Developing critical thinking through eportfolio based learning: an exploration of the experiences of online distance learners

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Biographical Notes:

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Dr. Aidan Seery is assistant professor of education at Trinity College Dublin. His principal field of interest is in the philosophy of education with particular regard to the connection between education and self-formation and the nature and status of knowledge in educational research. A second focus of interest is the area of the ethics of teaching and learning. Aidan belongs to the Cultures, Academic Values and Education research centre in the School of Education which has developed a collaborative research agenda in the field of higher education for the coming years.

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This case study explored the nature of the learning experience with an eportfolio and whether it enhanced the development of critical thinking among online distance learners. Data were generated using the participant eportfolio entries and two-time semi-structured interviews. Five themes were constructed in the data led thematic analysis: being an online distance learner, the experience of learning with an eportfolio, my approach to learning, thinking critically in my eportfolio, the sociology discipline context. Findings indicate that learning with an eportfolio can enhance the nature of the learning experience by providing learners with a personal space to evaluate their own learning, to process their thoughts and experiences, and to document their lives and learning in an authentic and meaningful way. The findings suggest that learning with an eportfolio can enhance the development of critical thinking skills and dispositions within a disciplinary context.

Keywords: eportfolio; critical thinking; online distance learning; online distance learners; student voice

Introduction

This study explored the nature of the learning experience with an eportfolio and whether it enhanced the development of critical thinking in online distance learners. A

case study approach was adopted, following twenty-four online distance learners over the course of one academic year studying an intermediate sociology module as part of their humanities degree at DCU Connected, Dublin City University (DCU). The study focuses on the case of the learner experience of eportfolio based learning and the process of developing critical thinking.

The study set out to explore whether eportfolio practice might enable students to develop critical thinking skills and enhance their learning experiences in higher education. This research topic is important because developing university students who can think critically and learn in a self-aware, authentic and meaningful way is widely recognised as the goal of higher education. In fact, the Irish National Strategy for Higher Education to 2030 describes critical thinking as one of the key characteristics of future graduates (Department of Education & Skills, 2011).

Although critical thinking has been perceived one of the key outcomes of higher education, this outcome is often unfulfilled with university students graduating with underdeveloped critical thinking skills (Ennis, 2016; Willingham, 2007; Facione, 1990; Dunne, 2015). A recent survey of Irish employers found that graduates lacked analytical skills (Grad Ireland, 2015). One approach to fostering critical thinking skills may be through new modes of learning and assessment like eportfolio based learning. There is growing evidence of the impact of eportfolio practice on student learning, research suggests that eportfolio based assessment enables students to integrate their learning and make connections between modules in an authentic and meaningful way (Buente et. al., 2015; Eynon & Gambino, 2017; Morreale et. al. 2017). Further, the literature indicates

that learning with an eportfolio can foster a sense of belonging to a community and collaboration with peers (Barbera, 2009; Bolliger & Shepherd, 2010) In addition, research indicates that eportfolios can enable students to learn in a self-regulated way (Alexiou et al., 2010; Jenson, 2011; Nguyen, 2015).

However, according to Bryant & Chittum (2013) an increased focus on empirical research on eportfolio practice is needed to create further evidence for eportfolio adoption which is becoming widespread in higher education. Therefore, this research topic is important because very little is known about the impact of eportfolio practice on critical thinking development, there have been no empirical studies to date.

Literature review

Critical thinking

The prevailing conception of critical thinking in Irish, British and European policy is as part of a set of generic skills essential for higher education students to attain, this conceptualisation of critical thinking originates from the Bologna process (McMahon, 2014; Pithers & Soden, 2000). The Bologna process introduced the learning outcome approach to programme design and is linked to the emergence of a generic skills approach in Irish higher education, as evidenced by the National Strategy for Higher Education to 2030 report (Department of Education & Skills, 2011). In this report, critical thinking was described as one of the key characteristics of future graduates, a part of a set of future skills that "increased attention must be paid to core skills such as quantitative reasoning, critical thinking, communication skills, team-working skills and the effective use of information technology" (Department of Education & Skills, 2011, p.35).

In response to the apparent deficit in critical thinking skills in higher education discussed above, a number of approaches emerged to develop critical thinking skills such as critical thinking courses and generic skills programmes (Gilbert, Balatti, Turner, Whitehouse, 2004). Recent research supports the contention that critical thinking instruction can improve students' critical thinking skills (Abrami et. al., 2015; Niu et. al. 2013). However, Willingham (2007) contends that critical programmes take a lot of time and effort for modest benefits and those which are generic are not very effective because as the research indicates that such programmes "primarily improve students' thinking with the sort of problems they practiced in the program-not with other types of problems" (p.12). Willingham's (2007) point is supported by research conducted by Abrami et. al. (2015) in a meta-analysis of 341 empirical studies on the impact of instruction on the development and enhancement of critical thinking skills and dispositions. They found that students critical thinking improved after instruction and that a generic critical thinking approach cohort had a 11.79% improvement, while the content specific cohort experienced a 21.57% improvement in their critical thinking skills (Abrami et al. 2015, p. 298). It is significant that the discipline specific cohort demonstrated much greater improvements in critical thinking over the generic one, which further supports the argument that critical thinking should be taught and learned within the subject discipline.

In relation to the question of what teaching approaches support the development of critical thinking, Abrami et al. (2015) identified three teaching strategies which promoted the development of critical thinking; firstly, discussion based classes and

secondly exposing students to real problems and examples and thirdly, mentorship. Additional successful strategies for teaching critical thinking include: reflective blog writing (Bowen et al., 2010) problem solving online discussion forums (Jacob, 2012) and reflective writing (Naber & Wyatt, 2014). One notable absence from the list is eportfolio, which the present study is investigating. There is a clear gap in the literature on the relationship between critical thinking and eportfolio.

Eportfolios

Eportfolios are common in American higher education, with 57% of colleges using eportfolio (Eynon & Gambino, 2017). Similarly, in the UK, a survey carried out in 2014 highlighted that 78% of universities now have a centrally supported e-portfolio tool (UCISA, 2014). However, in Ireland, there has been a relatively slow pace of adoption of eportfolio. A recent report carried out by the Irish National Forum for the Enhancement of Teaching and Learning found that less than 10% of Irish higher education students were engaged in portfolio based assessment (National Forum, 2016). Eportfolio can take many forms, depending on the purpose, the programme, the disciplinary context, and the desired learning outcomes.

There is a developmental aspect to all portfolio based learning, in fact, it is a fundamental principle that evidence, reflections and artefacts are compiled incrementally over time. There are strong theoretical arguments of the benefits of eportfolio which focus on the process of learning. Zubizarreta (2009) argues that portfolios should focus on learning rather than skills, in particular on giving students opportunities with a learning portfolio to self-reflect on what, how and learning tool place and to consider why the learning was valuable. This focus on the learning process

and metacognition can develop reflective judgement and higher order learning (Zubizarreta, 2009). Further, Kehoe & Goudzwaard (2015) theorize that developmental eportfolio can aid students' identity development and encourage self-authorship by documenting their experiences in academic and co-curricular contexts.

Critical thinking and Eportfolios

From a theoretical perspective, early pioneers in eportfolio research Abrami & Barrett (2005, p.4) argued that eportfolio could encourage students to "think critically, and become active, independent and self-regulated learners". This theory was further evolved by Zubizarreta (2009, p.xx) who argued that "the intrinsic merit of learning portfolio is that involving students in the power of reflection, the critically challenging act of thinking about their learning and constructing a sense of the learning experience as a coherent, unified, developmental process". Further, Penny Light et al. (2012, p.7) strongly argue "documenting learning is perhaps one of the most important ways for learners to develop their critical thinking skills". Thus, there would seem to be strong theoretical links between process or developmental portfolios and critical thinking in the literature.

There are empirical studies which examine the impact of eportfolio practice on elements of critical thinking such as self-regulation and metacognition such as Nguyen & Ikeda (2015) found that the eportfolio practice had a positive effect on students' self-regulated learning skills, specifically goal orientation, metacognitive and effort self-regulation and critical thinking improved after applying the eportfolio based learning module in the course. Further, Alexiou et. al.'s (2010, p.3053) mixed method study explored the potential of eportfolio to support self-regulated learning among undergraduate computer

science students, found "higher levels of motivational and affective factors across all phases of self-regulated learning and eportfolio implementation." However, there are no empirical studies which have investigated the impact of eportfolio practice on critical thinking skill development, therefore, there are clear and significant gaps in literature in relation to critical thinking and eportfolios.

Theoretical Framework

The case study is bounded by a theoretical framework of learning portfolio practice which draws on the eportfolio and critical thinking literature. The conception of eportfolio in this case study brings together three distinct theoretical approaches to eportfolio practice; Zubizarreta's (2009) learning portfolio, Chen & Black's (2012) folio thinking and Eynon & Gambino's (2017) Catalyst framework for high impact eportfolio practice. Zubizarreta's model brings together the conceptual relationship between eportfolio and critical thinking. Of particular relevance, are the elements of Zubizarreta's learning portfolio model that emphasise critical thinking and developmental process, "the intrinsic merit of learning portfolio is that involving students in the power of reflection, the critically challenging act of thinking about their learning and constructing a sense of the learning experience as a coherent, unified, developmental process" (Zubizarreta, 2009, p.xx). The focus on eportfolio practice and pedagogy rather than technology is a fundamental principle to the understanding of this study (Chen & Black, 2012; Eynon & Gambino, 2017).

The conceptualisation of critical thinking in this study integrates with theoretical model of learning portfolio practice outlined above. Critical thinking is an integral element to effective student learning within the eportfolio practice context. This study places itself

firmly in the normative tradition of critical thinking which centres on values, quality of thinking and formulation of evaluative judgement. Critical thinking in this study is conceptualised as "a judgement process. Its goal is to decide what to believe and/or what to do in relation to the available evidence, using appropriate conceptualizations and methods and evaluated by the appropriate criteria" (Facione & Facione, 2008). It is encompassed by the skills of interpretation, analysis, evaluation, inference, explanation and self-regulation and the dispositions of being systematic, judicious, truth seeking, confident in reason, open-minded and analytical. Critical thinking is strongly rooted within the discipline context (Abrami et al. 2015).

To summarize, the model of learning portfolio practice for this case study is that the process of learning portfolio practice can be transformative, personal and empowering for learners. Effective eportfolio practice can stimulate critical thinking, integrate learning, provide space for learners to experiment and apply theory and reflect on their learning journey. The process of learning with an eportfolio can be meaningful, authentic and promotes deep learning (See figure 1).
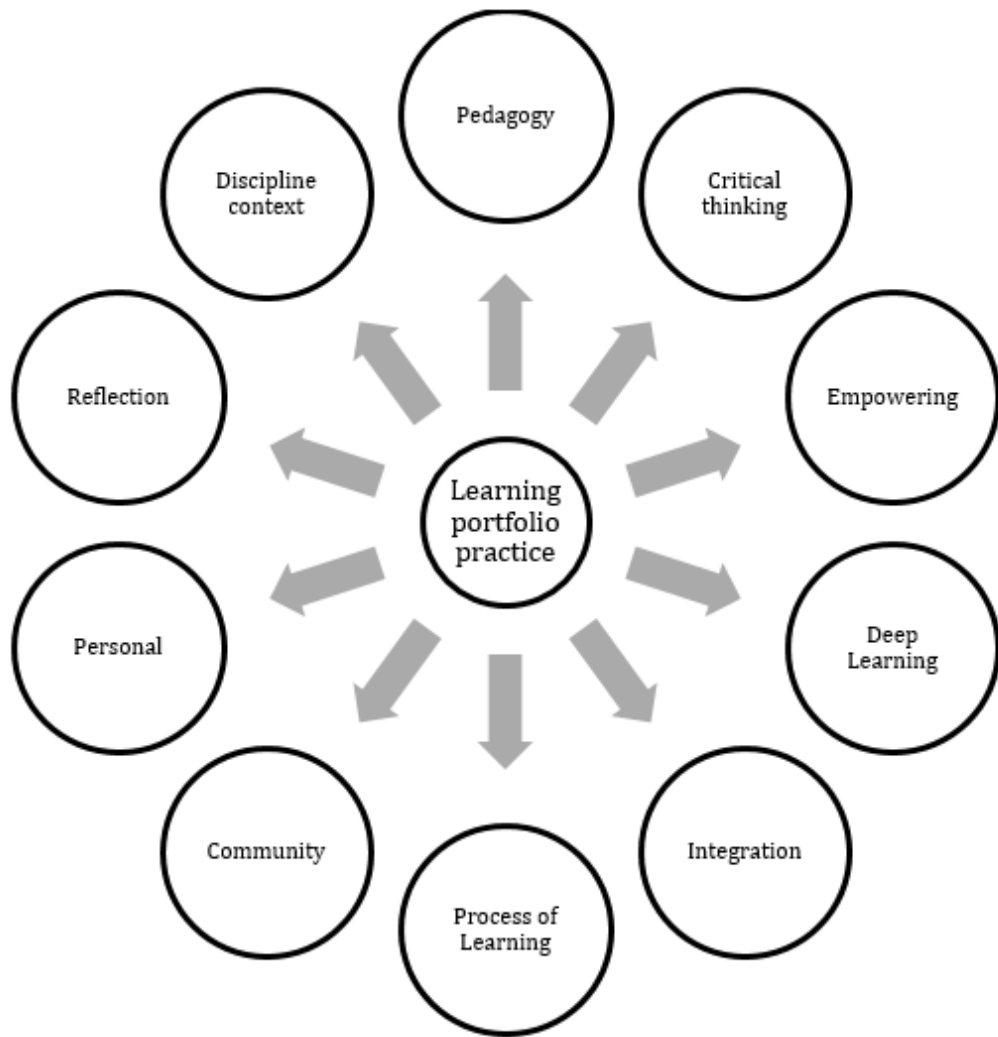
Figure 1. Learning portfolio practice model

Methodology

The study adopted a qualitative case study approach and focuses on the case of the learner experience of using an eportfolio and the process of developing critical thinking. The study's primary aim and research question was: *Can eportfolio enhance the nature of the learning experience and the development of critical thinking among online distance learners?*

Setting

The context for this research is DCU Connected at Dublin City University (DCU) Ireland, founded in 1982, with the aim of providing undergraduate and postgraduate degrees to Irish adult learners through the mode of distance learning. In 2006, the process began evolving from a distance learning mode to blended online delivery. In 2011, the mode of delivery further evolved from distance to online by introducing some synchronous live online tutorials and by delivering the course content electronically (Delaney & Brown, 2018). At the time of data generation in 2016/17, the mode of delivery could be described as an online distance learning course where the majority of the learning is online, the students are based off campus but may engage in a small number of face to face classes.

This case study relates to the undergraduate humanities programmes offered by DCU Connected which includes two degrees: The Bachelor of Arts (Hons) in Humanities and the Bachelor of Arts (Hons) in Humanities (Psychology Major), which are part time modular degree programmes. The module setting for the study was an intermediate sociology module.

Participants

Twenty-four online distance students participated in the study. They were studying an intermediate sociology module as part of their humanities degree programmes in the academic year 2016-17. There were seven males and seventeen females in the cohort. The participants' age ranged from 21 to 63, with an average age of 39 years old. The number of years of study varied considerably, ranging from two to twelve years.

Data generation

In order to gain a rich, thick and personal accounts of the experience of using an eportfolio the following data generation methods were selected (Braun & Clarke, 2013). Data were generated using the participant eportfolio entries and two-time semi structured interviews. Two instruments which were an eportfolio data generation instrument and an interview schedule were developed.

The eportfolio data generation instrument or critical questions template was designed as a series of eight critical question prompts which guided participants eportfolio reflections (See figure 2). The eportfolio platform used for the study was the institutional platform called Loop Reflect, a customised Mahara instance. Participants completed five eportfolio entries over the course of one academic year at key points in their learning journey. Eportfolio entries followed a prescribed structured template of critical questions which was set by the eportfolio data generation instrument and intended to encourage reflection about that week's learning, and stimulus questions designed to encourage critical thinking about their learning.

| Eportfolio entry template |
| Date: |
| No. |
| **Critically Reflect** |
| Write a piece (500 words) which critically reflects on your recent work in Soc3A. |

Use these guiding questions to structure your response:
- What have you learned doing this module? *{explain}*
- Describe your learning process throughout this module and discuss the skills you are still developing. *{explain}*
- What challenges with the module have you faced so far? *{analysis}*
- What does your work on the module illustrate about you as a learner of Sociology? *{interpret}*
- How have you found the eportfolio process? *{analysis}{interpret}*
- What is it like working with an eportfolio? *{evaluate}*
- How does learning with an eportfolio compare to other modes of learning? *{evaluate}*
- What implications will your eportfolio experience have on your future approach to learning? *{inference}*

Evidence

Provide **3** pieces of evidence to support your reflection. Write a brief rationale (100 words) for their inclusion
Evidence might include:
- Photographs-relevant to the module
- Diagrams/infographics
- Audio/Video
- A section of work

What next...

What is the next step in your eportfolio?

Figure 2. The eportfolio data generation instrument

An interview schedule was created which contained twenty-six open-ended questions which were shaped by the research questions, the theoretical frameworks for critical thinking and learning portfolio practice. The interview schedule contained questions about demographics, studying sociology, learning with an eportfolio and critical thinking and the interviews ended with a "walkthrough" of the participants eportfolio. The interview data was collected in two phases: at the midpoint of the academic year in January 2017 and at the end of the academic year in April 2017. During the data generation process, thirty-eight semi-structured interviews were conducted. The twenty-

four participants were interviewed with their eportfolio, written, visual and physical artefacts from the participant's eportfolio were used as stimulus during the interviews (Prosser & Loxley, 2008).

Data analysis

Data analysis was an ongoing process throughout the project, following a circular model of generation and analysing data, as "coding is analysis" (Miles & Huberman, 1994). The data led analytical approach for the study was thematic analysis following the Braun & Clarke (2006) six phases of thematic analysis. The two sources of data for the project were the twenty-four participants eportfolio entries (5 each) and then the two sets of interview data which resulted in 20 interviews in the first cycle and 18 in the second cycle. The two data sets of eportfolio data and interview data were integrated during the analysis process. Five themes emerged from the data, detailed analysis of the themes was conducted in relation to the research questions and existing literature.

Findings

Five themes were constructed through the analytical process (See figure 3 below). The five themes were: being an online distance learner, the experience of learning with an eportfolio, my approach to learning, thinking critically in my eportfolio, the sociology discipline context.
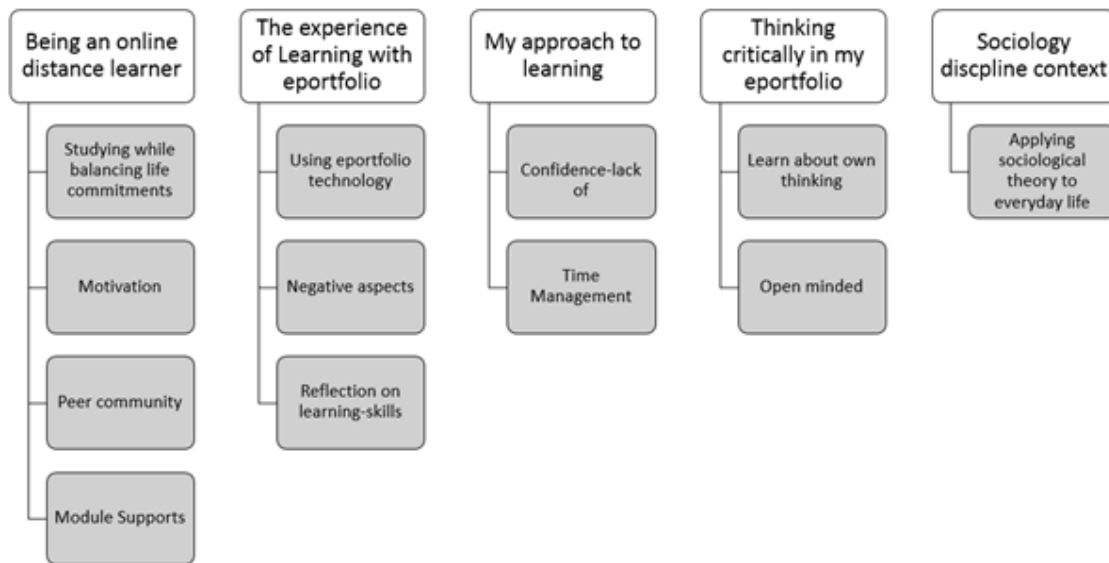
Figure 3. Thematic Map

The experience of learning with an eportfolio

This theme outlines the student perspective on learning with an eportfolio, or what it was like for online distance students to learn with an eportfolio. The nature of learning with an eportfolio was described as a deeply personal, informal, real, and flexible experience which differed from participants previous learning and assessment experiences.

The data revealed that learning with an eportfolio had positive impacts on online distance students learning. With regard to evaluating their progress, engagement with the module, reflecting on their process of learning and for developing self-awareness of their academic development.

> *"I: Do you ever look back on previous entries?*

P20: Yeah, absolutely…yeah yeah…I mean I can see the value of it in terms of forcing you to actually take a stop at a certain point in time, do you know what I mean and I've actually thought about it now, since I got the appointment with yourself, em I was thinking eh do the eportfolio once a month is not really good enough' and I was thinking 'well you're not going to be doing it once a week

I: Yeah it's too much

P20: Too much, you know yeah, so it's probably…

I: About right yeah yeah well I was trying to aim for about once a month for the academic year…It was kind of my general plan

P20: Yeah, but at least force us to do that and then it generate few questions in our mind with regards to 'What am I doing' and 'what's the process'…" (P20, interview 1)

Two participants out of the twenty-four in the cohort consistently articulated negative aspects of the experience of learning with an eportfolio. The other twenty-two participants less frequently commented on the negative aspects. The negative aspects reported by the cohort as whole in their narratives on learning with an eportfolio, were noticeably different to those described by participants 6 and 22. The cohort narratives focused on two negative aspects: that eportfolio learning was time consuming and that reflection was challenging to do.

"I have still not found this portfolio as functional as I probably should. It seems a bit droning and repetitive as I don't see how my learning patterns and processes could change so much in a space of a month or two. I have read over

my past couple entries and I don't find myself amazed or inspired by what I've

previously said and thought, so I don't feel that I'm being influenced at all by

the learning portfolio other than struggling to manage my time to write it." (P6,

eportfolio entry 3)

The experience of learning with an eportfolio was perceived as very different from other modes of assessment in terms of being personal, informal and having more freedom to express themselves.

"It is a great aide in my learning because it gives me a platform to express my

thoughts and processes of my experiences. Normally coursework is so structured

and formal; instead a learning portfolio is personal and I like that." (P16,

eportfolio entry 2)

The eportfolio experience reflected that learning is a retrospective process, participants were thinking back on their learning and looking forward setting new goals. This retrospective element of learning with an eportfolio, was key to the learners' development over time. By looking back at previous eportfolio entries, participants were made aware of their progress as a student, and how they had changed in attitudes, and approaches, over the course of the academic year.

"It felt quite strange to begin to piece together all my different reflections. I

found myself reading through them from the first to the last and just noticing

how my thoughts and opinions have changed since the beginning of this year.

Truthfully I was quite indifferent to sociology last year, there were certain

things that interested me but my main focus was on my major which is

psychology. This year however I've found I'm looking at things slightly

differently. I find that unbeknownst to myself I'm thinking with a more

sociological imagination. "(P13, eportfolio entry 5)

Being an online distance learner

This theme encapsulates the challenges of being an online distance learner in terms of balancing competing demands. Juggling these competing demands and finding sufficient time to study, and write assignments, put participants under severe pressure.

> *"For the first time since taking up third level education again, I found it very difficult to juggle my work demands, assignment demands and minor ill health. However, the first three assignments were all due in November rather than December this year and the first sociology assignment, as well as the first psychology assignments, coincided with annual parent teacher meetings. As a primary school teacher, my job is my priority and I had prepared for the clash of assignment and meeting dates. What I couldn't prepare for was getting sick at the same time. It is fair to say that I felt very overwhelmed with everything happening all at once." (P7, eportfolio entry 2)*

The experience of being an online distance learner was described as being more isolated than a campus based context. However, participants emphasized how the role of peer support, the tutor, tutorials, and online discussion fora enabled them to overcome this sense of isolation. The benefits of discussing the module theory, and content with their peers and hearing other perspectives, deepened understanding and enhanced their learning. These discussions took place in a variety of contexts, on the phone, in online discussion fora, on WhatsApp, in face to face and online tutorials.

"I feel I am fortunate enough to be in a group with classmates that encourage and engage in debates around various topics in sociology, whether it be in class, between breaks or through the online forum." (P12 eportfolio entry 1)

My approach to learning

Personal approaches to planning, learning, study skills and doing assignment were detailed by participants in their eportfolios, with regard to their development as learners. As the majority of their study was self-directed, participants had to develop individual techniques to aid their understanding of the sociological content, theory, and concepts. These techniques were varied, and innovative, and were heavily orientated towards online resources such as YouTube videos, online lectures, podcasts, glossaries, online articles, and watching recordings of previous online tutorials.

"I find if I cannot grasp a piece of information through one format, i.e. reading a text, sometimes watching a YouTube video regarding the topic can really help me comprehend the material better." (P2, eportfolio entry 3)

Reflecting on their learning in their eportfolios prompted participants to identify academic challenges, and try new study techniques, which allowed them to grow in confidence about their personal approaches to learning. By proactively addressing and overcoming their perceived academic weaknesses, some participants gained confidence in their academic abilities and felt well prepared for future study.

I: And do you feel more ready for next year?

P13: Totally. I mean, I think if you had asked at the start of the year how I would feel about third year I was just very overwhelmed, I was finding it so daunting and I feel like it is going to be fine, I really do. I feel like it is just going to be the same as this year with different assignment titles.

I: So, your confidence has grown?

P13: Oh, without a shadow of a doubt, yeah. I feel like I know how to study now, I know how to reference, I am organised, I have my diary for doing my timelines, I feel very ready.

I: That is great, so a big jump.

P13: Yeah. Big, big jump but I mean, I feel like it is progressing very well. (P13, interview 2)

This proactivity was stimulated by the process of reflection, planning and self-assessment as part of learning with an eportfolio.

Thinking critically in my eportfolio

 The eportfolio provided a place for learners to think deeply and critically about themselves and their learning in relation to the sociology module content. Students reported that studying the sociology module and learning with the eportfolio encouraged them to question the world around them, to question sources, to argue against the current, to develop a critical eye.

> *"Finally, I am enjoying this form of learning with loop reflect eportfolio, it allows me to delve more deeply into these concepts by putting my thoughts in*

writing and to ask questions. I think it will be a useful tool in my study this

year!" (P23. eportfolio entry 1)

Both the module content and learning with an eportfolio had an impact on the

development of students' critical thinking skills. Participants documented their personal

thinking processes in their narratives, and described how they thought, and reflected, on

their learning during their daily lives.

"I do most of my thinking a day or two after I have read something. I find

walking my dogs in the mornings has been a great time to think of the reading

that I've done, or a lecture I have listened to.   I find it is in the quiet that I can

hear my inner voice, which allows me to unravel the facts that I have taken in."

(P24, eportfolio entry 1)

This means that writing reflectively in their eportfolio encouraged the critical thinking

skill of self-regulation in some participants, by documenting their thinking processes.

Learning with an eportfolio prompted participants to assess their strengths and

weaknesses, and to identify and record problems they were having, and to make

proactive plans to resolve these problems.

"One implication I think the learning portfolio will have on my future approach

to learning is that, as stated earlier, as I have discovered that I find it difficult to

confidently put my thoughts to paper for assignments, I have decided to discuss

module or assignment topics with people I know or fellow students after I take

notes on the module text or attempt an assignment as I feel it is an effective way

for me to express my knowledge on a subject and solidify my thoughts about it. I

think that if I could write down a few notes after these conversations will be

beneficial for my confidence in academic writing." (P2, eportfolio entry 2)

The eportfolio prompted participants to self-examine, and self-correct issues identified through the process of reflecting on their learning. This is evident in participant 2's narrative above, as they identified a difficulty with writing, and then formulated a strategy to correct the problem.

The Sociology discipline context

The discipline context of sociology was an important element to the learner experience of learning with an eportfolio. The sociological theory and content of the module shaped and framed the entire learning experience. The process of understanding the theory and content and applying sociological concepts to everyday life was enabled by learning with the eportfolio.

By applying the sociological theory to everyday examples in their eportfolio, participants demonstrated their understanding of the theory. It enhanced and deepened their learning of sociology by turning theory into practice. This application of theory is evidence of higher order thinking in participants.

"In exploring my study of negative power, conflict theory and feminist sociology

and in an attempt to further understand the concepts, I sought an example in

society that would demonstrate all. I believe I found it in the form of the Russian

feminist lesbian/gay rights group called Pussy Riot. I believe what they did was

a form of negative power, even though they ultimately did not change anything

for women or lesbian/gays in their home country. Pussy Riot made a stand in

their resistance to Russian President Vladimir Putin's discriminatory practices

against women and lesbian/gay community. They held protests throughout

Russia and ultimately went to prison for the views but garnered international

support and attention. "(P23, eportfolio entry 1)

The eportfolio provided participants with a place to experiment with new ideas, to apply the sociological theory learned in the module to everyday life, and to develop their sociological imaginations.

"This has been the greatest of all learning for me, and I have discovered that we

are all in fact products of a learned value system, in which we have been taught

to think what we believe as opposed to thinking freely. We are raised with others

beliefs and values systems, and while this is not a bad thing, it can prevent us

from developing an individual understanding of the world and the society that

we live in. I feel I have now developed my Sociological Imagination and that I

fully understand what this means now." (P11, eportfolio entry 5)

Discussion

From a developmental perspective, the findings indicate that learning with an eportfolio, enhanced online distance students' learning experiences by enabling them to develop self-awareness, by evaluating their own approaches to learning through the

medium of reflective writing. This meant that participants experienced an evolution in understanding of how they learned. It highlighted to them the value of assessing their study habits while allowing them time and space to think about what they were thinking, and learning in the sociology module. These findings are generally compatible with previous research, which evidenced that students perceived that learning with an eportfolio made them more aware of their growth, and development as a learner, and that by recording their experiences in an eportfolio it made their development visible to themselves (Eynon & Gambino, 2017; Kabilan & Khan, 2012; Wakimoto & Lewis, 2014). Further, the benefit of the evaluation and identification of strengths, and weaknesses, by students whilst learning with an eportfolio, is supported by the study carried out by Kabilan et. al. (2012).

The temporal aspect of learning with an eportfolio had a significant impact on the student learning experience. While it seems somewhat contradictory to be simultaneously looking back and forward in the same learning activity, this temporal aspect was a key element in the students' learning process. The retrospective act of reflecting back on their learning was beneficial for assessing progress, and revising sociological content, and the future focused element encouraged students to plan for study. There is very little existing research on the temporal nature of eportfolio based learning with the exception of one theory by Ayan & Seferoglu (2011, p.520) who conceptualised that "eportfolio act as a bridge between the past and the future" This study's finding with regard to the temporal aspect of eportfolio based learning, supports Ayan et. al.'s (2011) theory, but contends that this temporal element is more than a bridge between the past and future, that in fact the temporal aspect is one of the key drivers of effective eportfolio based learning.

The learning experiences of online distance students as documented in their eportfolio, are largely consistent with the online distance learning literature on student experiences. This study found that the most challenging aspect of being an online distance learner was studying while balancing work, family and caring responsibilities which is largely consistent with previous research which found that trying to fulfil multiple roles and juggle professional, family, social life, and study can cause online distance students to feel considerable stress (Brown et al., 2015; Zembylas et al., 2008).

The nature of the learning experience for online distance learners was enhanced by reflecting on their personal approaches to learning in their eportfolio. The online distance learners' eportfolios give a unique window into their learning approaches. These highly personal approaches to learning provide a detailed insight into online distance learners study techniques, when, where and how they learned. This is consistent with previous research carried out by Shepherd et. al. (2014) and Brandes & Boskic (2008) which found that the key benefit of learning with an eportfolio, was the developmental reflection on their learning processes that it enabled. This study found that participants documented the development of their highly personal approaches to studying in their eportfolio. While, this is consistent with previous research carried out by Eynon & Gambino (2017), Kabilan & Khan (2012) and Cheng & Chau (2013), one point of difference is that there are no studies which have examined online distance learners learning approaches, and study habits, using eportfolio.

The data revealed that for some participants learning with an eportfolio enabled them to develop the critical thinking skills of analysis, inference and self-regulation. This finding confirms Penny Light et al. (2012) and Eynon & Gambino's (2017) theories that

eportfolio based learning can develop students' critical thinking skills. Further, it is in keeping with previous research carried out by Nguyen & Ikeda (2015), Morales et al. (2016) Dominguez et al. (2014) who found that learning with an eportfolio, supported the development of self-regulation in higher education students. However, there are no previous empirical studies which have examined the relationship between critical thinking skills development, and eportfolio based learning. Therefore, this study makes an original contribution which demonstrated that learning with an eportfolio, supported the development of critical thinking skills and dispositions within the discipline context for online distance learners.

The discipline context of sociology and more specifically the module context framed the learning experience for online distance students. There are very few empirical studies which have investigated the relationship between the subject discipline and how the discipline shaped student learning with an eportfolio, and none that examine this within the discipline context of sociology. However, this finding is broadly in line with Turns et. al. (2012) study which examined eportfolio based learning in the context of engineering education and found that eportfolio in specific disciplines align with the characteristics of discipline.

Conclusion

The evidence from this study suggests that it would be beneficial to include developmental learning portfolios in online distance degree programmes. The findings of this study indicate the learning portfolios should be located within a discipline

context to encourage critical thinking development. Overall this study strengthens the idea of student ownership of their eportfolios. The evidence from this study indicates that the design of learning portfolio activities which prompt learners to look back and reflect on previous entries can enhance the learning experience. In addition, the findings suggest that learning with an eportfolio enabled participants to bring together their multiple identities. Finally, the findings of this study suggest that the design of learning portfolios which use of critical question prompts may stimulate the development of critical thinking skills. A key area of future research that would build upon this study, could investigate the relationship between discipline context, eportfolio based learning and the development of disciplinary critical thinking in different academic disciplines.

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