



Ollscoil Chathair  
Bhaile Átha Cliath  
Dublin City University

# THE LEARNING PORTFOLIO IN HIGHER EDUCATION

“A Game of Snakes and Ladders”



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## Centre for Assessment Research, Policy and Practice in Education

The Centre for Assessment Research, Policy and Practice in Education is a centre of assessment knowledge and expertise within DCU's Institute of Education, where new models of assessment that address 21st century learning and teaching challenges are developed, evaluated and disseminated locally, nationally and internationally. Its work spans all levels of the education system and across the professions.

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At DCU we are committed to contributing to this body of research and playing a lead role in the international learning portfolio community.



The digital society in which we live, learn and work has led to fundamental changes and, more than ever, universities need to develop critically reflective, life-long learners. This important synthesis of the literature shows that learning portfolios, when fully embedded and supported in the student learning experience, can play a key role in fostering life-long learning and nurture important attributes of civic engagement, global citizenship, enterprise, empathy, and leadership.

This is why at Dublin City University (DCU) more than 8,000 students regularly use our learning portfolio (Loop Reflect) to collect, reflect on and share their formal and informal learning achievements from both inside and outside of the classroom. In this respect, the learning portfolio is intended to help students achieve their learning outcomes and demonstrate their ability to meet DCU's Generation 21 Graduate Attribute aspirations, and support meaningful employment on graduation and a wider commitment to life-long and life-wide learning.

However, the literature described in this report also tells us that learning portfolio implementation can be extremely challenging.

As the sub-title of the report suggests, learning portfolios can be a little bit like a game of snakes and ladders. While DCU has learned from past experiences, it is good that the authors remind us of the importance of further research on the use of learning portfolios in higher education contexts. At DCU we are committed to contributing to this body of research and playing a lead role in the international learning portfolio community.

I welcome this report and the challenges it presents as we seek to harness the potential of new digital technology to unlock the talent of our students and develop work-ready, life-long learners for the knowledge society.

A handwritten signature in black ink, reading "Brian MacCraith". The signature is written in a cursive, flowing style.

Professor Brian MacCraith,  
**President,**  
**Dublin City University**

## ACKNOWLEDGEMENTS

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## EXECUTIVE SUMMARY

The 'learning portfolio' is often lauded as a powerful pedagogical tool and, consequently, is rapidly becoming a central feature of contemporary education. This report synthesizes and critically reviews the literature pertaining to its use in universities and higher education institutions specifically. In these contexts, learning portfolios are typically used with the dual intention of (i) encouraging critically self-reflective lifelong learning and (ii) gathering evidence of broad skills and competencies that may enhance future employment prospects.

Although the theory underlying the use of learning portfolios is promising, robust empirical evidence supporting their effectiveness remains sparse. A large proportion of the literature published on the topic has either been purely theoretical in nature, or has focused on the technological platforms used to support learning portfolio construction. Of the few studies reporting outcomes of learning portfolio use, the vast majority have done so solely in terms of self-reported attitudes and perceptions of stakeholders, as opposed to achievement data or demonstrable competencies. Moreover, almost all of these studies have been conducted over relatively short periods of time.

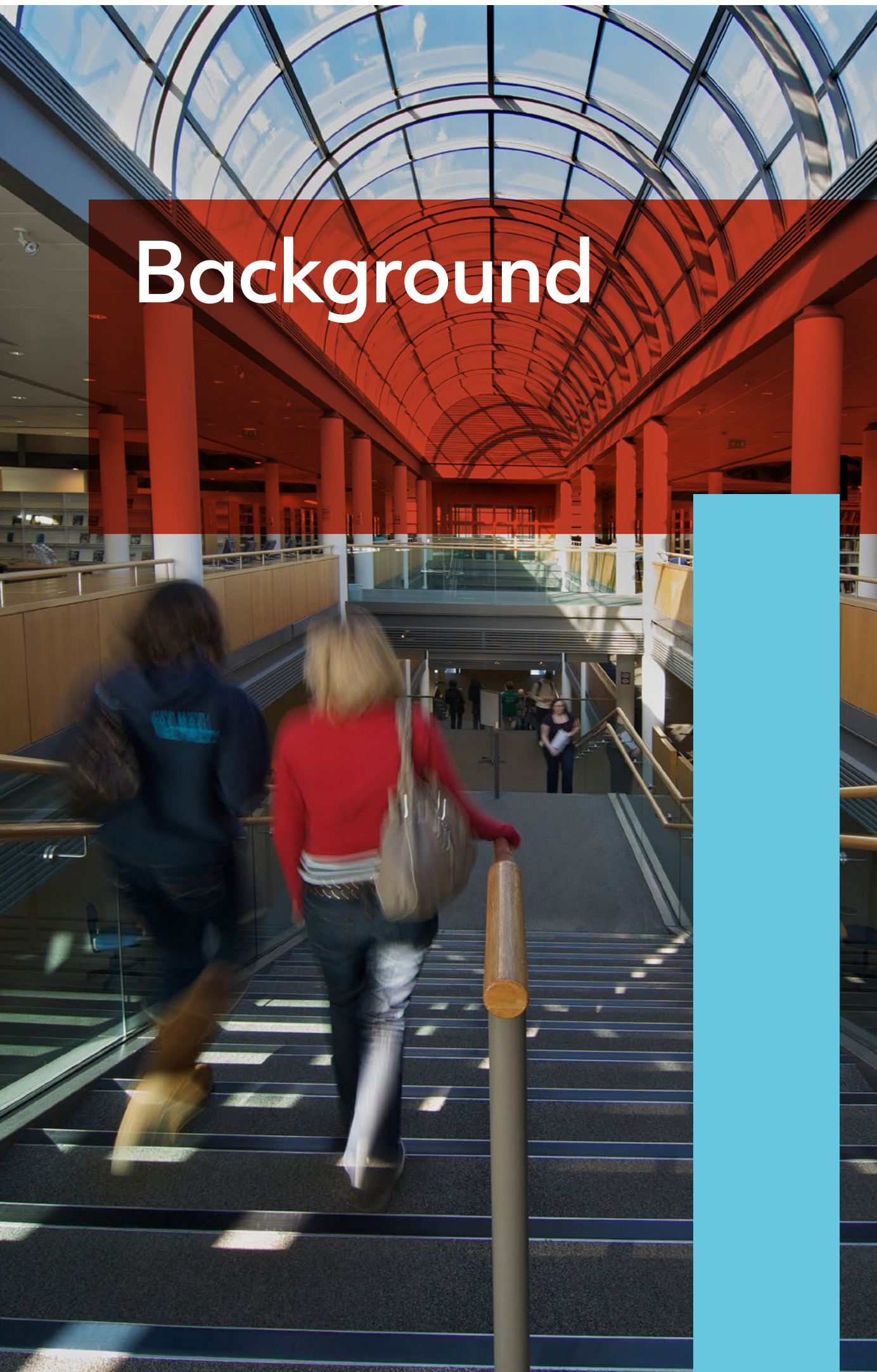
One clear message emerging from the extant literature is that simply requiring students to use learning portfolios will not necessarily foster the desired outcomes. The tool is rooted in a complex pedagogy, and its potential can only be realised if the processes underlying this pedagogy (e.g. reflection) are properly understood by advocates and executed by users. In addition, there is recurring tension between the developmental (process) and evaluative (product) conceptualizations of the learning portfolio, and this may be further aggravated by recent attempts to integrate digital badging within the tool.

Overall, a definitive understanding of how best to implement learning portfolios in higher education has not yet been reached. As such, current attempts to implement portfolios on a university-wide basis may be somewhat premature. Success and sustainability may be possible, but will require extensive planning and preparation, and a substantial commitment from all stakeholders involved. If this is not the case, the experience is in danger of becoming, as Joyes, Gray and Hartnell-Young (2010, p.493) described, "*like a game of snakes and ladders, where initial rapid progress can suffer major setbacks due to a poor understanding... of the threshold concepts.*"

Although the theory underlying the use of learning portfolios is promising, robust empirical evidence supporting their effectiveness remains sparse.



# Background





## PORTFOLIOS: A BRIEF OVERVIEW OF ORIGINS AND TERMINOLOGY

The use of portfolios was traditionally associated with the fine arts, as a means for individuals to showcase samples of their work, however, in recent years, they have come to be used as pedagogical and evaluative tools in a wide variety of disciplines, and across all levels of the education system (Bryant & Chittum, 2013; Jafari & Kaufmann, 2006; Lombardi, 2008; Struyven, Blicke & DeRoock, 2014). Various definitions for the term 'portfolio', as used in educational practice, have been offered in the literature; although the following, from Cooper and Love (2007), is particularly comprehensive:

*'a portfolio is an organized compilation that demonstrates knowledge, skills, values and/or achievements and that includes reflections or exegesis which articulate the relevance, credibility and meaning of the artefacts presented.'*

Examples of the types of artefacts that may be presented in a learner's portfolio include samples of their writing, photographs or videos documenting their accomplishments, and teachers' or mentors' evaluations of their performance in a given area. Initially, these compilations were physical in nature, but advances in technology have facilitated the emergence of electronic portfolios, or ePortfolios. There has been some debate as to whether an ePortfolio is essentially a paper-based portfolio, that "*just happens to be stored in an electronic container*" (Barrett, 2007, p.439), or whether it represents something conceptually separate. Undoubtedly, ePortfolios have several advantages over paper-based portfolios.

**the most important characteristic of any portfolio (physical or electronic, online or offline) is its primary purpose**

To begin with, they facilitate the use of richer and more diverse material. In addition, they can be made instantly accessible to a wide audience, they are not limited to a linear or hierarchical structure, they are easier to navigate and manipulate, and they demonstrate the technological skills of the creator alongside the other competencies (Butler, 2010). Finally, and perhaps of greatest

significance, ePortfolios allow learners to (i) share insights into the development of their artefacts as they evolve over time, thereby helping to illustrate the thinking process and enhancing the validity of any judgements made on the final version of the artefact and (ii) invite regular feedback from peers and teachers, which in turn can become a valuable artefact. Given all of these advantages, it is unsurprising that ePortfolios have become the norm, where resources allow.

ePortfolios have been referred to by a variety of terms, including, but not limited to: efolio, digital portfolio, web-based portfolio and online portfolio. These terms may distinguish whether content is stored on a web-based platform, or simply on an electronic device, however, focusing on these minor differences is unnecessary as the most important characteristic of any portfolio (physical or electronic, online or offline) is its primary purpose. The primary purpose of a portfolio may simply be to showcase examples of work and/or achievements. These 'showcase' portfolios most closely resemble the original portfolio prototype, and may be used to support employment applications. In academic settings, a portfolio may be prepared specifically for summative assessment or evaluation, with students receiving a grade based on the work submitted in their portfolio. Both showcase and assessment portfolios will usually only include finished, polished artefacts.

A third type of portfolio is the **learning portfolio**. Unlike showcase and assessment portfolios, learning portfolios may include drafts and 'unpolished' work, **with the focus broadened to include the process of compiling the portfolio, as well as the finished product.**

Reflective pieces, ongoing formative assessment and feedback are important elements of the learning process, and the overall goal is to facilitate and document learning and development over time (Klenowski, Askew & Carnell, 2006). Learning portfolios are also not limited to individuals – they may sometimes take the form of group portfolios that combine elements from several learners' artefacts. This literature synthesis focuses specifically on learning portfolios, and what is known about their potential and effective use in higher education.

## THEORETICAL FOUNDATIONS FOR THE USE OF LEARNING PORTFOLIOS



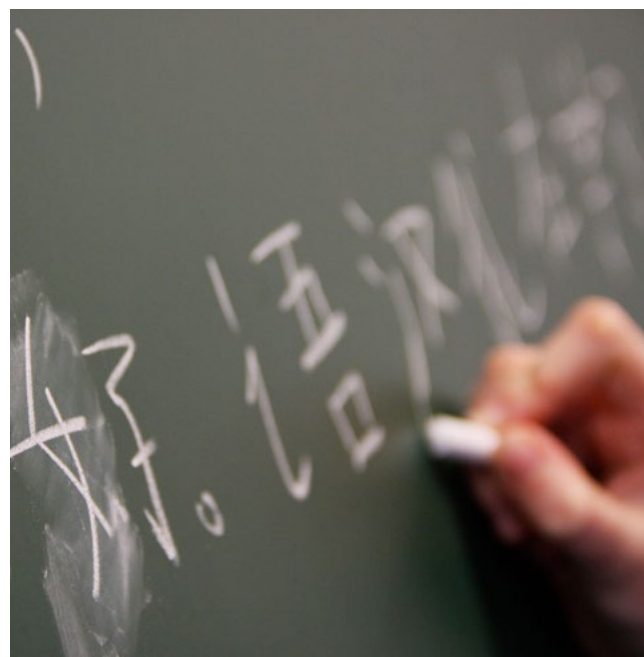
Theoretically, learning portfolios offer a host of benefits. The creator of the portfolio (either an individual or a group) typically has an active role in choosing the artefacts for inclusion. This, combined with the strong focus on reflection, is thought to shift the locus of responsibility from the teacher to the learner, with the latter becoming more engaged and active in their own learning.<sup>1</sup> In line with both social constructivist (e.g. Glasersfeld, 1989) and metacognitive (e.g. Flavell, 1979) theories of learning, this should foster a deeper level of processing, and a greater awareness of one's own cognition, including personal strengths and weaknesses. As such, learning portfolios are thought to support self-regulation, cognitive monitoring, and the development of a *lifelong learning* ethos as a habit of mind.

### learning portfolios are thought to support self-regulation, cognitive monitoring, and the development of a lifelong learning ethos as a habit of mind

In addition, it has been hypothesized that learning portfolios are suited to the development and assessment of integrated, cross-curricular knowledge and generic skills/ attributes (e.g. critical thinking, creativity, communication, emotional intelligence), as opposed to focusing solely on disciplinary knowledge in individual subject areas. This is of particular interest in higher education contexts, as universities and other parts of the sector face growing demands to bridge the perceived gap between what is learnt by students and what is valued by employers. Indeed, the need for “T-shaped professionals” - *i.e.* university graduates equipped not only with disciplinary specialization (represented by the vertical stroke of the T), but also with soft skills that allow them to operate effectively

across a broad range of contexts (represented by the horizontal bar of the T) – is increasingly emphasized in both the academic literature and in the mainstream media (e.g. Bitner & Brown, 2008; MacCraith, 2016; Oskam, 2009; Selingo, 2015; Uhlenbrook & deJong, 2012), and it has been suggested that learning portfolios may be particularly effective in addressing this need (Kunnari & Laurikainen, 2017).

To recap: learning portfolios are intended to **support, measure and document critically self-reflective lifelong learning**, and they are perceived to be a valuable pedagogical tool for higher education institutions seeking to **broaden learning experiences**, such that their graduates may ultimately embody a range of “**21st century skills**” and **competencies**. The findings of research investigating their effectiveness in achieving these complex goals will now be reviewed.



<sup>1</sup> This philosophy prompted our decision to adopt the term ‘learner’ as opposed to ‘student’ throughout the course of this review.

## EARLY RESEARCH ON LEARNING PORTFOLIOS

It is acknowledged that portfolio use in higher education dates back to the late 1980s/early 1990s in the field of pre-service teacher education (e.g. Shulman, 1992). However, despite the fact that their potential value as learning tools was emphasized by advocates from the offset, most initial research tended to focus on their use for assessment purposes (Klenowski et al., 2006). From the late '90s onwards, the focus on learning aspects heightened, due in large part to the influence of emerging literature on metacognition (e.g. Pintrich, 2002), and more generally, a move towards learner-centred pedagogies (e.g. Weimer, 2002). Furthermore, the volume of research in the area also began to steadily increase around this time (as evidenced by upward trends in the number of published journals on this topic listed in research databases) – reflecting both the gradual adoption of learning portfolios across additional disciplines on a more institution-wide basis, and the emergence of more sophisticated ePortfolio technology.



Abrami and Barrett (2005), then, acknowledged the substantial theoretical support for the use of learning portfolios, but lamented **the lack of empirical evidence of their impacts on learning outcomes**.

They suggested that this lack of evidence reflected the need for learning portfolios to be *“used correctly, widely, and for a reasonable period of time for effects to appear”* and called for future research on portfolio effectiveness to include *“measures of implementation fidelity”* (Abrami & Barrett, 2005, p.9). Lombardi (2008) noted that perceptions of portfolios have been primarily positive, but identified some challenges associated with their use, such as learners' resistance to the relatively heavy workload and difficulties understanding certain portfolio procedures.

Clark and Eynon (2009) reviewed the increasing use of ePortfolios in higher education during the 2000s. They identified three factors that they believed would shape the development of the movement in the following years, namely: (i) the growing use of interactive Web 2.0 technology and social media, (ii) the persistent tension between the learning and assessment aspects of portfolios and (iii) the increasing use of learning portfolios in varied, international contexts.

Notable attempts to examine the state of the field in the midst of this growing pool of research include those of Zeichner and Wray (2001), Abrami and Barrett (2005), Lombardi (2008) and Clark and Eynon (2009). Zeichner and Wray's review was confined to the field of teacher education; nonetheless, it highlighted issues that are relevant to portfolio use in other contexts. One such issue was the need to **move past the conclusion that portfolios promote greater reflection, and to start considering the “nature and quality” of this reflection** (Zeichner & Wray, 2001, p. 720).





## PARAMETERS OF THIS LITERATURE SYNTHESIS

Shortly after Clark and Eynon's (2009) review and following the launch of the *International Journal of ePortfolio* in 2011, there was a noticeable surge in the number of papers published on the topic of learning portfolios (see Figure 1).

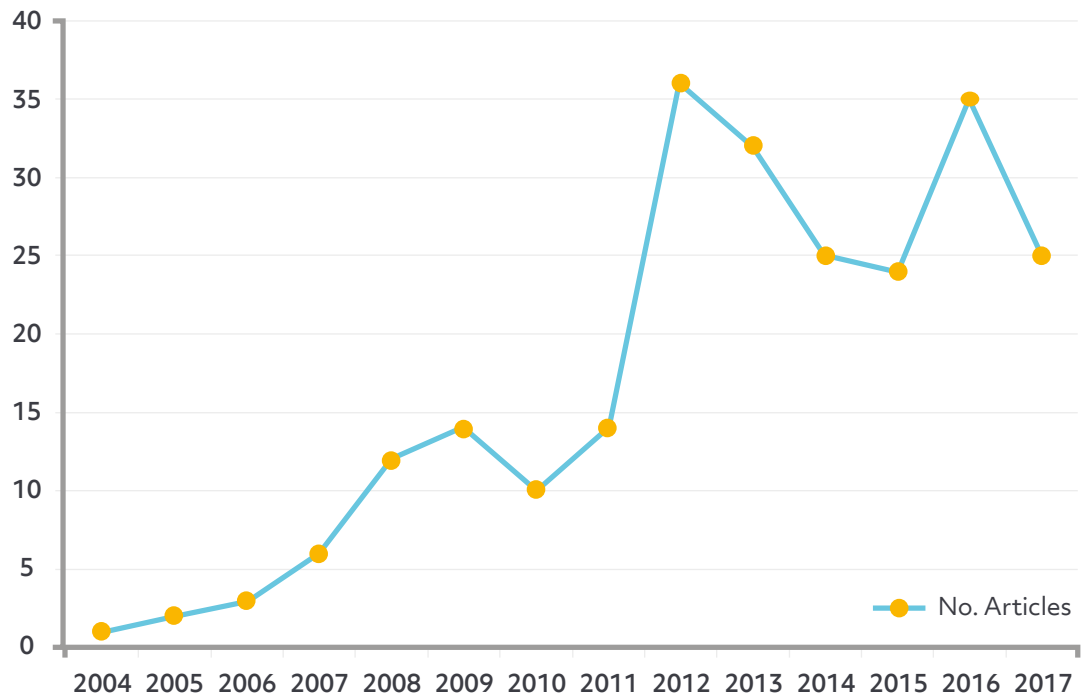


Figure 1: The number of journal articles and research reports per year, returned from an ERIC search using the terms 'learning portfolio\*' OR 'eportfolio\*' OR 'e-portfolio\*' and the limiter 'Higher Education'

In light of the cumulative nature of the research, and to ensure that the most recent developments in learning portfolio implementation and technology are taken into account, this literature synthesis focuses specifically on research conducted since 2010. In the search for relevant resources, the research databases ERIC, PsycArticles and PsycINFO were consulted, using keyword searches such as 'learning portfolio\*' OR 'ePortfolio\*' OR 'e-portfolio\*' AND 'higher education'. Additional literature was located through a systematic search of the *International Journal of ePortfolio* and of recent proceedings from conferences such as the *Australasian Society for Computers in Learning in Tertiary Education (ASCILITE)*, the *American Educational Research Association (AERA)*, and the *World Conference on Educational Sciences (WCES)*. Citations within the literature were also traced, and finally, a broad keyword search in Google Scholar was performed.



# Key Themes



## SUPPORT REMAINS PREDOMINANTLY THEORETICAL

Regrettably, despite the progressive growth of literature on learning portfolios in recent years, our knowledge of their effectiveness remains in its infancy. **The theory underlying their use remains promising, but in the absence of sufficient empirical support, the increasing implementation of university-wide, portfolio-based programmes may still be premature.** This point was particularly well illustrated by a review of the literature conducted by Bryant and Chittum (2013). This review focused specifically on ePortfolios, and thus did not include research on physical portfolios, nonetheless, it was quite comprehensive in nature. The authors employed a rigorous and systematic methodology comprised of keyword searches, citation searches, the retrieval of all relevant articles from the *International Journal of ePortfolio*, and finally, an author search by the names of well-known researchers in the area, yielding a sample of 118 peer-reviewed journal articles.

Of these 118 articles, 42% ( $n=50$ ) were classified as 'descriptive' in nature, *i.e.* they simply made theoretical arguments for the use of ePortfolios, discussed secondary data, or described specific examples of ePortfolios in use, without presenting original data. A further 9% of the articles ( $n = 10$ ) were classified as 'technological', *i.e.* they described the features

and usability of a certain ePortfolio platform (*e.g. PebblePad, Mahara, Blackboard*). As Bryant and Chittum (2013) noted, this descriptive and technological literature undoubtedly serves some important functions: it raises the profile of portfolios within educational discourse and provides information about different features and potential ways in which the tool can be used. It does not, however, provide empirical evidence to support or refute the theory that portfolio use yields deep learning.

The remaining 49% of articles ( $n = 58$ ) in Bryant and Chittum's (2013) review were empirical in nature – that is, they presented original data from studies of ePortfolios in a specific context. Of note is that the majority of these empirical articles were further classified as 'affective', *i.e.* they presented data pertaining to participants' *experiences with* and *perceptions of* using ePortfolios, as opposed to actual learning outcomes. Such studies can give some insights, however, the nature of learners', or indeed teachers' attitudes towards learning portfolios reported through self-perception data are not necessarily indicative of their value as learning tools. The full breakdown of the research on ePortfolios into various classifications, according to Bryant and Chittum (2013) is summarized in Figure 2 below.

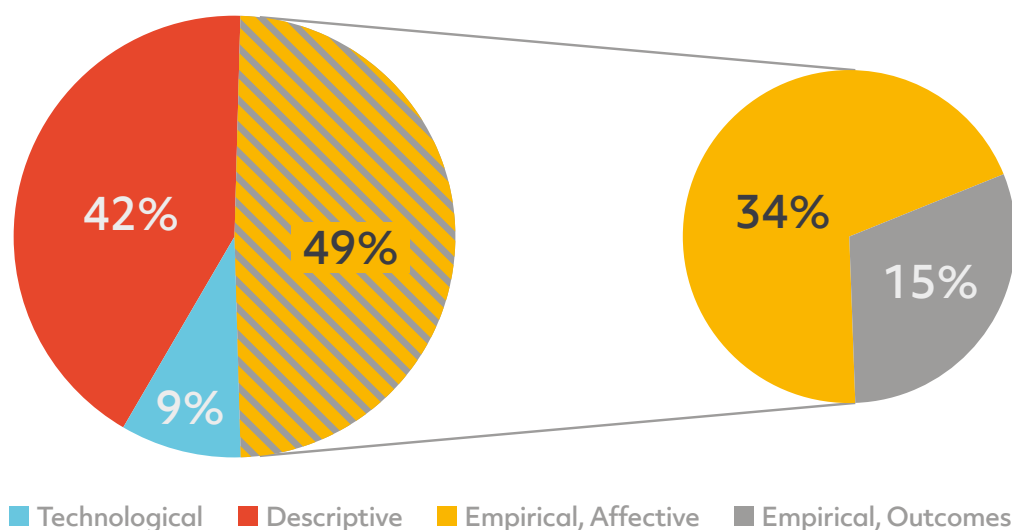


Figure 2: The percentage of ePortfolio research articles classified as technological, descriptive, empirical (affective) & empirical (outcomes), according to Bryant & Chittum's (2013) review



Given the increasing and widespread use of portfolios in higher education in recent years (Eynon & Gambino, 2017; Rhodes, Chen, Watson & Garrison, 2014), it is concerning that Bryant and Chittum's (2013) review - which spanned various contexts and all levels of the education system - identified just 18 published articles presenting data on learning outcomes, or outcomes associated with learning, such as motivation and reflective practice. It is also worth noting that just two of these studies incorporated a comparison group. From a technical perspective, this is undesirable, however, it is acknowledged that there are significant ethical challenges associated with the use of randomized control studies in educational contexts.

Overall, Bryant and Chittum's findings demonstrate that the discourse surrounding the effectiveness of learning portfolios – at least in 2013 – was heavily grounded in theory and opinion. Of the relatively few empirical studies conducted, most were focused on stakeholders' perceptions rather than on more trustworthy outcomes. In a special issue of the *International Journal of ePortfolio*, Rhodes et al. (2014, p.4) reiterated this concern, and put forward a formal call for researchers to “*move beyond case studies and anecdotal stories towards more rigorous methodologies and data across individuals as well as institutions and perhaps over time*”. Unfortunately, a consultation of the research that has been conducted in the intervening years suggests that this call has gone largely unheeded.

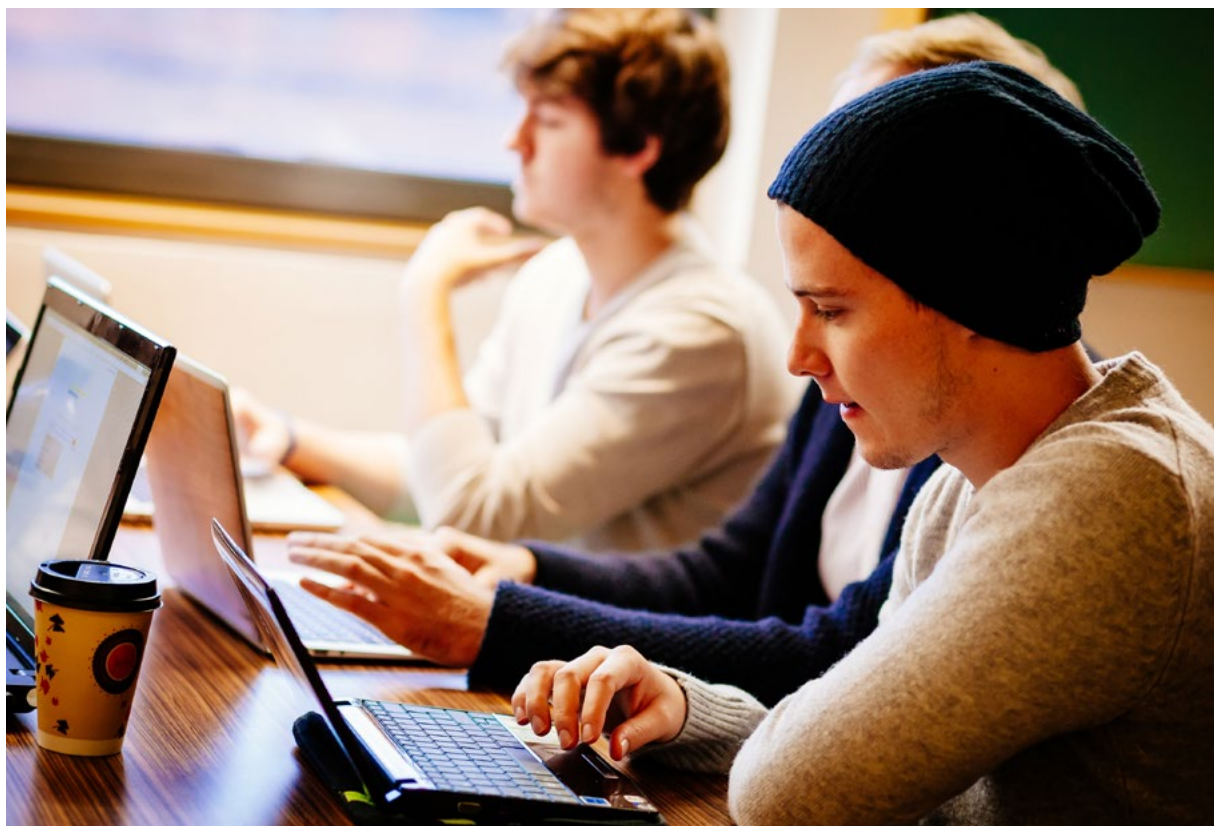
## SUCCESSFUL OUTCOMES DEPEND ON EFFECTIVE IMPLEMENTATION

Since 2002, the U.K.'s *Joint Information Systems Committee* (JISC) has funded a number of projects investigating the use of ePortfolios in a range of settings – including in higher education institutions to support formative assessment and lifelong learning. Initially, the findings of these studies were scattered and poorly reported, however, the committee eventually began to purposefully document and synthesize the lessons emerging from this body of research. Joyes, Gray & Hartnell-Young (2010) capitalized on these efforts, drawing on the reports from 21 JISC-funded studies in the ePortfolio domain. The key message emerging from their analyses parallels those from earlier reviews (e.g. Abrami & Barrett, 2005; Lombardi, 2008), *i.e.* **ePortfolio use has the potential to yield positive outcomes, but the extent to which this occurs is heavily dependent on the nature of the implementation.**

Precisely what is meant by 'positive outcomes' can, of course, differ depending on the purpose of the ePortfolios and the context in which they are being used.

As this review focuses specifically on learning portfolios in the context of higher education, positive outcomes can be taken primarily to mean **enhanced learning processes**, e.g. the automatization of critical self-reflection and the gradual development of a general disposition towards lifelong learning. Positive outcomes of learning portfolios may also include the **generation of a useful product** that serves as comprehensive evidence of the learner's skills and competences and can be shared with others. Joyes et al. argued that there are a number of *threshold concepts*<sup>2</sup> that must be understood and acted upon in order to ensure successful implementation, and thus realization of these positive outcomes. For conceptual clarity, the *process* and *product* dimensions of the learning portfolio will be considered separately as the notion of successful implementation is explored in further detail. However, as Lewis (2015, p.116) highlighted, in practice, these approaches "*should not be regarded as mutually exclusive, but rather, as complementary.*"

<sup>2</sup> The term 'threshold concept' was coined by Meyer and Land (2003) and refers to any concept that is central to the mastery of a given subject. Threshold concepts exist in all bodies of knowledge, and they all share certain features. For example: they are rarely acquired seamlessly, but once grasped, they are said to fundamentally change a learner's way of thinking about something, *i.e.*, they are transformative in nature.



## Learning Portfolios as Processes

There are many processes involved in the creation of a learning portfolio, including gathering and selecting information, engaging in reflection & reflective writing, and using formative feedback to guide future activity and become a self-regulated learner. As Joyes et al. pointed out, it is a mistake to assume that learners – and moreover, instructors – have an understanding of these processes. Rather, **they should be explicitly defined from the offset, with ongoing support provided; otherwise, learners will not benefit from portfolios in the ways intended.**

Effortful design, explicit scaffolding and sufficient time are needed

Findings from international research investigating outcomes of learning portfolio use in the years since the publication of Joyes et al.'s review continue to reflect this message about processes. Jenson (2011), for example, reported how the introduction of an ePortfolio system with first-years in the University of Minnesota Duluth initially failed to meet its goals of fostering critical reflection skills and lifelong learning. In keeping with Zeichner and Wray's (2001) recommendation, Jenson tracked and analysed the learners' reflective statements over the first four years of the programme's implementation, but arrived at the disappointing conclusion that they consisted of, at best, a couple of sentences describing what had been covered in class. That is, the learners showed a clear lack of understanding of the process of reflection, and thus were not benefitting from their use of the learning portfolios.

Realizing this, faculty members convened and attempted to rectify the problem. In doing so, they identified shortcomings in their own pedagogical strategies. Specifically, they

noted that they often simply instructed the learners to write reflections, assuring them that this would eventually benefit them, but failed to outline what a good reflective piece should entail. Furthermore, upon consulting the literature, they concluded that the term 'reflection' is often erroneously used to refer to instances where learners have simply documented or described their learning strategies. Jenson argued that true reflection should evidence deep learning; with learners analysing the skills they have learned from a particular exercise, linking these to other aspects of their studies, and identifying how they may use the skills "*for a lifetime – professionally, personally and civically*" (Jenson, 2011, p. 52).

Interestingly, this definition of true reflection is closely aligned with a core concept in education – namely *high road transfer*. As outlined by Perkins and Salomon (1992), transfer refers to any situation when learning in one context enhances performance in another context, whilst high-road transfer is a specific type of transfer that is mindful in nature, whereby the learner engages in "*deliberate, effortful abstraction*" and actively searches for connections between the two contexts (Perkins et al., 1992, p.2). Although transfer is a well-established element of educational theory, there is – regrettably – a lack of literature exploring the extent to which transfer, and particularly high-road transfer occurs in practice.<sup>3</sup>



<sup>3</sup>There is also a deeper conceptual argument about the extent to which high-road transfer is even possible, i.e. whether processes such as reflection and critical thinking can be developed in a broad sense (the generalist perspective) or if they are tightly bound in knowledge domains (the specialist perspective). See Moore (2011).



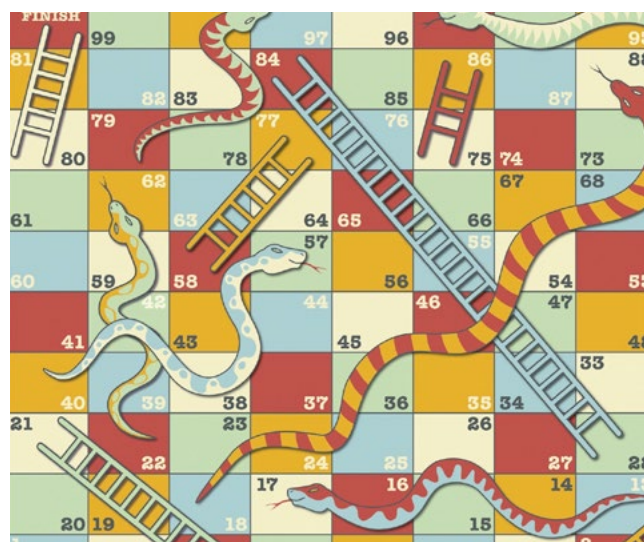
## SUCCESSFUL OUTCOMES DEPEND ON EFFECTIVE IMPLEMENTATION

Returning to Jenson's (2011) study – over the second four years of the programme, faculty members began implementing a new set of strategies in what could be described as an attempt to encourage the process of high-road transfer. These strategies included posing explicit questions to learners whilst they were engaging in their assignments (*"Why am I asking you to do this assignment? How and why might you use this skill professionally/in society?"*), and allowing them to construct their reflections continually throughout the semester, rather than once at the end of the semester. Interestingly, analyses of the reflections over the following four years revealed a considerable improvement in depth. For example, over the first four years of the programme, an average of 13% of learners per year identified some of the learning outcomes the course was designed to achieve, **but none related these to other courses, or indeed to life beyond university**. In contrast, over the second four-year period, an average of 65% of learners per year identified the learning outcomes, with many of these (c.40%) going on to relate these skills to other domains.

Jenson's (2011) findings provide support for Joyes' (2010) claim that an understanding of the processes involved in portfolio construction can determine how successful the portfolios will be in promoting positive learning outcomes. That is, **simply requiring learners to use portfolios to reflect on their learning will not necessarily foster the desired outcome**; rather, instructors must have an appreciation of what is meant by 'reflection', and this in turn needs to be fostered in learners, via explicit probing and scaffolding strategies. Moores and Parks (2010) reached a similar conclusion following a trial of PebblePad with three different cohorts of occupational therapy and physiotherapy students at York St. John's University; and Landis, Scott and Khan (2015) reinforced the message again following a review of 16 varied ePortfolio projects in Indiana University. Specifically, Landis et al. (2015) noted that the extent to which learners struggle to understand the concept of reflection is often a surprise to their instructors.

A study conducted in Flanders, Belgium by Struyven et al. (2014) investigating the use of learning portfolios to develop and assess pre-service secondary teachers' competences,

provides further support for the importance of all parties understanding portfolio processes. Through a combination of questionnaires and semi-structured interviews, Struyven et al. (2014) collected information from student teachers, their trainers, and their mentors in the schools in which they completed a teaching internship, on their respective perceptions towards the portfolios, both before and after they were put to use in these internships. This revealed that all three groups had relatively positive perceptions to begin with, but whilst trainers' and mentors' perceptions remained positive throughout the semester, the learners' perceptions became significantly more negative. Initially, learners agreed with trainers and mentors that the portfolios would draw attention to their strengths and weaknesses with regard to teaching competences, and facilitate the development and improvement of these competences throughout the course of the internship. However, by the end of the internship, they no longer endorsed this view, and saw the portfolios as being a mere *"container for assignments"* (Struyven et al., 2014, p. 46).



Struyven et al. identified a number of reasons for the learners' disillusionment with the portfolio tool at the end of the programme, based on their open-ended responses in the interviews. Many felt that the 'reflection' element of the portfolios was forced or overdone, and perceived it to be a meaningless administrative activity rather than a learning process. Some learners believed there was too much focus on the ability to write reflectively,

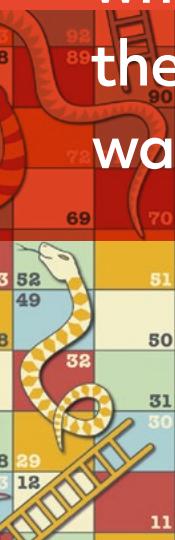
such that those with good writing skills were likely to achieve the best grades for their portfolios, regardless of their actual level of mastery of the teaching competences. Furthermore, many learners reported that their trainers and mentors operated on a principle of 'feedback-on-demand', and failed to make use of in-built tools in the portfolio interface designed to facilitate regular coaching conversations throughout the semester. This created the perception that the portfolios should be 'polished' (*i.e.* a showcase or assessment metaphor) and then presented for summative assessment; as opposed to being subject to regular formative feedback that guides and scaffolds the development of competences over time.

It is evident from the above studies that poor learning outcomes and/or negative perceptions of portfolio use in higher education contexts are often attributed to a lack of understanding of the underlying pedagogical processes of the learning portfolio. With this in mind, it might be expected that instances of more successful learning portfolio initiatives can be explained by meaningful engagement with these processes. Interestingly, this is precisely what emerged in an evaluation of learning portfolio use in the context of a B.Ed. programme at the Auckland University of Technology, New Zealand.

Lewis (2017) surveyed a sample of learners, each of whom had been using ePortfolios over a period of five semesters, and in seven or more different courses. Through a combination of questionnaire and focus group methods, this research sought to determine in which courses the portfolios had enhanced learning, and why. In addition, a document analysis of the course study guides was conducted, to obtain a measure of how the purpose and use of the learning portfolio was outlined for each course. Lewis' findings illustrated that enhanced learning was most evident in courses whereby the purpose of the learning portfolio was made explicit, and whereby the curriculum design and learning activities capitalized on the learning portfolio's capabilities for constructivist learning and social pedagogy. That is, **when course designers and teachers evidenced a deep appreciation of the processes that a learning portfolio is intended to support, learners perceived a more authentic learning experience.**

Bolliger and Shepherd (2010) also reported favourable learner reactions following a pilot study of portfolio use in a series of graduate level online programmes in instructional technology, adult education and nurse education in a small public research university in the United States. These learners were required to create an ePortfolio sharing documents such as a *resume*, a description of their learning philosophy, a summary of their goals and achievements, evidence of goal attainment, and artefacts documenting meaningful learning outcomes.

Enhanced learning was most evident in courses whereby the purpose of the learning portfolio was made explicit



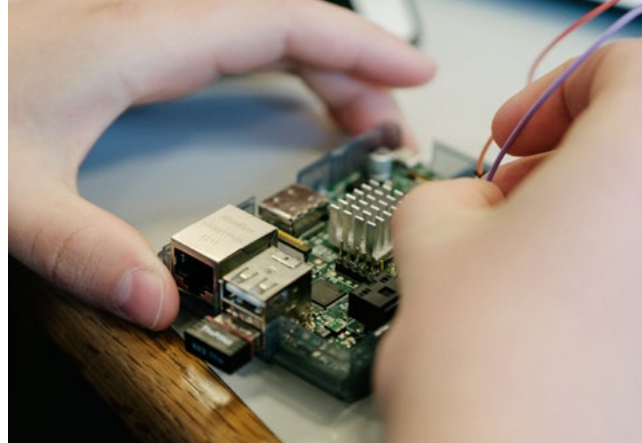
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Almost all (85%) agreed that the ePortfolios increased their desire to learn, and many endorsed statements such as “*assisted me in reflecting*” and “*helped me evaluate my own progress*”, (Bolliger & Shepherd, p. 304). It should be appreciated, however, that **it was not the ePortfolios that achieved this – but the instructional and learning context in which they were embedded.**

As an aside, it is worth noting that as Bolliger and Shepherd’s study was conducted in the context of an online course. As such, it is possible that these learners valued the portfolios for reasons such as their ability to enhance perceived connectedness and reduce feelings of isolation, in addition to their learning benefits. Indeed, some indicated that constructing their portfolios helped them to put a forward a more representative picture of themselves, and also to learn more about their classmates. This an interesting finding, as learning portfolios have also been posited to play a role in the development of *identity*, however, as Penny Light, Chen and Ittelson (2012, p.74) pointed out, it is important that to emphasize to learners that this refers to “*an intellectual identity, not a social identity*”.

### The extent of conceptual change needed prior to the introduction of learning portfolios is likely to be greater in certain disciplines.

Positive outcomes were also reported by Wakimoto and Lewis (2014), in a survey of 70 graduate counselling/psychology students following the use of learning portfolios over the course of an academic year. The majority of these learners found the portfolios to be useful for reflecting on their competencies and reported that the portfolios gave them an insight into the developmental nature of becoming a professional. Of note is that these learners were provided with detailed handouts on creating and customizing their portfolios, ‘model’ portfolios from previous years, and rubrics describing the standards that would eventually be used by faculty members to



evaluate the portfolios<sup>4</sup>. The learners themselves also used these rubrics to review one another’s artefacts, and “*honest, direct, professional and formative feedback*” was explicitly encouraged (Wakimoto & Lewis, 2014, p.56). Crucially, the quality of this peer review process was noted by the learners as being central to the success of the programme.

There are some additional contextual factors that may have contributed to the favourable learner reactions reported in the studies mentioned above. Importantly, each of these can also be linked to the importance of the processes underlying the learning portfolio. To begin with, both Bolliger and Shepherd’s (2010) and Wakimoto and Lewis’ (2014) studies investigated portfolio use in graduate programmes. It may be that graduate students have developed some fundamental skills in reflection and in providing/using feedback effectively during their initial course of study, and can therefore more readily engage with learning portfolios. Alternatively, these learners could simply have benefited from having more developed domain knowledge – a factor that has long been recognized by cognitive psychologists as playing an important role in supporting and scaffolding higher-order thinking processes (e.g. Bruer, 1993). The particular disciplines in which these learning portfolios were implemented may also be a factor. Wakimoto and Lewis’ (2014) learners were training in helping professions, in which the skill of self-reflection is a central competency. Similarly, teacher education is also embedded in a culture of reflection (Lewis & Gerbic, 2012). It may be that the use of learning portfolios aligns well with such disciplines, but not with others. More specifically, the extent of conceptual change needed prior to the introduction of learning portfolios is likely to be greater in certain disciplines.

<sup>4</sup> Although direction and guidance in the form of rubrics and models is likely to contribute to a clearer understanding about how a learning portfolio can be used effectively (thus providing a plausible explanation for the positive outcomes observed in this study), from a philosophical perspective, the use of rubrics may also be interpreted as an imposition on the concept of self-directed learning. This represents a recurring tension in the learning portfolio literature that is explored in greater detail at a later point in this report.



Given the evidently complex nature of the portfolio processes, and the clear need for effortful curriculum design and explicit scaffolding in developing these processes, another key aspect to take into account is that of time. Many of the above studies of learning portfolio implementation have taken place over relatively short timeframes, and it could be argued that the real value of the reflective process may not become apparent until a learner has collected enough artefacts on which to reflect and show development. Indeed, Eynon and Gambino (2017, p.60) posited that the learning portfolio pedagogy is most effective when conceptualized and implemented as “a longitudinal and recursive process”.

Finally – and indeed amidst any discussion of research yielding positive outcomes – it is worth paying heed to Dawson and Dawson (2016), who highlighted the phenomenon of reporting bias in educational research. As these authors explained, when researchers selectively omit non-significant or negative findings, or choose not to publish on certain studies at all, this affects the overall message about the success of a particular educational innovation emerging from the published literature. This should be carefully borne in mind when evaluating the available (and limited) evidence of successful learning portfolio implementation.

To recap: much of the extant research, albeit limited, signals the importance of ensuring that the various processes that constitute the underlying pedagogy of the learning portfolio, are properly understood, executed and

transferred, and that sufficient time is allowed for this to occur. An important related point is that the technology used to construct the learning portfolio should seamlessly facilitate these processes. Regrettably, this has not often been the case.

## Technology should be the facilitator – not the focus

A clear message emerging from much of the recent literature seems to be that difficulties with learning portfolio technology often prevent the desired learning outcomes from being achieved. Mason, Langendyk and Wang (2014), for example, surveyed learners on their experiences of a trial implementation of *PebblePad* in the personal and professional development (PPD) curriculum of a medical degree at the University of Western Sydney in 2011 and 2013. Portfolios were introduced to support collaborative learning, provision of formative feedback, and longitudinal assessment, but the overwhelming majority of learners reacted negatively to their use, citing the interface itself as the main reason for this. Almost 75% of learners from both cohorts described the application as being “difficult” or “very difficult” to use; furthermore, focus groups with tutors echoed this theme. Responses to additional questions ruled out the possibility that these negative perceptions were simply a reflection of negativity towards the PPD course in general, and the use of *PebblePad* was thereafter discontinued.

Technology has also been identified as a major hurdle in studies of learning portfolio use in the domain of nursing education. Andrews and Cole (2015) reflected on their experience of implementing an ePortfolio programme with *Mahara* in an undergraduate nursing degree. They noted that the complexity of the software, confounded by inadequate IT



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literacy and limited technical support, reduced the perceived value of the portfolios among both teachers and learners, which in turn yielded low levels of engagement and poor quality work. Results from a subsequent survey of nursing and midwifery students' experiences with *PebblePad* conducted by Birks, Hartin, Woods, Emmanuel and Hitchins (2016) echoed this message, with many describing the interface as "not user friendly". This seemed to affect their overall perception of the tool. Indeed, much like Struyven et al's (2014) pre-service teachers, the majority of those in Birks et al's study did not feel that portfolios served to enhance their learning; rather, they viewed them simply as a means for storing and sharing documents.

Based on their experiences, Andrews and Cole (2015, p.570) emphasized the importance of introducing ePortfolio software "*in small components, and over a period of time*", and of providing individual support for students experiencing persistent difficulties with the technology. Indeed, the successful learning portfolio initiatives reported by both Bolliger and Shepherd (2010) and Wakimoto and Lewis (2014) incorporated extensive training with the ePortfolio interfaces used. Birks et al. (2016) on the other hand, reached an alternative conclusion, suggesting that learners should simply be permitted to use a platform with which they feel comfortable when constructing their learning portfolio, to reduce the need for extensive training. This branch of thinking has contributed to the emergence of literature promoting the use of Personal Learning Environments (PLEs) as distinct from centrally managed ePortfolio systems (see Haworth, 2016). As this review is limited to learning portfolios, a discussion of PLEs is outside the scope of this work.



The key point to note from the above is that an excessive focus on the technology that supports the learning portfolio serves to detract from true engagement with its underlying processes. Indeed, as Matthews-DeNatale, Blevins-Bohanan, Rothwell and Wehlburg (2017) pointed out, those implementing learning portfolio programmes for the first time often ask questions such as: "*what software should we use?*", when in reality they should be asking deeper questions related to purpose and learning design, such as "*what do we hope to gain?*" Whilst support and training in the use of learning portfolio technology is undoubtedly a necessary component of effective implementation, it is imperative to avoid situations where technology overshadows the development of a deep appreciation of the learning portfolio pedagogy. **Too often, technology becomes the scapegoat for failed initiatives that are in fact due to more conceptual shortcomings in the way the learning portfolios have been understood and implemented.**



## Learning Portfolios as Products

As outlined early on in this paper, learning portfolios are conceptually distinct from showcase and assessment portfolios in that their primary purpose is to support and enhance learning, via the processes involved in their construction, as opposed to providing summative evidence of skills and achievements. It follows that an understanding of these processes is crucial for their success as learning tools, as discussed above.

In practice, however, it should be appreciated that **universities and higher education institutions usually view portfolios as fulfilling multiple purposes simultaneously**. In almost all of the studies discussed in the previous section, the learning portfolios were formally assessed at the end of the semester and assigned a grade. Furthermore, in the domains of teaching and healthcare education especially, learning portfolios are often linked to external standards or professional registration requirements, and as such, double up as a long-term, demonstrable record of these competences. In this way, individuals may continue to use their portfolios after they have left university to support future job applications, or to record their ongoing professional development (Moore & Parks, 2010; Struyven et al., 2014). The idea that portfolios may not only support learning; but also serve as evidence of competence for future employers is certainly attractive in principle. The literature, however, has returned mixed results as to whether conceiving of learning portfolios as *products* is advisable.

guidelines (e.g. word limits), to help ensure that the personalised, holistic nature of portfolio construction is maintained. This message was reinforced by Chau and Cheng (2010), following an ePortfolio competition held over the course of two months at Hong Kong Polytechnic University, to support English language learning for students across a range of academic disciplines. Following the competition, the content of these portfolios was analysed; in addition, learners and teachers were interviewed about the extent to which they believed the portfolios succeeded in fostering independent learning. Overall, the respondents agreed that portfolios had the potential to be valuable learning tools (subject to a few conditions previously discussed e.g. high quality feedback, technological competence). However, Chau and Cheng (2010, p.940) further noted, based on their analysis of the portfolio content, that “*students saw conformity to evaluation criteria as a more pressing imperative than individuality*”. This may be explained by the fact that the ‘product’ aspect of these portfolios was heavily emphasized by the competition element in this particular study. However, as Chau and Cheng highlighted, this emphasis can also be created when universities view portfolios as a tool to demonstrate the superiority of their programmes.

The ‘clone’ effect evident across various portfolios is quite concerning, as one of the major theorized benefits of portfolios is their ability to facilitate a self-directed, personally meaningful, and thus deeper form of learning. Interestingly, learners are often fully aware of their tendencies towards conformity: in a study by Kabilan and Khan (2012) assessing pre-service teachers’ learning using ePortfolios, one individual admitted to “*beating around the bush... repeating and paraphrasing what others have said*” (p.1014). One strategy that may help

Striving for standards  
may erode individuality

As Moore and Parks (2010) pointed out, subjecting learners’ portfolios to a formal, summative assessment at the end of the semester may increase their motivation, and thus their level of engagement with the portfolios. They did, however, warn against the use of excessively prescriptive assessment





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prevent the suppression of individuality is to foster a sense of *ownership* in learners with regard to their portfolios (Shepherd & Skrabut, 2011). Indeed, Joyes et al. (2010) listed ownership as one of their *threshold* concepts, and made some practical suggestions as to how it can be achieved, such as allowing learners to use their own personal devices to capture audio-visual artefacts, and giving them control over what and how often they share aspects of their portfolio with their teachers. Interestingly, Thibodeaux, Cummings and Harpnuik (2017, p.8) identified management of one's own content, opportunity to assess one's own learning and other "*key indicators that represented choice and voice*" as being among the most important factors contributing to continued use of learning portfolios beyond university. Birks et al. (2016)'s suggestion to allow learners to use software of their choice seems equally relevant here, although, this flexibility needs to be balanced by considering whether the functionality of certain software is rich enough to support deep learning and reflection.

It should be acknowledged that fostering ownership may present both logistical and conceptual challenges, especially given the observation that some learners value direction and guidance in the form of rubrics and exemplar portfolios (Wakimoto & Lewis, 2014). The two need not be mutually exclusive, however. If rubrics describe the processes that learners are expected to demonstrate<sup>5</sup>, rather than focusing on what the portfolio should contain, or how it should be presented, and if the selection of exemplar portfolios encompasses a variety of different approaches, learners may feel more confident in personalizing their portfolios as a platform for supporting lifelong learning.

A final point worth noting is that encouraging individuality in portfolio construction may also be important if they are eventually to be used for job-seeking purposes. A study by Whitworth, Deering, Hardy and Jones (2011), for instance, revealed that excessive 'sameness' across portfolios may reduce their perceived value to prospective employers. Specifically, Whitworth et al.'s sample of school

administrators (n = 41) ranked a host of other factors<sup>6</sup> as being more important than portfolios in the teacher hiring process, with many expressing doubts concerning their reliability and validity as an indicator of teaching ability, due to their 'prescribed' and 'polished' nature.

### Links with digital badging are conceptually challenging

As outlined above, recent literature suggests that a results-driven, 'product' approach may detract from the potential learning benefits of portfolio construction, and furthermore, that the finished product may not even serve its intended purpose as evidence of competence if learners adhere excessively to prescribed standards at the expense of individuality and authenticity. It is thus clear that, as forecasted by Clark and Eynon (2009), **the tension between the evaluative and developmental aspects of portfolio use continues to present significant challenges**. Unfortunately, there are no simple solutions to this issue. Moreover, an additional phenomenon has recently emerged that is likely to contribute to it further, namely, attempts to integrate *digital badging* within learning portfolios.

A digital badge is simply a '*symbol verifying achievement*' (Gibson, Coleman & Irving, 2016, p.116) that can be earned within a learning environment, and publicly displayed using purpose-made online infrastructure. Digital badging has its roots in the historic tradition of recognizing accomplishments with physical icons (e.g. ribbons, medals) and more recently, in gamification culture, whereby commercial organizations adopt game-like practices as a means of encouraging user engagement. In higher education, digital badges have been revered as "*a potentially dramatic alternative assessment mechanism*" (Gibson et al, p.117), due to their abilities to (i) highlight competencies, skills and qualities that are not captured by traditional grades and transcripts, and (ii) recognize and validate informal

<sup>5</sup> See, for example, Pennington (2011)'s *Rubric for Evaluating Portfolio Reflective Thinking*, which sets aside distinct criteria for increasingly sophisticated levels of reflection

<sup>6</sup> These included direct observation of teaching, performance in interview, amount and type of previous teaching experience, personal characteristics, information from previous employers, references from professors, and even casual conversations with others regarding the applicants' skills and performance.

learning experiences that have occurred through learner engagement with co-curricular activities.

In recent years, there has been a growing interest in pairing digital badging with learning portfolios. In many cases, this practice has emerged as an attempt to overcome some known challenges associated with learning portfolio use. For instance, The University of Notre Dame's Kaneb Center for Teaching and Learning introduced badging within an existing learning portfolio culture as a means of incentivizing learners to maintain and update their portfolios (Grush, 2015), but more significantly, to help them realize the truly integrative potential of the learning portfolio (Lloyd, 2015).

Although theoretically sound, the absorption of the badging movement into existing portfolio practice raises complex questions. As Buchem (2016) outlined, portfolios and badges are similar in many ways, but there are also marked differences between them with respect to concepts such as autonomy and the relative focus on assessment. Learning portfolios are *created* by learners, whilst digital badges are *issued* to learners. The primary purpose of a learning portfolio is to *facilitate* learning, but the primary purpose of a digital badge is to provide *evidence* of learning. Finally – and perhaps most crucially – the use of badges as an 'incentive' represents a form of *extrinsic* motivation to learn, but one of the ultimate goals of learning portfolio practice is to foster *intrinsic* motivation to learn.

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Some believe that these differences threaten the supposed compatibility of these tools and ultimately risk "*shifting the focus from learning to badge-collecting*" (Buchem, 2016, p.349). On a more practical note, if learning portfolio technology is formally linked with *Open Badging* software (Grush, 2015), this also cuts across any decision to allow learners to use their own platforms to create their portfolios. With these criticisms in mind, it is worth highlighting that the use of "*inward facing*" badges has also been explored in some contexts (Gibson et al., 2016). Inward facing badges are less formal, can be awarded by peers or even by the learner themselves, and do not necessarily adhere to formal open badging infrastructures. It may be that this format is a better match for the pedagogy of the learning portfolio.



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### Towards a Dual Goal Orientation

Recent attempts to incorporate digital badging within learning portfolios have not created a problem. Rather, they have aggravated an existing tension. Long before the emergence of the badging movement, the learning portfolio was conceptually located somewhere between process and product, with the former recognised as being crucial to the underlying pedagogy and the development of the lifelong learning ethos, and the latter valued for its role in creating an extrinsic form of motivation and eventually, formal evidence of the skills and competencies learned.

In a particularly well-designed study of learning portfolio use with undergraduate English language students, Cheng and Chau (2013) investigated the effects of taking a 'balanced' approach to portfolio construction. They first distinguished between different types of goal orientation that learners may adopt when constructing their portfolios: *mastery* goal orientation (whereby learners strive to learn, understand and develop competence in light of self-referential standards, i.e. they are focused on the *process* aspect of their portfolios) and *performance* goal orientation (whereby learners strive to demonstrate high ability relative to their peers, on the basis of normative standards, i.e. they are focused on the *product* aspect of their portfolios). Learners who simultaneously focus on both of these goals are said to exhibit *dual goal orientation*. Cheng and Chau analysed the content of these learners' portfolios, categorized them according to the type of goal orientation exhibited, and finally, investigated how these goal orientations influenced their level of persistence with the portfolios and their reflective competence. Their results showed that learners exhibiting dual goal orientations displayed a higher level of persistence (i.e. the number of artefacts they generated per month remained stable over the course of the semester) and also a higher level of reflective competence (i.e. their reflective statements were more likely to evidence

when learners conceptualize their portfolio in terms of both process *and* product, this leads to the most favourable outcomes

rationalization of their experiences and consideration of ways in which they could improve) than their peers. These findings provide some evidence to suggest that when learners conceptualize their portfolio in terms of both process *and* product, this leads to the most favourable outcomes.

It should be noted that Cheng and Chau's (2013) study was considerably limited by the very small ( $n = 26$ ) sample size; furthermore, as the authors themselves pointed out, the validity of the measure of goal orientation could have been enhanced if the observations of the portfolio content had been triangulated with other methods such as interviewing and/or surveying the learners. Despite these shortcomings, this research nonetheless provides a helpful template for the dual conceptualization of learning portfolios that may be replicated and extended upon by others, and ultimately, will play an important role in informing the design and development of new curricula to better support future learning portfolio initiatives.



## THE NEED FOR BUY IN

As outlined in the previous section, the processes involved in the construction of learning portfolios need to be fully understood by all stakeholders to ensure their benefits are realized; simultaneously, the product conceptualization needs to be managed to ensure this does not suppress the potential of the learning portfolio to support intrinsic motivation to learn. These are both rather complex goals that cannot be achieved easily. Joyes et al. (2010, p.23) summarized the issue well, describing ePortfolios as “*potentially transformative and as a result... disruptive from a pedagogic, technological and an institutional perspective.*” They argued that portfolios cannot simply be embedded into existing curricula; rather, curriculum experts need to be involved in designing new learning activities that are suited to portfolio construction. Similarly, as Chau and Cheng (2010) noted, teachers may need to adjust their identity away from traditional ‘lecturer’ and towards ‘facilitator’ to align with the more independent, learner-centred experience that portfolios are intended to support. Finally, learners themselves need to engage with portfolios in an authentic manner to promote deep learning, if they are to truly benefit from the process.

Considerable effort at institutional, teacher, and learner level is thus required to support the successful implementation of learning portfolios. As such, it is essential that all of these stakeholders ‘buy-in’ to the potential benefits of the process from the offset. Studies have shown that ‘perceived usefulness’ is an important factor in predicting both teachers’ (Fong et al., 2014) and learners’ (Ahmed & Ward, 2016) acceptance of portfolios, and their willingness to navigate and overcome challenges associated with their use. Teachers need to understand and genuinely believe in the theory behind the use of learning portfolios; furthermore, they must have the capability to transfer this belief to learners.

Joyes et al. (2010) drew attention to a project that successfully used ePortfolios to support the assessment and professional development of trainee lecturers at the University of Cumbria. These lecturers reported that the portfolios served to enhance their reflective practice. Interestingly, many of them began requesting to use portfolios with their students, because as portfolio users themselves, they had experienced the learning benefits first-hand. This suggests that engaging teachers in portfolio use for their own professional development first may be an effective way of establishing ‘buy-in’ from both the top down and middle out.



# Summary and Recommendations

The use of portfolios as learning tools in higher education contexts is increasing rapidly (Clark & Eynon, 2009; Joyes et al., 2010). Although there is a strong theoretical foundation for their use, an overview of the research literature reveals insufficient empirical support for their effectiveness. Over and above the problem of potential positive reporting bias in the literature, many studies have shown that portfolio implementation can be fraught with difficulties, due to insufficient understanding of the processes involved in their construction (e.g. Jenson, 2011; Struyven et al., 2014) and tensions between the developmental and evaluative aspects of the portfolio (e.g. Chau & Cheng, 2010). Both teachers and learners have frequently described ePortfolio software such as PebblePad and Mahara as non-user friendly and difficult to navigate (e.g. Andrews & Cole, 2015; Birks et al., 2016; Gerbic et al., 2011), but it should be noted that this focus on technical aspects may be somewhat superficial, and may hide deeper pedagogical and implementation deficiencies.

A handful of studies have reported positive outcomes associated with portfolio use, such as enhanced reflective ability (e.g., Kabilan & Khan, 2012), development of self-regulated learning (e.g., Bolliger & Shepherd, 2010) and improvements in key cross-disciplinary competencies (e.g., Alexiou & Paraskeva, 2015), however, almost all of these (i) were based on a single implementation of portfolios in one university over a short period of time, (ii) employed a very small sample size and (iii) did not measure learning outcomes directly; rather, inferred them via the proxy of students' and teachers' perceptions.

**It is clear from the extant literature that the successful and sustainable implementation of learning portfolios in a higher education institution requires considerable planning and preparation, and a substantial commitment from staff (both academic and technical) and students (learners).** If this is not the case, the experience is likely to be as Joyes et al. (2010, p.493) described, *"like a game of snakes and ladders, where initial rapid progress can suffer major setbacks due to a poor understanding... of the threshold concepts."* In terms of future-proofing the practice such that potential 'snakes' are avoided, it is suggested that:

**It cannot be taken for granted that instructors - let alone learners - comprehend the key processes involved in the creation of learning portfolios.**

**(i) Formal pedagogical and technical professional development in portfolio processes should precede any attempts at implementation**

It cannot be taken for granted that instructors - let alone learners - comprehend the key processes involved in the creation of learning portfolios. Portfolio use is based on a relatively novel and sophisticated pedagogy, and it continues to evolve in response to changing educational demands. Indeed, as Clark and Eynon (2009, p.19) pointed out, in the absence of an overarching professional organization, and a formal set of guidelines for best practice, the use of learning portfolios in higher education *"remains a movement, not yet a field."* Individual institutions thus have a responsibility to engage with the literature - and with each other - in order to develop a collective understanding of the theory underlying learning portfolios, and of specific portfolio practices such as reflection and self-regulated learning. This will enable relevant stakeholders to provide better informed and coherent support for teachers in developing same. Teachers, in turn, have a responsibility to avail of this support, to communicate the value of the tool and the nature of the processes to learners, and to develop curricula, learning activities and instructional methods that facilitate true engagement with these processes. Ideally, all of this should take place *before* learners embark on the task of portfolio construction.



## SUMMARY & RECOMMENDATIONS

### (ii) The tool should be named and conceptualized with its primary goal in mind

Given that the primary purpose of a portfolio is its most important characteristic, the nomenclature should reflect this. If the intention is to support lifelong learning, then *learning portfolio* (as opposed to *ePortfolio*) seems the most appropriate term.

Furthermore, if higher education institutions are introducing learning portfolios with the aim of producing “T-shaped” rather than “I-shaped” graduates, then the emphasis needs to be placed on developing the broad, cross-curricular skills that constitute the difference between these two concepts. That is, learners need to be scaffolded in developing skills such as critical thinking and metacognition through the creation of their portfolios. Such scaffolding can be facilitated by building strong constructive alignment between individual course learning outcomes, programme level goals and outcomes, and institution-wide generic graduate attributes (Oliver, 2013). If assessment is to take place, it should be these dispositions, and not the content of the portfolio, that is assessed; such that learning portfolios ultimately complement traditional tools that contribute primarily to the development of deep, disciplinary knowledge. Conceptualizing portfolios as learning tools, as process-driven, and as catalysts in the development of the horizontal bar of the “T”, may also help ease the well-documented tension between their developmental and evaluative components.

### (iii) Learners should “own” their portfolios

Learners should be granted autonomy in selecting the nature of the artefacts to be included in their portfolios, and – if feasible – the platform used to create them. A true sense of ownership may enhance intrinsic motivation and engagement with the portfolio process, leading to a more meaningful learning experience, and fostering the wider goal of nurturing self-directed lifelong learners. In a similar vein, a sense of ownership may also increase the likelihood of learners continuing to



use and benefit from the portfolio after university (Thibodeaux et al., 2017). It is not that guidelines and rubrics should be avoided completely; rather they should pertain solely to the processes involved in constructing the portfolio, whilst allowing learners to make their own choices regarding content, formatting, etc.

### (iv) Technological platforms should seamlessly facilitate, rather than interrupt the process of portfolio construction

If institutions make the decision to use a particular ePortfolio platform, they must be cognizant of the need to provide sufficient training and support in navigating the platform, to both teachers and learners, on an ongoing; and if necessary, individual basis. The common assumption that today’s higher education students are ‘digital natives’, and will thus adapt easily to prescribed ePortfolio software is misguided (Bennett, Maton & Kervin, 2008; Kirschner & DeBruyckere, 2017), and should be avoided. Problems may be mitigated somewhat by introducing the various features of the chosen software on a gradual, cumulative basis. A more promising alternative, however, may be to allow each learner to create their portfolio using a platform of their choice, especially if the goal is to promote self-regulated lifelong learners. Ultimately, technology should never supersede pedagogy as the primary focus in a learning portfolio programme.



the research (and thus our knowledge) regarding learning portfolios, has been and remains rather limited to date.

The above suggestions have been informed by the extant literature. However, as has been emphasized repeatedly throughout this review, the research (and thus our knowledge) regarding learning portfolios, has been and remains rather limited to date. **There is a clear need for further research on the use of learning portfolios in higher education contexts; in particular, more methodologically robust studies triangulating outcomes (as measured by achievement data and demonstrable competencies) with the self-reported attitudes and perceptions of key stakeholders** (Bryant & Chittum 2013; Rhodes et al., 2014). This may take the form of analysing learners' reflective pieces, but observational methods will also be required if the mastery of complex competencies is to be captured. Future studies should also make use of learning analytics generated by portfolio platforms to track use of the tool over an extended period of time.

Future research on portfolio use in higher education should also continue to explore ways of reducing the tension between 'learning' and 'assessment' agenda. Can focusing on the assessment of *processes* can achieve this, or may it be necessary to separate the two aspects more rigidly? Should learners focus strictly on the 'learning' aspect initially, and move on to a more 'showcase' style at a later stage?

Finally, given that (i) the current pool of studies on this topic is scattered across many contexts and (ii) many aspects of portfolio use are still quite ill-defined, Abrami and Barrett's (2005, p.9) call to include "*measures of implementation fidelity*" still seems pertinent. Questions regarding whether different adaptations of the portfolio model are more suitable for certain types of learners or disciplines should also be addressed.



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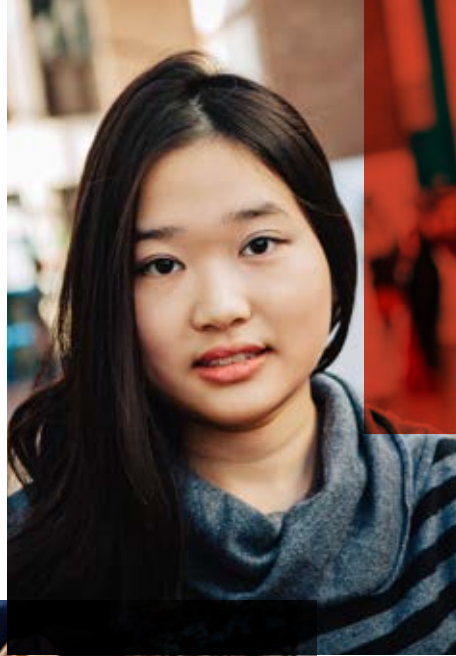














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