ten e-portfolio tasks and at the same time to dedicate sufficient time to his major subjects. Out of integrated regulation, he makes whatever adjustments needed to maintain the simultaneous existence of the goals of doing ten e-portfolio tasks and working on his major to fulfill his sense of self.

Norwich's (1999, as cited in Brophy, 2004) research shed light on the importance of identified regulation. The data he collected on students' reported reasons for putting effort into finishing school work showed that "identified regulation has more in common with intrinsic motivation than it does with introjected regulation" (p. 210). Similarly, Losier and Koestner's 1999 study on college students' motivation in participating in an election suggests that the for-my-own-good identified regulation successfully made more students engage in the election process and finally cast

their votes than intrinsic motivation.

In an e-portfolio system, bonus marks as a tangible reward are predominantly extrinsic as they are a goal separate from the activity, whereas a student doing the tasks for the sake of learning, practice and self-prescribed goal of improving English for a better future may represent a form of identified or integrated regulation, intrinsic-resembling motivation. This study tries to investigate to what extent the bonus marks influence student participation in the e-portfolio system. To better understand the source of student motivation, students' views on the learning benefits of the e-portfolios and their role as independent learners setting plans and managing time for e-learning will also be considered.

2 Implementation of e-portfolio tasks in an ESP course

Participation in this e-portfolio system was voluntary in nature and it was first used in 2006 by the English Language Centre, The Hong Kong Polytechnic University for an English for special purposes course which was mandatory for year-one engineering students. As its concept and operation were novel to students who might not comprehend its learning values and to motivate students to attempt the system, a bonus mark system was included. In brief, students would get bonus marks in proportion to the number of e-portfolio tasks they completed.

2.1 Incorporation of e-portfolios in the college curriculum

"English for Engineering Students" was offered as a two-credit, two-semester course over a period of twenty-eight weeks to year-one engineering degree students who were not proficient in English. Most of them had been second language learners of English since the age of six, and scored an E in the Hong Kong Advanced Supplementary Level English Examination, a public English examination for Form 7 candidates for university study.

The course was to develop students' language competence in four topics for a range of functions at the workplace, namely, short written technical descriptions of products or service, letters and memos for workplace communication, business reports and workplace presentations. Each English class would only meet once every two weeks for two hours, as it was hoped that such an arrangement would give students more time in the no-class week to develop deep learning in English. In total, there were fourteen classroom meetings for the course in two semesters, with seven bi-weekly meetings in each semester spanning over a period of fourteen weeks separated by an inter-semester and examination break of about five weeks. The four topics taught would be assessed in two examinations held at the end of the two semesters in December 2006 and May 2007.

2.2 Design of the e-portfolio system and bonus marks

On each topic, five e-portfolio tasks were designed for students to attempt (see sample in Appendix 1). In order to prevent students from completing all tasks only near the end of the course and to maximize their learning by reinforcing the lessons covered within a reasonable time span, the deadline for completing the e-portfolio tasks for each topic was set at about three weeks after classroom teaching on the topic. In total, there were twenty tasks designed, but students could choose any number of tasks to work on ranging from zero to twenty. The work produced by students might be end-products of peer evaluation, critique of current learning materials or short written work presented as word documents, video or audio files of pronunciation or oral presentation. It was believed that with a prudent mix of e-learning and teacher instruction, adapted from "techno-pedagogy" (Newman, 1999, as cited in Markham & Hurst, 2009, p. 6), the students could "achieve greater learning effectiveness" (Goodyear, Salmon, Spector, Steeples, & Tickner, 2001, p. 66).

The e-portfolio system was created by adapting the Advanced Exercise of Moodle version 1.5, which is a web 2.0 course management technology with the self-assessment and tutor comparison elements (see Appendices 2 and 3). It was meant to be an interactive platform for students to gauge their performance and also an opportunity for self-learning and self-reflection in response to teacher's comments. To train teachers to use the e-portfolio system, a workshop was run before the beginning of the course.

The system was not advanced enough to give each teacher instant alerts on new submissions to the system. However, the teachers were encouraged to check students' progress every week. The language teachers, as guided by the format of the e-portfolio system, generally played the role of markers/evaluators giving students discrete marks on different aspects of their language competence, and acted as language experts offering advice on language correction and improvement. As all teachers concurrently taught in the Centre for Independent Language Learning of the English Language Centre, they also acted as language facilitators giving students advice on independent learning. In this research, the four classes of students were taught by one teacher and she usually reminded the students of the deadlines of submission.

2.3 Criteria for the award of bonus marks

To encourage student participation in the e-portfolio system, one bonus mark would be awarded to each student for satisfactorily completing a task. Each student could get a maximum of ten bonus marks for completing any ten or more of the total 20 tasks. In other words, if a student only completed four tasks, he would just get four bonus marks. If he completed 15 tasks, he would only get the maximum of ten bonus marks.

The original full mark of the "English for Engineering Students" course was 100. The students' marks would be presented as grades from the highest A+ to the F fail grade according to the university guidance on grade calculation. According to this system, with ten bonus marks, a student's grade could be pulled up by half a grade, for example from B to B+, B+ to A. If a student completed fewer than 8 e-portfolio tasks, the bonus marks would not have enough weight to pull up the original grade. That means, a student was free to choose the number of tasks he wishes to do to enhance his learning, but he might not get the substantial grade pull-up, if he did not finish at least eight tasks.

There were criteria for awarding each bonus mark as students were expected to put in effort and quality work, which would help them to revise and consolidate new knowledge. However, the e-portfolio system was also designed for student learning and development. In order to encourage adoption of this new way of learning, the bonus marks were awarded on evidence of satisfactory performance with reference to learning outcomes.

In each task, the students were expected to achieve three learning outcomes. Using product description as an example (see Appendix 3), the outcomes were (1) sequencing and clarity of ideas in description, (2) use of appropriate vocabulary and range of vocabulary, and (3) use of concise words and structures. For each learning outcome, the students were graded on three levels of competence ranging from 'Poor' meaning 'in need of further work', 'Good' meaning 'outcome achieved well' to 'Quite Good' meaning 'outcome satisfactorily achieved,' represented by the scores 1 to 3 (see Appendix 4). This discrete numerical rubric made performance measurable for the students to reflect on. It also made performance quantitative so that the teachers could respond to the strengths and weakness displayed in students' work (Albert, 2006). Teachers could also improve teaching and learning based on the levels of learning outcomes achieved by students (Moskal, 2000).

If a student scored 1, meaning 'Poor,' for all three outcomes, he would be given the suggestion to redo the task by following the teacher's feedback. The bonus mark would not be given to him, unless the second attempt showed improvement. For those who completed a task satisfactorily with at least one score of 2 or 3, meaning 'Quite Good' and 'Good,' teacher feedback and advice

for possible improvement would be given and a bonus mark would be awarded. To help students reflect on their strengths and weaknesses, and to better understand the teaching points and assessment standards for each e-portfolio task, the students were required to self-assess their performance on each learning outcome since reflection is the essence of portfolios (Garis, 2007).

3 Methodology

To explore the relationship between students' e-portfolio participation and their academic results for the ESP course, the final grades of four classes of students, which were automatically calculated by the university's academic secretariat after the marks of the examination papers were input by the class teacher, were collected. Records of the numbers of e-portfolio tasks completed by the students and the number of students getting the bonus grade were generated by the e-portfolio system.

In order to generate more comparisons among students and generate more distinct patterns from the research, students of the four classes were placed in different groups. Those who completed eight or more e-portfolios were in the upgraded group (Y), while those who attempted seven or fewer tasks belonged to the non-upgraded group (N). Another way of grouping was according to their overall results for "English for Engineering Students," regardless of whether their grades were upgraded. For instance, according to the university's grade descriptors, A+ stands for 'outstanding,' A 'excellent,' B+ 'very good,' B 'good,' C+ 'wholly satisfactory,' C 'satisfactory,' D 'marginal,' and F 'fail.' Students obtaining grades from F to C+ belonged to the low grade group (L), while those with B to A+ were in the high grade group (H).

The original results before upgrading and the numbers of e-portfolio tasks completed by the students were then listed and their correlation coefficient was calculated to find out the possible relationship between the number of e-portfolio tasks completed and student grades. Then, the original results before upgrading were grouped into grade bands like B+ or B according to the university grade descriptions and calculated against the factor whether the students got the bonus pull-up grade or not. Their correlation coefficient was calculated to identify whether there was a relationship between the bonus pull-up and bands of student grades. The students were then grouped into the high grade group (H) and the low grade group (L). To measure the possible differences in the number of e-portfolio tasks done by the H and L groups, a two tailed t-test was used to calculate means and standard deviations. Levene's test for equality of variance was used to measure statistical significance.

To answer the research questions about students' approach to e-portfolios and their motivation, a questionnaire survey was also administered. The questionnaire with sixteen probing statements was sent to the students' campus email accounts in June 2007 after they learned of their results for the language course. The students were asked to show their agreement or disagreement with these sixteen statements by circling numbers on a scale of 1 (strongly disagree) to 5 (strongly agree). These statements could be sub-categorized into three sections about the relevance and usefulness of the e-portfolio tasks, learning style in approaching e-portfolio tasks, and students' attitude towards the e-portfolio tasks and bonus marks. They were aimed at helping the subjects think about the learning values of the e-portfolio tasks in enriching their learning and providing extra learning opportunities, and their success in following their plans, managing time and personal growth as independent learners, before they analyzed their motivation in doing the e-portfolio tasks. To delve into the reasons behind their responses, some open-ended questions were designed and the students were encouraged to write their opinions in either English or Chinese, their first language. Since the questionnaire was sent to students' email addresses, the students could not remain anonymous. This however would not affect the significance of their opinions, as they had already received their academic results.

To analyse the results from the questionnaires, first the respondents were grouped into the Y and N groups and their means for the sixteen statements were compared by using a t-test. Their

written opinions were also studied. Then, the questionnaires were separated into the H and L grade groups. The comments were analyzed and means calculated to identify possible differences in two groups' perceptions of e-portfolios and learning style. To ensure reliability in interpreting the comments, another teacher with some research background and a master's degree was invited to analyze 11.7% of the returned questionnaires. Inter-rater reliability was at 97% and slight differences in interpretation were resolved through discussion.

4 Results

There were 84 students in the four English classes. 41 of them completed 8 to 10 e-portfolio tasks and got the bonus pull-up grade. Hence, there were 41 students in the Y (upgraded) group against 43 in the N (non-upgraded) group. When the original grades of the students were checked, it was found that 22 students were in the H (high grade) group and 62 in the L (low grade) group. Out of 84 students, 34 completed the questionnaires, of whom 23 were in the Y group and 11 in the N group. The means of the students' responses to the 16 statements were calculated and tested for statistical significance, while their written comments were analyzed and presented as percentages, indicating how prevalent the opinions were: the higher the percentage, the more frequent it was reported by the students.

4.1 Correlation between original academic grades and e-portfolio tasks

The original result before upgrading and the number of e-portfolio tasks completed by each of the 84 students were calculated and the correlation coefficient was 0.18 (see Table 1).

Students	Academic grades before upgrading	Number of e-portfolio tasks completed
N1	D+	9
N2	D+	9
N3	C	8
N4	C	9
N83	C	0
N84	C	4
		r= 0.18

Table 1: Sample of raw data for calculation the correlation coefficient between academic grades and e-portfolios completed

Then the original results before upgrading were grouped into grade bands like B+ or B and correlated with the factor whether the students got the bonus pull-up grade or not, and the correlation coefficient was 0.2 (see Table 2).

Original grades	Short description according to University's assessment regulations for credit-based programmes	Number of students obtaining the academic grade	Total number of students upgraded	Means
D+	Marginal	2	2	100%
C	Satisfactory	17	5	29.41%
C+	Wholly satisfactory	43	20	46.51%
B	Good	14	7	50.00%
B+	Very good	8	7	87.50%
Total		84	41	48.8%
				r= 0.2

Table 2: Correlation coefficient between group bands and pull-up grades

Table 3 shows that the correlation between the number of students getting the bonus upgrade and the number of students in the H and L groups was low at 0.18. Hence, there was no significant correlation between the academic grades and the number of e-portfolio tasks done; or between the grade bands, ability groups and the grade pull-up.

Original grades	Short description according to University's assessment regulations for credit-based programmes	Number of students obtaining the academic grade	Total number of students upgraded	Means
Low (L)		62	27	43.54%
High (H)		22	14	63.63%
Total		84	41	48.8%
				r= 0.18

Table 3: Correlation coefficient between high and low groups and pull-up grades

The data suggest that doing more or fewer e-portfolio tasks did not lead to a higher or lower grade for the language course, and we cannot assume that students belonging to a particular grade band did a particularly high or low number of e-portfolio tasks. Similarly, the H group students did not do more e-portfolio tasks than then L group students.

4.2 Comparison between upgraded group (Y) and non-upgraded group (N) in academic results

The means of the academic grades of the Y and N groups were calculated using a two tailed t-test. The p-value was 0.07 which implies that there was no statistical significance between the academic grades of the two groups for the English language course. This means it cannot be assumed that students in the Y group did academically better or worse than the students in the N group.

4.3 Comparisons between Y and N groups in questionnaire statements

There were 41 Y group students and 43 N group students. Their responses to the sixteen questionnaire statements and open-ended comments were compared in terms of their means and percentages.

4.3.1 Relevance and usefulness of e-portfolio tasks for Y and N groups

The first six statements in the questionnaire were about the relevance and usefulness of the e-portfolio tasks and whether students could benefit from them. In addition, the statements were designed to reveal whether students learned from the feedback given and performed task revision, and whether e-portfolio learning helped language learning and stimulated independent learning.

Table 4 shows that both groups of students gave rather positive responses to these statements except for independent learning and they quite valued the pedagogical benefits of the e-portfolio experience. Generally, students rather agreed that the e-portfolio tasks were relevant to what they learned in class (means: Y=3.78, N=3.73), the tasks could help them with their assessments (means: Y=3.70, N=3.55), the tasks could stimulate them to learn English (means: Y=3.52, N=3.27) and the feedback given by teachers were instructive (means: Y=3.52, N=3.18). The tasks also provided extra learning opportunities as they tended to revise related e-portfolio tasks before the assessment (means: Y=3.48, N=3.36). However, they did not quite agree that e-portfolios, a rather independent way of learning, could encourage them to further pursue self study by using services provided by the Centre of Independent Language Learning Centre (means: Y=2.70, N=2.27). The responses from the two groups regarding the above statements were similar as there was no statistical significance in difference between the means for both groups. However, for all six statements, the Y group returned slightly higher means than the N group.

		Means of upgraded group (Y)	Means of non-upgraded group (N)	t-test significance
1.	The e-portfolio tasks of all four units were relevant to what I learned in class for the course.	3.78	3.73	No significance
2.	The e-portfolio tasks could help me do my assessments.	3.70	3.55	
3.	Before doing the assessments, I revised related e-portfolio tasks.	3.48	3.36	
4.	I learned from the feedback given to my e-portfolio work.	3.52	3.18	
5.	The e-portfolio tasks could stimulate me to learn English.	3.52	3.27	
6.	The e-portfolio tasks could stimulate me to make use of programmes run by the Centre of Independent Language Learning.	2.70	2.27	

Table 4: Relevance and usefulness of e-portfolio tasks for Y and N groups

4.3.2 Differences in learning style between Y and N groups in approaching e-portfolio tasks

Table 5 shows that the two groups displayed a similar learning style with regard to their plans for task completion, enjoyment of time flexibility and when they finished the tasks. The students, especially the Y students, were in favour of the freedom in determining the time they took to do the tasks (means: Y=3.96, N=3.27). They generally made plans about how and when to do the tasks (means: Y=3.39, N=3.09), but were ambivalent about their success in following the plans (means: Y=3.00, N=3.09) and did not quite complete the e-portfolio tasks as soon as the topics were taught (means: Y=2.48, N=2.73). They agreed that they completed the tasks just before the deadline (means: Y=3.52, N=3.18). Both groups revised related lessons before attempting the tasks. In this aspect, the Y group showed more enthusiasm and there was a significant statistical difference, compared to the N group (means: Y=3.59, N=2.91, p=0.041).

		Means of upgraded group (Y)	Means of non-upgraded group (N)	t-test significance
7.	I like that I can do the e-portfolio tasks at the time convenient to me.	3.96	3.27	
8.	I made plans about when and how to do the e-portfolio tasks.	3.39	3.09	
9.	I succeeded in following my plans.	3.00	3.09	
10.	I completed the e-portfolio tasks as soon as related areas were taught in class.	2.48	2.73	
11.	I revised related lessons or material before attempting the e-portfolio tasks.	3.59	2.91	0.041
12.	I completed the e-portfolio tasks just before the deadline.	3.52	3.18	

Table 5: Differences in learning style between Y and N groups in approaching e-portfolio tasks

Generally, the Y group returned slightly higher means for the statements, except for those regarding how they followed plans and how soon they completed the tasks, though the differences in learning style were not statistically significant. However, there was a significant statistical difference between the two groups: the Y group indicated that they revised their lessons more before attempting the e-portfolio tasks.

4.3.3 Differences in attitude between Y and N groups towards e-portfolios and bonus marks

As the e-portfolio system designed for the language course was not wholly mandatory and was combined with the bonus marks as an encouragement element, the questionnaire tried to identify the motives behind students' attempts to do the tasks and to measure their willingness to complete the tasks if there were no bonus marks.

Interestingly, both groups gave means of around 3 (means: Y=3.09, N=2.91) with to regard to the question if they perceived the e-portfolios as homework. The results suggested that their perception was rather neutral, noticing the independent element of the system, but also the instruction status of the tasks as traditional homework. When asked to explain their answers to this question, 45% of the feedback (58% of Y, 33% of N) focused on the helpfulness and usefulness of the tasks. Yet, there were more comments on broader and more far-reaching or distant benefits, for example, improving English (41% of Y, 11% of N) as well as its benefits for their future careers and their concern for examinations achieving similar responses from both groups (both 8% of Y, 11% of N). About 27% of the feedback (25% of Y, 33% of N) was about the bonus marks and 18% of students (17% of Y, 22% of N) pointed out explicitly their autonomy in deciding whether to do the tasks or not. Only one student from the N group reported feeling the pressure of not doing the tasks and forfeiting the bonus marks. Only one student from the Y group considered the tasks as homework to gain bonus marks. It is apparent that generally over half of the participating students reported having a clear understanding of the e-portfolio tasks as voluntary, and that the bonus marks were not the overriding motivation. Other extrinsic but intrinsic-resembling motives, such as doing the tasks for learning, for better English or a better future, also played a crucial role.

When asked whether they would still do the e-portfolio tasks if they were purely voluntary and no bonus marks were given, the responses tended towards the middle (means: Y=2.78, N=2.55), indicating that most of the them preferred to work on 1 to 3 tasks. The main reason provided by the respondents was that the tasks were helpful for revision and examination (45% of Y, 33% of N). The second consideration was the amount of time available (13.6% of Y, 33% of N), and thirdly, the students felt that this amount of work would be suitable and acceptable, even as they had to manage the workload from other, more heavily weighted core subjects (Y=13.6%, N=11%). Of the reasons given, only a few mentioned that they felt a reduced incentive due to the absence of bonus

marks (Y=5%, N=22%).

Students were asked if they would spend extra time completing eight to ten e-portfolio tasks, if bonus marks were given and if their original grades for the course were better than expected and half a grade higher. The students reported quite a positive enthusiasm for the tasks (means: Y=3.82, N=3.45) as shown in Table 6.

If the subjects' real performance in the language course were better by half a grade, given that there would not be any bonus marks for doing the e-portfolios; the Y group would do 4 to 6 tasks, and the N group 1 to 3 tasks. The main reasons were: (a) the tasks were helpful (Y=53%, N=33%); (b) there was limited time available (Y=21%, N=33%); (c) such a number of tasks would be suitable and sufficient for learning (N=33%); and (d) no bonus marks were given (Y=21%, N=0%).

When asked about the reasons for completing 8 to 10 e-portfolio tasks, the main reasons given by the Y groups were the bonus marks (44%), the helpfulness of the tasks for learning (25%), flexible deadlines (6%) and interest (6%). The N group, which did not complete 8 to 10 e-portfolios, mentioned the time constraint factor (50%) and demand from other subjects (33%) for not doing so. 8% of the N group comments were related to the complex technique for making a video or audio clip and another 8% were about forgetting the deadlines.

		Means of upgraded group (Y)	Means of non-upgraded group (N)	t-test significance
13.	The e-portfolio tasks were just homework to me.	3.09	2.91	No significance
14.	I will do (how many) e-portfolio tasks if no bonus marks are given.	2.78 (1-3 tasks)	2.55 (1-3 tasks)	
15.	If my ability is better than expected and my final grade turns out to be half a grade higher, I still will attempt doing 10 e-portfolio tasks provided that bonus marks are given.	3.82	3.45	
16.	If my ability is better than expected and my final grade turns out to be half a grade higher, I still will do (how many) e-portfolio tasks if no extra bonus marks are given.	3.09 (4-6 tasks)	2.55 (1-3 tasks)	

Table 6: Differences in attitude between Y and N groups towards e-portfolios and bonus marks

4.4 Comparisons between H and L groups

There were 22 H group students scoring a B or higher in "English for Engineering Students" and 43 L group students obtaining a C+ or lower. The means and percentages of their responses to the sixteen questionnaire statements and their open-ended comments were compared to determine any possible differences in motivation towards e-portfolio learning due to ability variations.

4.4.1 Relevance and usefulness of e-portfolio tasks as perceived by H and L groups

As demonstrated in Table 7, both ability groups valued the relevance (means: H=3.91, L= 3.70), the helpfulness and usefulness (means: H=3.82, L=3.57), and the ability of the e-portfolios to stimulate them to learn (means: H= 3.55, L=3.39) and to lead them to revise for assessments (means: H=3.45, L=3.43). Generally, although both groups learned from the feedback given by the teachers (means: H=3.09, L=3.57), the L group showed greater appreciation for the teachers' feedback than the H group. Members of the two groups generally disagreed (means: H=2.45, L=2.61) that the tasks stimulated them to use the programmes offered by the Centre of Independent Language Learning to further pursue independent learning.

		Means of high grades group (H)	Means of low grades group (L)	t-test significance
1.	The e-portfolio tasks of all four units are relevant to what I learn in class for the course.	3.91	3.70	No significance
2.	The e-portfolio tasks can help me do my assessments.	3.82	3.57	
3.	Before doing the assessments, I revised related e-portfolio tasks.	3.45	3.43	
4.	I learn from the feedback given to my e-portfolio work.	3.09	3.57	
5.	The e-portfolio tasks can stimulate me to learn English.	3.55	3.39	
6.	The e-portfolio tasks can stimulate me to make use of programmes run by the Centre of Independent Language Learning.	2.45	2.61	

Table 7: Relevance and usefulness of e-portfolio tasks perceived by H and L groups

4.4.2 Differences in learning styles between H and L groups in approaching e-portfolio tasks

Both groups appreciated the freedom they had in managing their time in completing the e-portfolio tasks (means: H=4.09, L=3.57) with the H group giving the highest mean score of 4.09 for all items. As shown in Table 8, the students agreed that they completed the tasks before the deadlines (means: H=3.55, 3.45) by making plans (means: H=3.36, L= 3.26) though they were a bit unsure about having successfully followed them (means: H=3.27, L=2.91). Generally, both groups did not complete the tasks as soon as they were taught in class or revise related lessons or materials before attempting the e-portfolio tasks (means: H=2.27, L=2.71). A point of interest was that, although there was no statistical significance, the L group was less successful in following their plans in comparison with the H group, but revised the materials a little more and completed the tasks a little earlier.

		Means of high grades group (H)	Means of low grades group (L)	t-test significance
7.	I like that I can do the e-portfolio tasks at the time convenient to me.	4.09	3.57	No significance
8.	I made plans about when and how to do the e-portfolio tasks.	3.36	3.26	
9.	I succeeded in following my plans.	3.27	2.91	
10..	I completed the e-portfolio tasks as soon as they were taught in class.	2.27	2.71	
11.	I revised related lessons or material before attempting the e-portfolio tasks.	2.27	2.71	
12.	I completed the e-portfolio tasks just before the deadline.	3.55	3.45	

Table 8: Differences in learning styles between H and L groups in approaching e-portfolio tasks

4.4.3 Differences in attitude between H and L groups towards e-portfolio and bonus marks

Quite like the Y and N groups, they held an ambivalent attitude towards the e-portfolio tasks as homework or voluntary independent learning (means: H=2.82, L=3.13). The major source of mo-

tivation for the L group was their usefulness (40%) in: learning English (20%), and helping their future and career (20%). 30% of the L group saw the tasks as a means to secure bonus marks and one student mentioned explicitly that he viewed the tasks as homework to obtain marks. Others thought that the tasks were like past examination-style practice (20%). 5.5 % mentioned that the tasks were voluntary. 37.5% of the H group focused on the benefits of the tasks for learning as their main motivation, 25% on their voluntary nature, and 25% on the bonus marks (25%). Similar to the findings from the Y and N groups, the bonus marks were an important consideration, but not the overriding motivation.

If the tasks were completely voluntary without bonus marks, both groups would choose to work on 1 to 3 tasks. Like the Y and N groups, the L and H groups would attempt the e-portfolios in order to get the bonus grade even though their final grades would be higher than expected (means: H= 3.90, L=3.61). If their academic grades turned out to be half a grade better and no extra marks would be given for completing the e-portfolio tasks, the H group would do 1 to 3 tasks while and the L group would do 4 to 6 tasks. The main reason for the L group's response was the time factor (27%), followed by other factors such as that being a suitable amount of e-portfolio work (18%), providing less incentive without marks (18%), being helpful for improving English (13%), workload from other subjects (13%) and doing for the sake of practice (5%). 80% of the comments from the H group focused on the usefulness of the tasks, giving reasons such as preparing for examination (40%), learning and polishing English (30%), and help for future career (10%). 10% of the H comments referred to the impact of the bonus marks, while another 10% simply said that they did not like the tasks.

		Means of high grades group (H)	Means of low grades group (L)	t-test significance
13.	The e-portfolio tasks were just homework to me.	2.82	3.13	
14.	I will do (how many) e-portfolio tasks if no bonus marks are given.	2.72 (1-3 tasks)	2.69 (1-3 tasks)	
15.	If my ability is better than expected and my final grade turns out to be half a grade higher, I still will attempt doing 10 e-portfolio tasks provided that bonus marks are given.	3.90	3.61	
16.	If my ability is better than expected and my final grade turns out to be half a grade higher, I still will do (how many) e-portfolio tasks if no extra bonus marks are given.	2.64 (1-3 tasks)	3.05 (4-6 tasks)	

Table 9: Differences in attitude between H and L groups towards e-portfolio and bonus marks

There were no significant statistical differences between the H and L groups in their responses to the questionnaire statements. Interestingly, in comparison, the means of the responses by L students in this section of the questionnaire were higher than that registered for H students, suggesting that they learned more from the feedback in comparison, completed the tasks a bit nearer the time of the lessons, revised slightly more before attempting the tasks, were slightly more stimulated to use the services provided by the Centre of Independent Language Learning Centre, and welcomed doing a few more e-portfolio tasks even though no bonus marks were given.

5 Discussion

This study has not succeeded in proving the learning effectiveness of e-portfolios as there was no significant correlation between doing the tasks and academic grades earned. This study presumably supports Garis' (2007) view that research on the effectiveness of e-portfolio learning is

much needed and Yang and Tsai's (2008) remark that web-based instructions had not produced desired learning results. This outcome may be due to the rather homogeneous learning attitude and perception of the subjects from various groups towards the e-portfolio.

The quantitative results show that the college students generally showed a rather positive attitude towards the relevance and usefulness of the e-portfolio tasks. As supported by their responses to the open-ended questions, the students generally agreed that the e-portfolio tasks were relevant and could help them perform better in assessment; they revised the tasks and comments given before doing the assessment. Generally speaking, the e-portfolio tasks provided more learning and revision opportunities. However, statistically, the performance of the e-portfolio tasks did not affect students' academic grades in this study.

That the students did not report making much use of the programs or services provided by the Centre of Independent Language Learning show that the e-portfolios, despite being designed to be student-centred to foster student autonomy and independence, did not successfully encourage students to engage more in independent learning. They were rather ambivalent towards the e-tasks and were unable to see them as self-initiated pursuit of knowledge. Perhaps this e-portfolio system with the bonus marks element might have compromised itself as a form of independent learning and there might be a kind of theoretical contradiction in encouraging self-learning through an obvious extrinsic form of motivation, the bonus marks. Therefore, only a few of the students stated that the e-portfolio tasks allowed them to assert their autonomy or aroused their interest.

Irrespective of academic ability or the bonus upgrade, the students were rather similar in their learning style in approaching the e-portfolio tasks. The students enjoyed doing the e-portfolio tasks at a time convenient to them, and reported some efforts in making plans about when and how to do them. But they were only half successful in following their plans and generally disagreed that they completed the tasks as soon as the related lessons were over. This may be due to personal preference or their being pre-occupied with other activities or subjects. One possible explanation may be that they had to meet the demand of other core subjects which carried more credits or were more essential to the completion of their degree programs, in comparison with this English language course.

Another possible reason for the lack of desired success in making and following the plans may be that Year 1 students are not as adaptive to e-learning as senior students (Yang & Tsai, 2008). Although students are drawn to e-learning because of its freedom and flexibility in managing their learning activities, this flexibility can – without clear 'time-to-learn' cues – place greater demands on students' self-managing abilities (Bonk, 2002 as cited in Del Valle & Duffy, 2009). As this e-portfolio system is new to Year 1 students, more teacher mediation can help them to develop as mature independent learners. Besides acting as language assessors and language experts, teachers has to initiate students into a new learning environment and can be "cheerleaders" (Chau & Cheng, 2010) to periodically encourage students to explore or stick to plans and deadlines, without obtrusively leading them or holding their hands.

The students' learning styles in relation to their growth as self-managed independent learners may be highly related to another important factor of learning – time available. Most students appreciated the learning value of the e-portfolio tasks and would attempt one to three tasks, even if there were no bonus marks. But they would attempt eight to ten tasks, if bonus marks were given to compensate for the opportunity cost. Also, the time needed for students to present their work in digital formats like audio sound files should not be underestimated. Even with the inclusion of the new e-portfolio component, "English for Engineering Students" was still counted as a 28-hour course as before and no extra time allowance was provided for the e-portfolio tasks. The only difference in time allocation was that it spanned twenty-eight weeks instead of fourteen weeks. Therefore, the time factor, if it remains unresolved, would handicap student's self-learning or exploration in the realm of independent learning. Researchers have noticed the educational value and benefits of out-of-class experiences and influences (Dalton, 2007); however, it is doubtful if col-

leges and institutions would allow extra time for students to participate in mandatory or voluntary learning experiences.

A statistically significant difference was found between the Y and N groups in the revision of related lessons or materials before attempting the tasks. Although the students who received grade upgrades revised more than their counterparts, the extra learning or revision done by the Y group did not lead to a statistically significant improvement in their academic grades. It might be possible that there was language improvement in aspects other than those being assessed in the examinations, or that the effectiveness of classroom teaching had successfully developed the students' skills in the examination topics. However, the four classes studied in this research did not perform particularly well in the examinations with only twenty-two of them scoring a B or higher. It is of utmost interest to researchers to find out how students can be helped to benefit from self-study and revision.

One probable explanation for the lack of significant differences that can be attributed to students' revision is that the bonus marks were allocated more according to the effort made than the quality attained. For example, a piece of student work scoring one to two '1's on the competence outcomes was also given recognition. This may have allowed the students to stay in their comfort zone and not to seek better performances in learning, resulting in rather insignificant academic benefits from the e-portfolio system. Therefore, to enhance learning, it is perhaps more important to ask how the e-portfolio tasks were done rather than how many tasks were done, and how the tasks and competence levels could be designed to enhance student revision.

Bonus marks were given to students in recognition of their effort and motivation for work, and there was no decisive attitude towards the e-portfolio tasks as homework. The qualitative feedback from different groups regarding their general perceptions of the e-portfolio tasks shows that the students mainly considered the usefulness of the tasks for their examinations, language development and future career. The factor of the bonus marks came in second in terms of its influence and was not as predominant in motivating students as assumed, although the marks seemed to be more tangible and easier to secure, so long as effort was evident. Examination, the traditional source of extrinsic motivation still played a prominent role, as Hong Kong students are known for being examination driven (Trinidad & Fox, 2007). More importantly, the extrinsic but highly intrinsic-resembling motivation like the fulfilment of one's goals of self-enhancement and development was rather prevalent.

When asked how many e-portfolio tasks they would do without obtaining any bonus marks, most students responded that they would do one to three tasks. The main reason given for this was again the promise of language enhancement, followed by the constraint of time and then the absence of bonus marks. Even if they had better ability and could get a higher overall grade, they generally agreed that they would still do the tasks, if bonus marks were given. It seems that most students would try all possible means to pull up their grades. However, if no bonus marks were given, they would not finish eight to ten tasks. They would just do one to three tasks, citing that they were constrained by the time available and that they considered that amount of e-portfolio learning to be suitable. Perhaps, this number of e-portfolio tasks was stated, because there were four topics in the course: one e-portfolio task for each topic. This conclusion is surmised from the responses given by the four groups to this question, which were mostly between 2, representing "one to three tasks," and 3, representing "four to six tasks."

With reference to the above, it can be argued that once the pragmatic learning value of the e-portfolios has been made clear to the students, they will voluntarily do some e-portfolio tasks with the assertion of autonomy and self-determination for a better self and brighter future. This observation supports Dalton's (2007) conviction that the e-portfolio system ought to be introduced to students early to let the concept sink in and bloom. Furthermore, emphasis should be given to the process of self-determination and the exercise of learner independence rather than the highly extrinsic reward – the bonus marks which might weaken students' sense of independence and judgment in learning and undermine the pedagogical value of the e-portfolios. Moreover, the stu-

dents were not as short-sighted as expected, as they were concerned with wider perspectives like improving their English and securing a better career in the future. This feedback may be related to their concern that they were tertiary students and would have to work full-time in a few years.

Based on the above, it can be surmised that the Hong Kong university students are not as extrinsically motivated as assumed, unless they are under much constraint and pressure. In experimenting with e-portfolio learning, they exhibit intrinsic-resembling motivation like identified regulation, learning for important personal goals such as self-betterment and their future careers. Some will assert their self-determination and decide to attempt a few e-portfolio tasks even if they would not be awarded any bonus marks. They make adjustments to their timetables and juggle e-portfolio learning with other academic demands. Such choices or decisions manifest themselves almost intrinsic-like motivation. This is a sign that the students are quite ready to develop as independent learners out of self-determined regulation. As intrinsically motivated learners are generally better learners, the e-portfolio system should help students to develop as self-regulated intrinsic learners by providing them with more experiences of autonomy (students experiencing self-endorsed actions with a sense of choice), competence (students being effective in executing the actions and seeking challenges) and relatedness (students establishing secure and close relationships with social groups) (Brophy, 2004; Reeve & Kim, 2009). This could be supported by the finding of Sheldon and Elliot's research (1998, as cited in Brophy, 2004) that intrinsic and identified motivation positively affect goal attainment.

6 Conclusion

This study on the first attempt to implement an e-portfolio system in an English course for special purposes for a group of Hong Kong Polytechnic University students has found that participation in the e-portfolio tasks did not lead to any observable betterment in academic performance. Likewise, significantly more revision seemed to have lent little help to grade gain. These results may possibly be explained by the finding that the students exhibited rather positive but highly similar learning styles in approaching e-portfolio learning.

Students showed varied forms of motivation when approaching the tasks, including extrinsic motivation and intrinsic-like motivation. Intrinsic-resembling factors such as learning for self-betterment and language improvement were as crucial as, if not more important than, the bonus marks.

With the element of the bonus marks, the e-portfolio system successfully helped students realize the pedagogical value of the system. Yet from another perspective, the bonus marks elements compromised the self-independent, autonomous nature of e-portfolio learning. Hence, in order to make college students adopt a new way of learning, giving bonus marks may not be the best approach. Promoting e-portfolios' usefulness with allowance for autonomy and support for the needs of relatedness and competence would be more conducive, if educators recognize that there may be mixed forms of motivation ranging from intrinsic to extrinsic motivation such as external regulation and integrated regulation, and "student might willingly engage in academic activities and pursue their learning goals because they realize that they are important" (Brophy, 2004, p. 206). In addition, time ought to be set aside in the curriculum for e-learning.

7 Recommendations

The outcome of this research on an e-portfolio system for tertiary English language echo Knight, Hakel and Gromko's finding (2006) that, although extra learning time was spent by students and positive feedback was collected on the tasks, there was no direct significant relationship between student academic performance and the e-portfolios. To help Year 1 college students to reap the most from teachers' feedback and the rubric, and to link in-class learning with out-of-class learning experiences, scheduled consultations such as "staged advising sessions" (Siemens, 2004,

as cited in Knight et al., 2006) could be provided to help learners evaluate and assist them in more effective use of e-portfolios as well as in charting their development. Asian students tend to prefer more interaction with teachers in addition to web-based learning (Yang & Tsai, 2008), as these sessions can enhance learners' interaction and thus a sense of relatedness with the teachers, which will subsequently facilitate autonomous learning.

To improve the learning effectiveness of e-portfolios and encourage participation, and to meet the students' need to do the tasks for self-betterment, the three levels of competence and learning outcomes should not be presented as evaluating criteria but as learning purposes, reasons for doing a specific task. Since students are concerned with their future needs for further studies and the demands of their future careers, the intended learning outcomes should show how the e-portfolios can help undergraduates' with their imminent study needs and other relatively distant but perhaps more life-enhancing goals. It is believed that when a cohort of students have experienced the intended learning value of e-portfolios, students will be drawn to this way of learning in subsequent academic years by word of mouth; hopefully, an e-portfolio culture can thus be developed.

As this system was an initial design, the format, functions and information included might not be rich enough to help students express and overcome their problems or difficulties in learning. For instance, students may not be able to or may not be used to expressing their learning problems clearly or with the appropriate feeling of urgency. Therefore, instead of providing a blank box for open-ended remarks, the system can provide some short phrases to guide students to present focused and clear reflections, and thus make it more convenient to write personal remarks. Also a selection of icons or graphics representing students' thoughts or feelings could be given to them to choose from. Similarly, to enrich teacher's feedback, icons or lists of resources and learning pathways related to the e-portfolio tasks should be available for teachers to add to their comments. These resources could also be made accessible through a link labelled "student resources" for student exploration.

As college students are aware of and concerned about the tight time constraint posed by the demands of various subjects and learning experiences, faculty teaching staff, when planning assignments and workload for students, should allot a suitable amount of time for out-of-class e-learning in recognition of the importance of 'untraditional' ways of learning. This will encourage the time investment they deserve and could reduce the pressure arising from conflicting demands. It is hoped that this will gradually create a learning environment with room and freedom for students to assert their autonomy and independence, and to manage their time as an important resource. This will enable students to be more engaged in self-paced independent learning (Toci, 2000).

This research has showed that external rewards like bonus marks could only induce forced or compromised learning and should therefore be scrapped from the e-portfolio system. This research has also showed that the majority of college students, when given the freedom to choose, decided to learn to fulfill their self-selected goals for self-enhancement by juggling with other demands. This kind of identified and perhaps integrated motivation is inclined towards intrinsic learning as underpinned by the self-determination theory of Deci and Ryan (2000, as cited in Brophy, 2004), and will lead to more intended learning behavior, as argued by Losier and Koestner (1999). Hence, to integrate and internalize external regulations to self-determined intrinsic motivated actions by meeting students' need for autonomy, competence and relatedness, some suggestions are offered, as follows:

1. A clear sense of student ownership should be encouraged by inviting students to set their learning goals and make deadlines.
2. Small groups or one-to-one tutorials and regular e-communications via emails, Facebook and other means can be employed to provide students with timely help and advice in achieving their plans and goals (Toci, 2000).
3. Socializing and interaction among students and teachers are considered to be conducive to regulating motivation (Toci, 2000). Each student can also be asked to find a study buddy to

enrich their learning experience and share learning styles as well as develop online and face-to-face interaction.

4. Throughout the course, teachers should emphasize the usefulness of the e-portfolios and the rationale behind them (Brophy, 2004).
5. Feedback on students' work should be given by teachers and classmates as soon as possible.
6. The resources and learning opportunities of the independent learning centre should be hyperlinked to the e-portfolio system and be easily accessible. A workshop or orientation training can be run at the start of the English language course to introduce students to the vast means and resources of e-portfolio learning.
7. Students should be given a sense of success and growth throughout the e-portfolio learning process, while they expect the intended learning benefits.

This study has shown that more research on the effectiveness of e-portfolios for Hong Kong tertiary students is needed, especially with regard to the impact on revision induced by e-portfolio tasks. It also provides insights into how the e-learning environment and the e-portfolio system can be improved to foster autonomy, student participation and expression of feelings, and learning styles. Equally important is that time should be given to let students explore and commit to learning with e-portfolios. The bonus marks can be removed from the design of the system and teachers can have faith in student participation, provided that students are led to see the benefits of e-portfolio learning for their own development.

References

- Ahn, J. (2004). Electronic portfolios: Blending technology, accountability & assessment. *T H E Journal*, 31(9), 12–18.
- Albert, K.A. (2006). An e-portfolio model for learning, assessment, and employment in teacher education at West Chester University of Pennsylvania. Available from Digital Dissertation Consortium (No. 3220632)
- Barrett, H. (2000). *Electronic teaching portfolios: Multimedia skills + portfolio development= powerful professional development*. Retrieved from <http://www.electronicportfolios.com/portfolios/site2000>
- Barrett, H. (2006). *Electronic portfolios and digital storytelling for lifelong and life wide learning*. Retrieved from <http://electronicportfolios.com/>
- Benson, R. (2009). Issues in peer assessment and e-learning. In C. Spratt, & P. Lajbcygier (Eds.), *E-learning technologies and evidence-based assessment approaches* (pp. 117–135). New York: Hershey.
- Brophy, J.E. (2004). *Motivating students to learn*. Mahwah, NJ: Lawrence Erlbaum. Retrieved from <http://www.netlibrary.com.ezproxy.lib.polyu.edu.hk/Reader/>
- Butler, P. (2006). A review of the literature on portfolios and electronic portfolios (eCDF ePortfolio Project). *Mendeley Research Networks*. Retrieved from <http://www.mendeley.com/research/a-review-of-the-literature-on-portfolios-and-electronic-portfolios/>
- Chau, J. (2007). *A developer's challenges on an e-portfolio journey*. In *ICT: Providing choices for learners and learning*. Proceedings of ascilite Singapore 2007. Retrieved from <http://www.ascilite.org.au/conferences/singapore07/porcs/chau.pdf>
- Chau, J., & Cheng, G. (2010). Towards understanding the potential of e-portfolio for independent learning: A qualitative study. *Australian Journal of Educational Technology*, 26(7), 932-950. Retrieved from <http://www.ascilite.org.au/ajet/ajet26/chau.html>
- Corbeil, R., Pan, C., & Sullivan, M. (2005). E-portfolios as high-stakes assessment in a graduate distance education program. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology and Teacher Education International Conference 2005* (pp. 47–52). Chesapeake, VA: AACE.
- Dalton, T.C. (2007). Concluding observations and implications of e-portfolios for students affair leadership and programming. In J.W. Garis & J.C. Dalton (Eds.), *E-portfolios: Emerging opportunities for student affairs* (pp. 99–106). San Francisco: Jossey-Bass.
- Deci, E., & Ryan, R. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227–268.
- Del Valle, R., & Duffy, T.M. (2009). Online learning: Learner characteristics and their approaches to managing learning. *Instructional Science*, 37, 129–149. doi:10.1007/s11251-007-9039-0

- Garis, J.W. (2007). E-portfolios: concepts, designs, and integration within student affairs. In J.W. Garis & J.C. Dalton (Eds.), *E-portfolios: Emerging opportunities for student affairs* (pp. 3–16). San Francisco: Jossey-Bass.
- Goldsmith, D.J. (2007). Enhancing learning and assessment through e-portfolios: A collaborative effort in Connecticut. In J.W. Garis & J.C. Dalton (Eds.), *E-portfolios: emerging opportunities for student affairs* (pp. 31–42). San Francisco: Jossey-Bass.
- Goodyear, P., Salmon, G., Spector, J.M., Steeples, C., & Tickner, S. (2001). Competences for online teaching: a special report. *Educational Technology, Research, and Development*, 49(1), 65–72.
- “Junior Certificate”. (2010, June 12). In *Wikipedia, The Free Encyclopedia*. Retrieved from http://en.wikipedia.org/w/index.php?title=Junior_Certificate&oldid=367518827
- Kimball, M.A. (2003). *The web portfolio guide: Creating electronic portfolios for the web*. New York: Longman.
- Knight, W.E., Hakel, M.D., & Gromko, M. (2006). *The relationship between electronic portfolio participation and student success*. Retrieved from <http://www.bgsu.edu/downloads/finance/file26553.pdf>
- Lai, J., Lee, I., Mackay, M., Tam, P.P., & Thomas-Szczycka, A. (2009). Portfolios and electronic portfolios defined. *Design Principles and Practices: An International Journal*, 3(3), 444–466. Retrieved from <http://www.design-journal.com>
- Losier, G., & Koestner, R. (1999). Intrinsic versus identified regulation in distinct political campaigns: The consequences of following politics for pleasure versus personal meaningfulness. *Personality and Social Psychology Bulletin*, 25, 287–298.
- Lumsden, J.A. (2007). Development and implementation of an e-portfolio as a university-wide program. In J.W. Garis & J.C. Dalton (Eds.), *E-portfolios: Emerging opportunities for student affairs* (pp. 43–63). San Francisco: Jossey-Bass.
- Lumsden, L.S. (1994). *Student motivation to learn*. Retrieved from ERIC Clearinghouse on Educational Management (OERI RR93002006).
- Markham, S., & Hurst, J. (2009). Re-assessing validity and reliability in the e-learning environment. In C. Spratt & P. Lajbcygier (Eds.), *E-learning technologies and evidence-based assessment approaches* (pp.1–19). New York: Hershey.
- Martyn, E. (2007). Assessing professional ePortfolios of second language learners. In C. Montgomerie & J. Seale (Eds.), *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007* (pp. 496–504). Chesapeake, VA: AACE.
- Mason, R., Pegler, C., & Weller, M. (2004). E-portfolios: An assessment tool for online courses. *British Journal of Education Technology*, 35(6), 717–727.
- Moskal, B. (2000). Scoring rubrics: What, when, and how? *Practical Assessment, Research and Evaluation*, 7(3). Retrieved from <http://pareonline.net/getvn.asp?v=7&n=3>
- Nicholson, B.L. (2004). *E-portfolios for educational leaders: An ISLLC-based framework for self-assessment*. Lanham, MD: Scarecrow Education.
- Reardon, R.C., & Hartley, S.L. (2007). Program evaluation of e-portfolios. In J.W. Garis & J.C. Dalton (Eds.), *E-portfolios: emerging opportunities for student affairs* (pp. 83–97). San Francisco: Jossey-Bass.
- Reeve, J., & Kim, A. (2009). Can self-determination theory explain what underlies the productive, satisfying learning experiences of collectivistically oriented Korean students? *Journal of Educational Psychology*, 101(3), 644–661.
- Ryan, R.M., & Deci, E.L. (2000) When rewards compete with nature: The undermining of intrinsic motivation and self-regulation. In C. Sansone & J.M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation: The search for optimal motivation and performance* (pp. 14–48). London: Academic Press.
- Sansone, C., & Harackiewicz, J.M. (2000). Controversies and new directions-Is it Déjà vu all over again? In C. Sansone & J.M. Harackiewicz (Eds.), *Intrinsic and extrinsic motivation: The search for optimal motivation and performance* (pp. 443–453). London: Academic Press.
- Shen, R., Wang, M., & Pan, X. (2008). Increasing interactivity in blended classrooms through a cutting-edge mobile learning system. *British Journal of Educational Technology*, 39(6), 1073–1086.
- Toci, M.J. (2000). *The effect of a technology-supported, project-based learning environment on intrinsic and extrinsic motivational orientation*. Available from Digital Dissertation Consortium (No. 9966907).
- Trinidad, S., & Fox, R. (2007). But did they learn? Assessment driving the learning, technology supporting the process. In S. Frankland (Ed.), *Enhancing teaching and learning through assessment: Deriving an appropriate model* (pp. 382–391). Dordrecht: Springer.
- Yang, F.Y., & Tsai, C.C. (2008). Investigating university student preferences and beliefs about learning in the web-based context. *Computers and Education*, 50, 1284–1303.

- Yip, D.Y. (2006). The Biology curriculum in Hong Kong – Trends and challenges. *Educational Journal*, 24(1), 155–176.
- Young, J.R. (2002). E-portfolios could give students a new sense of their accomplishments. *Chronicle of Higher Education*, 48(26), 1–4.

Appendices



Appendix 1

A sample e-portfolio task

ELC eLearn » ELC3501_0607T1 » Advanced Exercises » Unit 1
Activity 3 - Product description » Assessments

You are logged in as Linda Kwok
(Logout)

1. Click on the title of the activity to read the description.
2. Click on the link(s) under 'Attempt' to view student's work.
3. View student's self-assessment.
4. Fill in the Teacher Assessment Form.

The Exercise Description
 Portfolio activity 3
Attempt 1
 Product description - DVD Player

Appendix 2

A sample e-portfolio with student self- assessment

Self-assessment by Student CHEUNG Ming Wai	
Criterion 1:	Sequencing and clarity of ideas in description Weight: 1.00
Performance:	Good <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> Poor
Remarks:	
Criterion 2:	Use of appropriate vocabulary and range of vocabulary Weight: 1.00
Performance:	Good <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> Poor
Remarks:	
Criterion 3:	Use of concise words and structures Weight: 1.00
Performance:	Good <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> Poor
Remarks:	

Further remarks:	

Appendix 3

A sample e-portfolio with teacher feedback

Teacher Assessment Form	
Sequencing and clarity of ideas in description	Weight: 1.00
Good <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> Poor	
Use of appropriate vocabulary and range of vocabulary	Weight: 1.00
Good <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> Poor	
Use of concise words and structures	Weight: 1.00
Good <input type="radio"/> <input type="radio"/> <input checked="" type="radio"/> <input type="radio"/> Poor	

Appendix 4

Levels of competence on learning outcomes

3= outcome achieved well

2= outcome satisfactorily achieved

1= in need of further work