Exploration of ePortfolios for Adding Value and Deepening Student Learning in Contemporary Higher Education

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In recent years, higher education has undoubtedly faced a sea-change. The landscape of the sector has shifted with changes in the student body, increased pressure from government on costs and procedures, and an array of curricular transformations. While much has been written about the use of learning technologies generally and about ePortfolios in particular, there has been a lack of robust evidence about their added value for enhancing student learning opportunities. A case study of the integration of ePortfolios into a professional development master's program in a Higher Education Institution in Ireland is presented, and added value in terms of the creative learning process is explored. Findings from this study indicate that development of the awareness and understanding of creativity within the student cohort is necessary to nurture creative and critical thinking abilities.

Gaynor (2010) reported that higher education institutions in Ireland, as elsewhere, are facing severe challenges on a number of fronts: increasing enrollment figures, coupled with dwindling state support, are impacting institutions from a resource perspective, while the shifting nature of knowledge(s) and needs of an increasingly complex global society are requiring changes in order to support student learning to a high level. A recent comprehensive study by JISC (2008) suggests that perhaps the most pressing reason for taking a closer look at ePortfolios is the indication that use of these tools can promote more profound forms of learning. Conversations have been taking place recently on the transformative potential of ePortfolios in different professional disciplines (Batson, 2011; Peacock, Murray, Kelly, & Scott, 2011). Batson (2002) has argued that electronic portfolios have a greater potential to alter higher education at its very core than any other technology application we have known thus far**.** However, Stefani, Mason, and Pegler (2007) argue that whether ePortfolios achieve any transformative potential will be largely determined by the level and type of student participation.

This paper explores the use of ePortfolios in contemporary professional higher education. While the promise that they hold – that of a richer, transformative educational experience for all – has been long documented from both a pedagogical (Cambridge, Kahn, Tompkins, & Yancy, 2001; Emmett, 2003) and efficiency perspective (Jafari & Kaufman, 2006), and indeed from different contexts such as that provided by Duffy, Anthony, and Vickers (2010), who researched the added value of ePortfolios for student learning from work-based learning placements. Recent seismic shifts in education provision mean that a fresh lens is required to explore the added value of this student-centred technology for current professional development.

It is envisaged that this paper will be useful for those who use or support others' use of ePortfolios, such as practitioners and managers in higher and further education, faculty developers, those involved in initial teacher training, and those involved in the management and implementation of continuous professional development and lifelong learning.

This case study of a professional development master's program in Applied eLearning offers useful insights into how an Irish higher education institution supported students in becoming critically reflective learners through the development and use of an ePortfolio.

Literature Review

The literature has been consulted under three main aspects. First, the notion of student centered learning is explored and an outline of the challenges facing higher education today included. Second, the added value of ePortfolios is discussed. Finally, the importance of reflection for professional practice establishes the link emerging between creativity and reflection and indicates how ePortfolios are being used to enhance the assessment and feedback processes.

Student Centered Learning and Contemporary Education Challenges

Significant changes facing higher education provision in the last twenty years have affected all aspects of teaching and learning, including for the context for this study, how students engage with their studies and how learning technology is being used. Engaging students is a difficult task faced by all academics (Harper & Quaye, 2009; Heafner, 2004; Trowler, 2010). Student engagement can be defined as a "student's willingness, need, desire and compulsion to participate in, and be successful in, the learning process" (Bomia et al., 1997, p. 294). However, students often exist as passive consumers of knowledge, never fully engaging, thinking deeply, or truly understanding (Neary & Winn, 2009). A way to combat

this is to integrate active learning and appropriate assessment into the curriculum. Student engagement can be achieved by giving ownership of their learning back to the students (Biggs & Tang, 2011) and by carefully aligning the assessment methodology to their learning and future employability (Knight & Yorke, 2003). Students can take possession of their learning and view the assessment as a positive experience in which they are assessed for learning rather than the reverse.

Policies of widening participation have resulted in escalating student numbers and increasing diversity of the student population, and have been a driving force behind a heightened interest in teaching and learning (Kettley, 2007). Trow (1992) has summarized the challenges as modularization, semesterization, credit accumulation, credit transfer, franchising, and the accreditation of both prior learning and work-based learning; he suggests that all are a reflection of contemporary higher education. Significant curriculum changes, in particular shifts towards modularization and inter-disciplinarity, have been noteworthy for their impact on student learning.

Modularization, whereby teaching and learning are structured around short courses rather than over a whole academic year, has grown substantially in the past ten years (Trow, 2006). Interdisciplinarity, whereby a growing number of courses offer modules in a wide range of subject areas, happens within particular interdisciplinary degrees, such as studies in communication, peace, or culture, but also in routes through more traditionally demarcated subject areas. There has also been growth in vocationally and professionally oriented higher education courses that cross academic boundaries – for example, nursing and social work studies (Altbach, Reisberg, & Rumbley, 2009).

In recent years, many Irish degree programs, like those elsewhere, have been both modularized and semesterized. This has meant that in most cases, each topic has been packaged as a module that has been both delivered and examined within a single semester. The advantages of a modularized system have been well documented (Zahorian, Swart, Lakdawala, Leathrum, & Gonzalez, 2000): students can transfer credit easily from one institution or program to another; they can accumulate credit at a steady rate and know that they are progressing satisfactorily; and they get formative feedback at frequent intervals.

Arguments against modularization have centered on the problems of over-examining, the inhibition of individualized programs, and surface learning (Goodhew, 2002). It has been argued that because there is little chance that complex concepts have time to be absorbed or integrated into the whole way of thinking in a discipline, modularization encourages the "pigeon-holing" of knowledge and actively discourages the transfer of ideas from one area of a discipline to another. It can be argued that a lack of continuity between modules can prevent students from achieving personal transformation in their learning.

The introduction of diverse modes of curriculum delivery has been profoundly shaped by developments in learning technology (Gosper, Green, McNeill, & Phillips, 2008). The most notable shift has been away from conventional face-to-face teaching and learning modes and toward the use of computer conferencing systems and web-based materials, both as part of campus-based provision and in distance courses. ePortfolios have been held up as a vehicle for addressing the problems with current assessment practices (Chatham-Carpenter, Seawel, & Raschig, 2010). Where module-based exam assessments do not enable feedback between student and tutor because exam scripts are often inaccessible, and where students cannot readily see progress in their learning, strategically using technologies such as ePortfolios could enhance assessment and feedback.

Integrating ePortfolios across a program has also been hailed as a means to support widening participation for non-traditional learners, international students, distance learners, and learners who are work-based or engaged in continuous professional development (Joyes, Gray, & Hartnell, 2009). With the increase of numbers in higher education, managing diverse cohorts and teaching large groups has become a prime focus for lecturers. Recent JISC (2008, 2012) projects have demonstrated that using ePortfolios can help non-traditional learners identify their aspirations by goal-setting, planning, and recording evidence of their achievements. For enhancing employability skills, an emphasis has emerged in using ePortfolios to map competencies across the curriculum; having a more flexible curriculum requires us to take closer look at learning pathways, credit transfers, and multiple modes of participation.

Ultimately, the use of ePortfolios to counteract the current challenges facing the higher education curriculum is all about enhancing the learner experience (Joyes et al., 2009); given these range of challenges, developing learner networks and communities using such technology would seem a sensible way forward for educators.

Added Value of ePortfolios

ePortfolios have been identified as a suitable means for demonstrating student learning, showing connections in learning, and articulating student competencies to the world. Beetham (2006) summarizes succinctly the defining features of an ePortfolio: a collection of digital resources; evidence of

an individual's progress and achievements drawn from both formal and informal learning activities; resources that are personally managed and owned by the learner; and resources that can be used for review, reflection, and personal development planning.

Previously Tosh, Light, Fleming, and Haywood (2005) suggested that ePortfolios offer an opportunity for learner control and are capable of supporting or promoting deep learning because students are able to make connections between learning that occurs in different contexts: academic, workplace, and community. It is the recognition that learning occurs beyond the classroom that makes ePortfolios attractive to many educators. ePortfolios are thought to support learning in various settings and stages and to promote more profound forms of learning, while also supporting professional development (Gerbic, Lewis, & Northover, 2009; JISC, 2008).

Two contexts in which ePortfolios have been used are practice-based education and informal learning. Cross (2007) argues that only 10% to 15% of learning is formal, while 85% of our learning takes place outside of formal settings. Yet Attwell (2005) suggests there has been little attention paid to informal learning or to how it takes place. The real potential for ePortfolios is in the widening contexts in which learning is taking place—or is recognized to be taking place—and in their ability to bring together personal learning gained in multiple contexts. Relevant for this current study, Wild, Sporer, Chrzaszcz, Sigurdarson, and Metscher (2008) have reported on how informal learning experiences can be successfully integrated into institutional formal learning processes by using blog-based networked ePortfolios. Nettleton, Lowe, and Dorahy (2008) find substantive support for developing ePortfolios as a major tool in supporting practice-based educational programs. They can be especially useful for evaluating and documenting mastery of educational outcomes such as *practice-based* improvement and have been used in nursing and other medical programs, as well as education.

In recent years, technology has been regarded as having a potentially critical role to play in supporting and transforming creative communities at all levels and stages in the higher educational process (Craft, 2010). Diehm's (2004) research has focused on the use of electronic portfolio projects to highlight the creative nature of student learning**.** Consequently, the ePortfolio is ideally suited for developing creative abilities in students. In the context of this study, the ePortfolio is a space where connections and participation between peers can be encouraged; reflection on learning can be represented through diverse forms of multimedia; and students can demonstrate their problem solving and evaluate their own learning they progress through the program. Reflection by the students on their learning experiences forms an integral part of the ePortfolio assessment strategy, and dedicated time for reflection is critical to allow the students space to appreciate their personal development (Smith & Yates, 2011a, 2011b).

Importance of Reflection for Professional Practice

Reflective practice enables learners to "stand away" from problems arising in their studies and come to a clearer understanding (Brookfield, 1995). Using the ePortfolio, we aspired to shift, as Klenowski, Askew, and Carnell (2006) advocate, from "the collection of evidence to a focus on the analysis and integration of learning" (p. 276) across the modules of the MSc Applied eLearning programme. Research by Plaisir, Hachey, and Theilheimer (2011) and Logar, Peterson, and Römmer-Nossek (2007) suggests that ePortfolios add a further reflective layer to learning, fostering meta-cognitive reflective practice in which students look back at achievements, question assumptions, and commit to improvement and change. Similarly, Hallam and Creagh (2010) state that "the ePortfolio, as a process, allows learners to move beyond what they have learned to consider how they have learned and to understand the connections inherent in the creative process of learning" (p. 181).

Exploring the Link Between Creativity and Reflection

ackson (2006) urges higher education to play a more substantial role in supporting students as they develop an awareness of their own creativity and reflective practice is seen as a tool for developing creative abilities (Jackson, 2006; Sternberg & Lubart, 1995). Indeed, the Gibbs (1988) cycle of reflection, which involves identifying and solving a problem, draws parallels with the creative application of the imagination in devising one's own solutions to problems (Cottrell, 2003; Lowry-O'Neill, 2011; Nordstrom & Korpelainen, 2011).

Researchers on creativity agree that it is an important but complex construct (Lowry-O'Neill, 2011; Villalba, 2010). Developing creativity of students is said to prepare them "for an uncertain and ever more complex world of work; a world that requires people to utilize their creative as well as their analytical capacities" (Jackson, 2006, p. 6). Creativity involves divergent thinking skills, decision-making (Sternberg, 2006), the capacity to give many answers to a similar problem, and adaptability in dealing with challenges (Villalba, 2010). From an economic point of view, governments seek to increase creativity because it produces growth founded on entrepreneurial ideas (Villalba, 2010); and within education, nurturing of creativity leads to self-directed, motivated learners and fosters life-wide creativity (Craft, 2010).

Sternberg (2006) believes that creativity is as much an attitude toward life as it is a matter of ability and believes that students can be taught to think creatively. Being a creative individual in the learning environment takes courage on the part of the student, as risks are high when associated with assessment (Barrett & Donnelly, 2008). Nevertheless, both Nordstrom and Korpelainen (2011) and Craft (2010) assert that creativity in individuals can be fostered given the right conditions and supportive environment (Villalba, 2010).

Craft (2010) describes creativity as a social process, dependent on participation in particular kinds of communities or environments; she asserts that a creative education involves engaging with four characteristics: pluralities, playfulness, possibilities, and participation. With these conditions and characteristics in mind, we endeavored to build a learning environment for ePortfolio development that nurtured creativity and enabled learners to take risks in expressing their learning; encouraged them to connect to and participate with other students; and encouraged "play" with diverse technologies and an enthusiasm toward the possibilities of technology as a tool for learning.

ePortfolios for Enhancing Assessment and Feedback

Feedback also plays a central role in student learning (Race, 2001). According to Hughes (2011), credit is rarely given to the progress learners achieve as they make their learning journey through a program of study. She argues that ipsative feedback, which links learning between modules, is of great benefit to learners, enabling them to progress and direct themselves as learners. Hughes (2011) calls for explicit acknowledgment of that journey of progression and improvement, which in turn can increase the student's self-confidence. ePortfolio tools can be used to provide continuous and diverse forms of feedback throughout a program, enhancing and strengthening student learning. Within ePortfolio systems, peer-to-peer student feedback can also be encouraged to develop the sense of a learning community as students get a sense of their personal growth throughout the program of study. Feedback also enables students to connect their learning with their professional practice, giving them the opportunity to think critically about current practice and the possibility of making changes to their practice.

Research Aims

This research aimed to explore the holistic and meaningful aspects (Yin, 2009) of using ePortfolios with a particular group of postgraduate students, demonstrating their journey of learning within a part-time master's program. The case study approach was deemed suitable, enabling an empirical but flexible method for investigating the use of ePortfolios within this professional master's program (Robson, 2011; Yin, 2009).

As part of this case study we wanted to explore:

1. whether the students perceived that the ePortfolio had a useful purpose as part of their learning on the MSc program;
2. whether the support provided to students was helpful for developing their ePortfolios, particularly in relation to reflective practice and creativity;
3. how we could best work with future students in developing their ePortfolios.

Methodology

The Student Group and the Case

Fourteen students from the first year of the MSc in Applied eLearning participated in this study. These students are lecturers from higher education, private sector trainers, and independent training consultants wishing to develop professionally in the areas of e-learning, teaching, and training practices. Through their studies the students investigate a wide variety of eLearning topics, such as mobile learning in apprentice education, online problem-based learning for control systems engineering, and augmented reality for studying architecture. Students provided evidence of their applications of learning through the ePortfolio.

Throughout the program, students are supported in developing their ePortfolios using theoretical and practical strategies. Figure 1 illustrates the combination of strategies devised for students to foster understanding of ePortfolios and to nurture development of the ePortfolios.

Data Collection and Analysis

Stake (1995) advises that mixed methods of data collection be used to inform a case study; consequently, this study was developed by analyzing data gathered from researcher reflections, one focus group discussion (FGD), two semi-structured interviews, and student ePortfolio reflections. The flexibility of the case study approach enabled the collection of information on outcomes not known prior to the study (Robson, 2011).

Before the end of the semester, all 14 first-year students were invited to attend the FGD; only six, however, were able to participate. Subsequently, two students were interviewed. The FGD and interviews, facilitated in a semi-structured manner (Stewart, Shamdasani, & Rook, 2007), attempted to retrieve

Figure 1
Strategies for ePortfolio Development
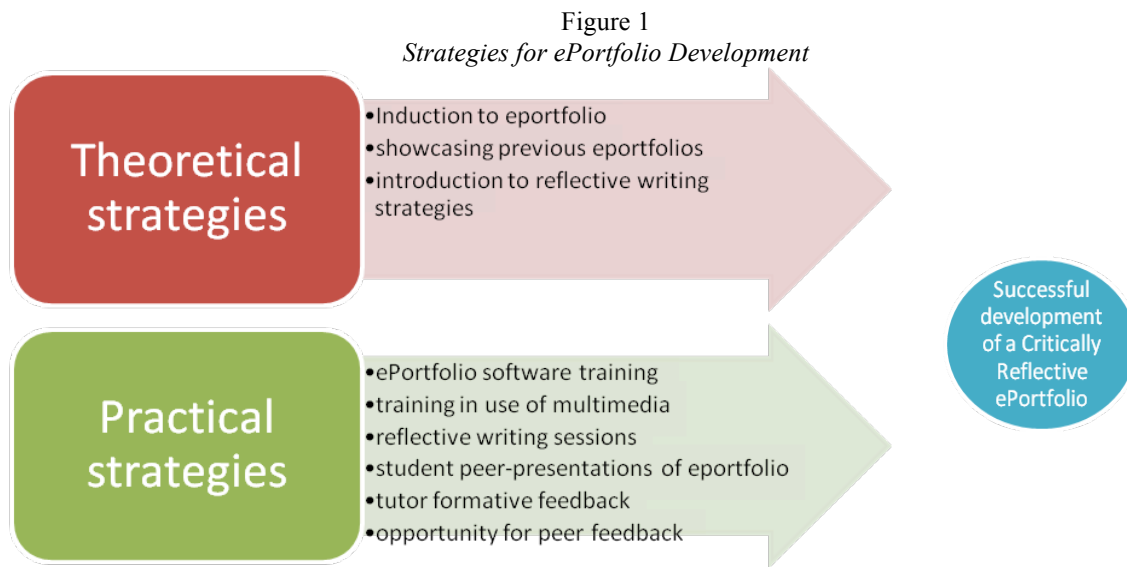
information relating to the aims of the research while being open to any data of interest emerging from the discussions. This also provided the opportunity for students to contribute to the research and thus help generate a rich understanding of their insight into ePortfolio development.

The student reflections were analyzed using a rubric developed for this study derived from Hatton and Smith's (1995) framework, in which distinct types of reflection, each with a defining set of characteristics, are set out. These distinctions—descriptive, dialogic, and critical reflection—present indicators from which gradual development can be measured as the learner grows and becomes more aware of the process of reflection. Hatton and Smith (1995) differentiate descriptive writing from descriptive reflection and descriptive reflection from critical reflection. Similarly, Moon (2004) provides various reflective accounts that demonstrate movement from descriptive writing to critical reflective writing.

Examination of the reflections looked for examples of critical reflection and of the critical reflector, "demonstrating an awareness that actions and events are not only located in, and explicable by, reference to multiple perspectives but are located in, and influenced by, multiple historical, and socio-political contexts" (Hatton & Smith, 1995, p. 18). Thus, it was hoped that through critical reflection, the student could demonstrate deeper understanding of the learning situation by questioning and challenging underlying assumptions (Yang, 2009).

Data from the FGD and interviews were analyzed for themes, seeking information on topics set out in the general aims of the study. The rubric was used to analyze students' reflections, looking for levels of

reflection evident in the student reflective commentaries. Lastly, the researcher's reflective notes were examined to cross-check notes and assumptions being made about emerging data.

The following section discusses the findings arising from the analysis and triangulation of data.

Results and Discussion

The Value of the ePortfolio

Within this study, we wanted to explore the value of ePortfolios for students' learning. Some students reported that the ePortfolio served to demonstrate their learning. One student called the ePortfolio "a record of my progress throughout the year" and described it as "a repository for my work," while another said that the ePortfolio acted as a "mirror" reflecting the student's learning. The students discussed how deadlines for continuous assessment and feedback motivated them to keep working. One student was satisfied that at the end of the academic year, she had a mature ePortfolio that she was able to use for career purposes. Another student described her ePortfolio as a revision aid for the academic year that enabled her to review the products of learning in her ePortfolio, which in turn motivated her to do more work towards completing her learning journey.

Overall, it seems that reflective writing was valued by some students: one says, for instance, that "doing the after class reflection. . . . I would be looking at how . . . what I am learning [is] impacting on the class I teach"; another remarks that

I've never written reflective pieces before, but can see their value, as it helps me to clarify my position

on things, or look at it from a different point of view; definitely a good thing, a good way to see progress.

The students were presented with the rubric criteria for analyzing reflection and confirmed that they believed they were reaching deeper levels of reflection in their writing. They spoke about how their reflections presented action plans and how they used the Gibbs (1988) cycle of reflection as a model to help them achieve critical reflection, thus enabling them to make action plans for their future learning. However, assessment and encouragement from the tutor seemed to be the motivating factor in getting the students to compose reflections. Students valued the opportunity that reflective writing exercises provided and suggested that in future, sample pieces of reflective writing be provided. The researcher also analyzed student reflective writing using the rubric, and while many reflections were descriptions of learning events, several pieces of writing contained critical analysis and showed evidence of evaluation and planning for future practice.

Challenges the Students Encountered in Developing their ePortfolios

The challenge of developing an ePortfolio was a recurring point of discussion amongst the students. They identified multifaceted challenges: understanding the purpose of the ePortfolio and understanding what was needed within the ePortfolio for assessment purposes; using technology for the ePortfolio; using multimedia to present information in diverse ways; and the time-consuming nature of the ePortfolio work. Overall, however, the students expressed that despite these challenges, the ePortfolio was a worthwhile endeavour; as one student commented: "It is a necessary evil! Times when I found it cumbersome, you just have to keep at it and you get better at it; I struggled with it at the beginning."

To preempt the challenges of ePortfolio development, support activities were provided for the students; they seemed satisfied with the ePortfolio induction, technical support for the ePortfolio platform, reflective writing prompts, scaffolding, and tutor feedback that they were given. However, what arose most prominently from the discussion group and interview data was the emphasis placed on support from their peer students. Learning by example from others and seeing other students' use of technology in the ePortfolio gave students an incentive to try out new things in their own ePortfolios. They claimed that opportunities provided for online peer feedback and in-class student presentations were valuable for learning from one another and for advancing their own ePortfolios. One student said of the in-class presentation:

After a module where we had a lot of stuff to show in the ePortfolio, it was good to see how others had used the ePortfolio at that time; it was a halfway stage to get good ideas to try out for the rest of the year.

Evidence from the data confirmed that students were helping each other, problem solving their ePortfolio issues together and becoming a community of practice (Wenger, 1998).

ePortfolio Fostering Creativity

Barrett and Donnelly (2008) note that pedagogical strategies are needed to arouse the imagination and engage students and that assessment needs to be constructively aligned (Biggs & Tang, 2011) with learning outcomes that encourage creativity and reflection. Therefore, advance planning and development of appropriate activities that nurture creativity (Sternberg, 2006) by supporting collaboration, problem solving, and articulation of reflection (Gibson, 2010) were designed. As in Bolliger and Shepherd's (2010) study, activities such as student induction, peer and tutor feedback, and time for revision were devised to encourage deeper reflective practice, creativity, enhanced content development, feedback, and peer-participation.

We believe the ePortfolio is a tool that supports the creative nature of student learning, and as Diehm (2004) suggests, makes possible the representation of learning through multimedia. Cheng and Chau (2009) emphasize the potential that digital video can have for reflective practices embedded within the ePortfolios. Indeed, Bolliger and Shepherd (2010) believe that ePortfolios capture enhanced student reflection and learning through systematic storage and analysis of artifacts, thus creating an environment with authentic assessment practices. Certain activities to encourage the use of diverse technologies, such as video editing, screen casting, and podcasting were introduced to students at different points throughout the year.

Bolliger and Shepherd (2010) also report that the experience of sharing and reviewing ePortfolio entries among students resulted in additional revisions and higher quality documents. Following Craft's (2010) view that participation is a characteristic of creativity, activities were planned to develop peer-to-peer student feedback, encouraging a sense of a learning community. The ePortfolio provides suitable e-tools for supporting diverse forms of feedback, and both tutors and students were scheduled to provide feedback to

students, thus enhancing and strengthening their learning.

Students were asked if they thought that they were being creative with respect to the four characteristics used from Craft (2010), as depicted in Figure 2.

The students were able to connect their use of multimedia with the characteristic of plurality and their use of new technologies with play; they could also show convincingly that they had participated with others. Overall, however, most of the students seemed not to think of their work for the ePortfolio as creative: "I think for the ePortfolio I particularly found it hard to be creative. . . . I don't know if there is any way of inducing creativity." Further, as the student remarked, "I need to be more creative, I haven't been creative."
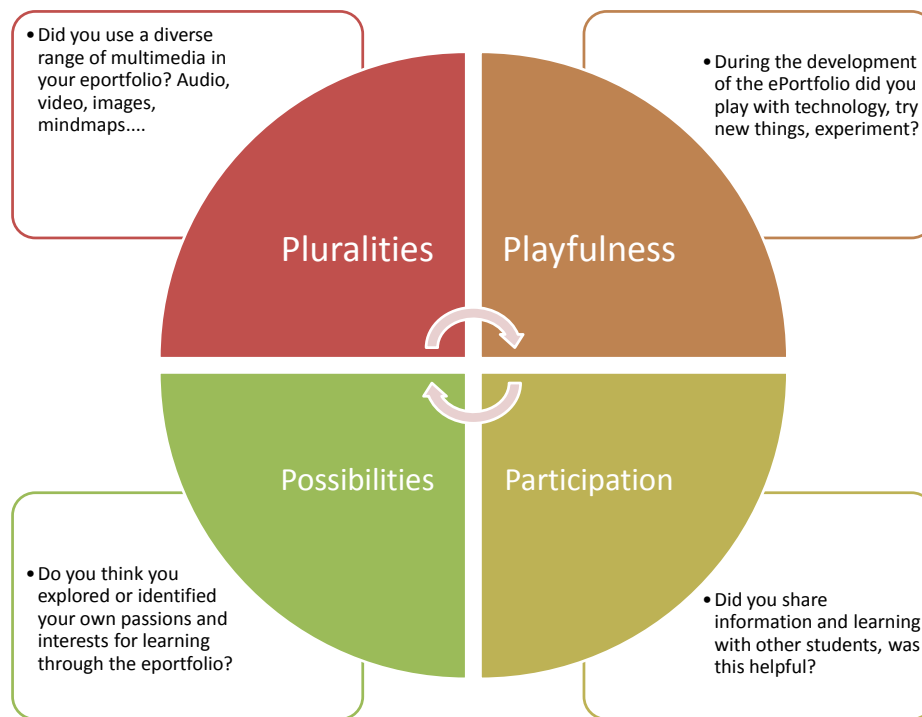
However, when the data from the FGD and interviews were cross-checked with student ePortfolio reflections and researcher reflective notes, it was clear that students had demonstrated evidence of problem solving with peers when using technology for their ePortfolio. Problem solving, according to Jackson (2006), is an integral aspect of creativity; however, the students' understanding of creativity seemed related solely to the visual display of artifacts, use of diverse multimedia, and layout of the ePortfolio. The term *creativity* seemed to conjure up negative beliefs about their own work; many of the students did not think that they were "being creative." Perhaps the students disparaged their own work because they had not yet formed a personal understanding of what creativity is. This is an important finding, and in the future, a critical exploration of creativity will be conducted with the students.

Suggestions for Future Changes for ePortfolio Support

Recommendations from the study suggested the need to support future students in developing their ePortfolios. Suggestions included having more multimedia and technology workshops, such as "How to do a Wordle, do a podcast, some IT training sessions, how to do a few small practical things"; providing exemplary ePortfolios; and offering greater support for reflective writing. Some students also said that more recognition should be given to the time consumed by the ePortfolio as part of the overall workload in the program. This comment has led the program team to consider increasing the number of credits allotted to the ePortfolio module.

Figure 2
Characteristics of Creativity in ePortfolio Development

• Did you use a diverse range of multimedia in your eportfolio? Audio, video, images, mindmaps....

• During the development of the ePortfolio did you play with technology, try new things, experiment?

Pluralities

Playfulness

Possibilities

Participation

• Do you think you explored or identified your own passions and interests for learning through the eportfolio?

• Did you share information and learning with other students, was this helpful?

Note. From Craft (2010)

Conclusion

This study considered whether the ePortfolio added value to student learning in the context of the contemporary challenges facing professional learners in higher education. While overall, the students and researcher data indicate that the ePortfolio as a tool facilitates continuous growth and learning in students, some other interesting recommendations have been made. The continuing development and transformation of suitable support activities for students developing ePortfolios will be paramount. Facilitating peer support between students will be continued and encouraged in order to nurture a community of ePortfolio students who can solve problems or issues associated with the ePortfolio together. This could be facilitated in both face-to-face and online situations. Support activities for reflective writing are needed and will be provided at various times throughout the academic year. Creativity, furthermore, is a concept that is not well understood by the students. Supports that nurture understanding of creativity and "how to be creative" will be developed for future students.

The Hunt (2011) report recommends that Irish higher education foster practices that nurture critical thinking and creativity. Craft (2010) states that by fostering creativity we enable students to challenge beliefs about learning and discover alternative modes of problem solving and knowledge creation. She also mentions, however, challenges to the effective implementation of creativity in education, including the ways in which the curriculum itself can stifle creativity. The lack of a clear definition of creativity (Batey, 2012) may also hamper the measurement of creativity within student work; it is hoped, however, that students will develop creatively by utilizing the framework of creativity used within this program, which has been influenced by Craft's (2010) definitions of the characteristics of creativity. Finally, while advocating the importance of creating an environment to support creativity, it is important to reflect on and evaluate continuously the activities that can best nurture and support a critically reflective and questioning student cohort.

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