
Title	A critical approach to eportfolios in higher education: How research may inform change and adoption
Author(s)	Christopher Charles Deneen and Gavin T. L. Brown
Source	<i>40th Annual Conference of the International Association of Educational Assessment (IAEA)</i> , 25 – 30 May 2014, Singapore

Copyright © 2014 The Authors

This document may be used for private study or research purpose only. This document or any part of it may not be duplicated and/or distributed without permission of the copyright owner.

The Singapore Copyright Act applies to the use of this document.

Citation: Deneen, C. C., & Brown, G. T. L. (2014, May). *A critical approach to eportfolios in higher education: How research may inform change and adoption*. Paper presented at the 40th Annual Conference of the International Association of Educational Assessment (IAEA), 25 – 30 May 2014, Singapore. Retrieved from <http://www.iaea.info/conferences.aspx>

This document was archived with permission from the copyright holder.

A critical approach to eportfolios in higher education: How research may inform change and adoption

Christopher Charles Deneen
The University of Hong Kong
deneen@hku.hk

Gavin T.L. Brown
The University of Auckland
gt.brown@auckland.ac.nz

ABSTRACT

Higher education programs espouse increasingly ambitious graduate outcomes, ranging from enhanced capacity for self-assessment to sophisticated demonstrations of information literacy. As assessments, eportfolios are seen as means to both fostering and evaluating students' achievement of such complex outcomes. This accounts in part for the growing popularity of eportfolios over the last two decades.

Is this zeal warranted? Critical and objective research into eportfolios comprises a small percentage of the abundant literature. Thus, faculties, programs and universities establishing or enhancing eportfolio programs may rely on enthusiasm rather than criticality as they manage adoption and use. This plays a large role in the common problems undermining successful adoption and effective use.

A critical, research-informed perspective is essential to understanding and effectively utilizing eportfolios as assessment in higher education. Drawing on results from a grant-funded mixed-methods research project, this paper critically examines variables in eportfolio use at a tertiary level. Data from survey, interviews and focus groups across three disciplines were analysed. Results include the need to examine technology, learning, and assessment together as interconnected phenomena and the relationship of curriculum planning to sustained engagement and complex outcome achievement. Significance of results to research as well as change management will be discussed.

Keywords: eportfolios, higher education, learning-oriented assessment, technology acceptance model

INTRODUCTION

Over the past two decades, the growing enthusiasm for using eportfolios in higher education and moves to enhance the learning-orientation of assessment in higher education have come together in the promotion and exploration of eportfolios as higher education assessment. While the potential of eportfolios is widely acknowledged, significant concerns remain about their effectiveness, especially for assessment purposes. The current literature on eportfolios in higher education disproportionately focuses on interest, enthusiasm, and potential, rather than critical examinations of key variables and their relationship to success. Despite gaps and concerns in the literature, eportfolios have

been enthusiastically adopted and promoted by higher education institutions world-wide and in Hong Kong; this is problematic as it suggests that utilization has exceeded informed understanding (Cummings & Maddux, 2010).

This aim of this research study is to meet the need for systematic research informing the use of eportfolios as assessment in higher education. The objectives designed to facilitate meeting this aim are to investigate the key variables for understanding eportfolios as assessment in a higher education context, explain relationships between these key variables within and across three purposefully selected higher education disciplines, and present findings that inform theoretical and practical understandings of eportfolio assessment in a higher education context.

This paper presents findings from this large-scale, ongoing study. As a conference paper, this is intended to provide an opportunity for discussion and critique as well as explore the potential for informed networking with researchers and practitioners who have similar interests, aims, and objectives.

A FRAMEWORK FOR UNDERSTANDING EPORTFOLIOS

Local and global contexts

Higher education in Hong Kong is undergoing significant and rapid changes that mirror global priorities; these include an attempt to shift from an elitist tertiary system aimed at professional training to a more inclusive model that balances competitive job training with life-long learning (Kember, 2010). In practice, this demands moving from a knowledge and teaching-centric approach to a student-centered learning experience. This approach may be characterized by well-articulated student outcomes, interdisciplinary study, innovative teaching practice in support of learning, and an increase in student reflection and interconnected knowledge (Banta, 2009; Kember, 2010; UGC, 2010). Essential to this global movement is the adoption of learning-oriented assessment practices (Boud, 2000; Carless, 2007). The new HK curriculum echoes this global expectation with a call for assessment practices that exemplify recognized best principles of higher education assessment (Deneen & Boud, 2013; UGC, 2010).

Eportfolios have been envisioned globally and regionally as an embodiment of these principles (Fisher, et. al., 2011; Kennedy, 2011). Eportfolios are deliberate collections of work that may provide the opportunity for reflection, self-regulation, and the demonstration of complex outcomes that have strong resonance with life-long learning (Lorenzo & Ittelson, 2005; Stefani, Mason, & Pegler, 2007). It is these qualities that have led to visible commitment in the United States, Hong Kong, and the rest of the world to use eportfolios for learning and assessment. Local evidence within Hong Kong of this commitment includes formation of an inter-institutional eportfolio panel, The Joint Universities ePortfolio Committee (JUEC), the promotion by universities of case-study exemplars of use (e.g. Fisher, et. al., 2011), as well as development of Hong Kong-based research into eportfolio use (e.g. Chau & Cheng, 2010; Wong & Chau, 2008). Whether this commitment to practice and inquiry will result in changes to students' learning experience is difficult to predict. The degree to which Hong Kong higher education students' educational experience has been affected by curriculum reform is debatable, especially in the area of assessment (Brown & Wang, 2011). Hong Kong is situated within powerful summative assessment traditions: the colonial British model of examinations and a Chinese civil examination tradition several millennia old. These

confluent traditions, embodied in a modern external examination system, have powerful impact on teaching, learning and assessment at all levels (Carless, 2011a; Deneen, *forthcoming*). Learning-oriented assessment and the aforementioned expectations and uses of eportfolios face formidable opposition from culturally embedded traditions and practices (Carless, 2011a).

These issues and concerns while regionally specific, resonate with global research on high stakes summative assessment (Boud, 2000; Carless, 2011a, Carless, 2011b) and the impact of conceptual orientation upon assessment practices and outcomes (Brown, 2006, 2008, 2011). Another key concern both locally and globally is the disproportionate focus in eportfolio literature on interest, enthusiasm and potential, rather than impact, challenges or robust theoretical frameworks that account for key variables (Cummings & Maddux, 2010). For example, in her 2006 study of 300 published articles on eportfolios, Ayala found that less than 5% of eportfolio studies adopted a critical perspective (Ayala, 2006 in Cummings and Maddux, 2010). Studies emerging since then that have adopted a critical, research-informed perspective reveal some strengths but many challenges to eportfolio assessment use in higher education, ranging from technology resistance to validity and reliability issues (Barrett, 2007; Shroff, Deneen, & Lim, 2012; Strijbos, Meeus & Libotton, 2007; Strivens et al., 2009).

A critical and integrative framework

A critical understanding of eportfolios requires a framework that accounts for the key dynamics. The conceptual framework of this study (see fig. 1) consists of several interactive dynamics. The two broad foci for understanding eportfolios as assessment in higher education are conception and utilization. Within each of these are the elements of assessment and technology, which define each area of focus, but also connect them. Assessment is understood by examining two characteristics: elements of learning-orientation, and “place” on a continuum of formative to summative assessment. Technology is investigated through examining degree of both technology acceptance and technology utilization. The connections between conception and utilization are explored in two directions: first, by understanding the relationship of the participants’ conceptions of assessment and technology to eportfolio use as assessment and technological practice, and second by determining how utilization may lead to conceptual changes.

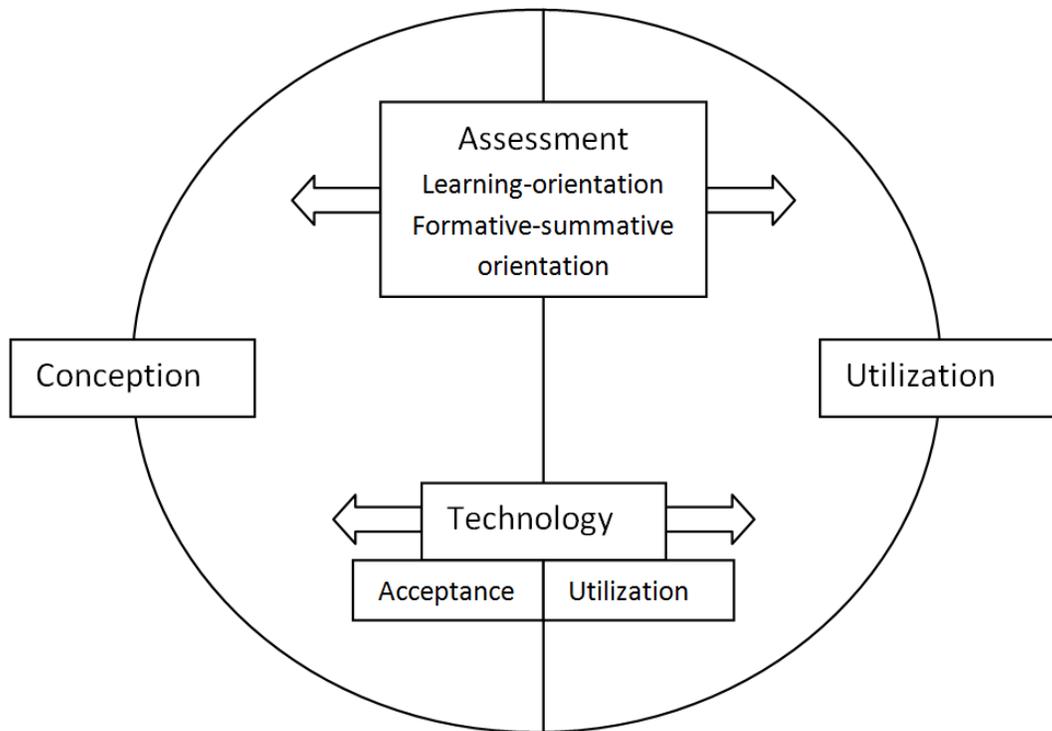


Figure 1: A conceptual framework for understanding eportfolios as assessment in higher education

From this framework, we identify the following five variables for investigation: learning orientation, formative to summative intent, formative to summative utilization, technology acceptance, and technology utilization.

The theoretical framework and examination of variables are supported by construct validation and findings that have emerged from published literature within the related fields as well as the prior research of the investigating team (e.g. Brown, 2006; 2008; 2011; Carless, 2007; Shroff, Deneen & Ng, 2011; Teo, 2009).

METHODOLOGY

This study uses complementary methodologies (qualitative and quantitative) to examine eportfolio use as a technology enhanced means of assessment for learning within and across purposefully selected higher education disciplines.

Sample

The number of participants are 450 students and nine instructors across the disciplines/faculties of Education, Law, and Liberal Studies.

Data Collection and analysis

Data collection and analysis are ongoing, but with substantial results already evident. Participant conceptions and change in conceptions are examined, as are their perceptions of utilization of technology, structuring of assessment tasks, and eportfolio products. As the research develops, qualitative and quantitative results will be more

complementary; producing course-based case studies derived from a synthesis of results of the methods. This paper presents a broad overview of what will likely result in multiple papers.

Quantitative data

Quantitative data collection has been conducted through student surveys. Survey items are derived from the conceptual model that guides the study (see Figure 1) and more specifically, are directly influenced by both the Technology Acceptance Model (TAM) (Teo, 2009) and the Conceptions of Assessment Inventory (Brown, 2008).

The survey employs a six-point, positively packed scale (Lam & Klockars, 1982); this has been identified within the field of research including the authors' own research as producing higher degree of discrimination power with Asian populations than center-weighted scales (Bond & Hwang, 1986; Brown, 2004; Deneen, et. al, 2013)

Analysis is ongoing, but consists of initial data cleaning, factor analysis, and ANOVA, allowing researchers to explore and report validity of the theoretical model, develop course-based case studies, and present a comparative analysis across courses.

Qualitative data

Qualitative data collection consisted of student focus groups and instructor interviews. Focus groups were modeled after Morgan's (1997) focus group protocols; both interview and focus group questions, prompts and interrogative structure followed Spradley's (1979) pattern for ethnographic interviewing.

Qualitative data emerging from focus groups, interviews are being analyzed using an inductive coding procedure, adapted from qualitative analysis protocols established by Miles and Huberman (1999):

1. Analytical precepts are shaped by elements of the conceptual framework deliberately adopted by the investigators (see fig. 1) and prior research into the relevant areas (i.e. TA, COA, and LOA). Using likely and framework-oriented categorization, initial analysis and a priori assignment of codes and code definitions (e.g. subject-oriented, relational, activity) is conducted.
2. Codes and code definitions are revised and enhanced based on the emergence of observable data patterns and an evolving understanding of the phenomena under study. Initial assignment of hierarchical families of codes takes place. Validation and stability of codes and emerging code families are checked through independent coding and verification among investigators. Member checks for validity (Miles & Huberman, 1999) are conducted with both students and instructors.
3. Relative code sizes and relationships are verified, and out of this a robust and verified hierarchical and familial coding structure is presented for integration with quantitative data.
4. Integration of data shall yield course-based case studies as well as an analytical discussion across courses and discipline areas. A case study approach has been selected as this study focuses on a phenomenon (eportfolios) within a natural setting (courses), with the intent of providing explanation using variables that emerge from a robust theoretical context (Yin, 2009). Analysis across courses

may allow for explicit examination of variations and similarities that are course and discipline-specific. Preliminary findings are presented as elements that will go into the construction of the case studies.

Appropriate software packages (NVivo 8, SPSS, and AMOS) are being used to facilitate analysis.

INITIAL FINDINGS AND DISCUSSION

As noted, analysis is ongoing but current results are compelling. These include emerging areas significant to the aim and objectives of the study. Due to the constraints of a conference paper, the authors have chosen to focus on a compelling discussion rather than a more technical reporting of results. This will be augmented by some more technical information in the accompanying presentation and Q&A session.

The emerging analytical results suggest that students and instructors have similarities and discrepancies in their conception of the value of assessment tasks and their conception of what constitutes assessment tasks. This seems applicable to both the discreet work products that may make up the eportfolio as well as the eportfolio, itself as an assessment task. A core finding was around continuous engagement. This is deemed essential for assessment to function as a support of learning (Carless, 2007). While instructors and students acknowledged the importance of it, findings suggested that this only occurred in courses in which students were forced to regularly engage with the eportfolio through the curriculum and instructional design. Similarly, the reported core benefits of eportfolios revolve around reflection and deep engagement (Fisher, et. al., 2011; Kennedy, 2011). Achieving these benefits requires continuous, sustained engagement. In the absence of this, it is unlikely that depth can/will be achieved. This has significant implications for understanding the need for specific instructional and curriculum design in order to achieve associated benefit of eportfolios as assessment. There are implications as well for achieving the core assessment-enabled graduate attributes that Hong Kong

There appear to be similar discrepancies between instructors' and students' conceptions of technology. Similarities seem to focus on absence of perceived facility in the use of underlying technology, while differences seem to focus on intended use and utility of the eportfolio. These are constructs essential to technology acceptance modelling (TAM) (Teo, 2009); these findings suggest that stakeholder position relative to a curriculum and the instructional/technology design may play a role in shaping technology acceptance.

There appears to be substantial push back against technology systems that are intended exclusively for eportfolio use. Both students and instructors exhibited this, albeit in two different ways. In one course, which used Mahara, a system designed specifically for generating eportfolios, instructors reported positive impressions of the technology (Mahara), but appeared frustrated with the associated learning curve. Students within this course, reported similar frustration but without the "balance" of perceived benefit.

By contrast, in the course employing Wordpress, a multi-use blog-based system, both instructors and students spoke favourably about utilization and acceptance of the technology. Interestingly, there was a significant disparity between the two courses in terms of continuous student engagement with the eportfolio as assessment. The course

using Mahara had low continuous engagement as reported by both teaching staff and students; by contrast, in the course using Wordpress, both sets of stakeholders reported high continuous engagement. Continuous engagement is a critical issue in assessment (Boud, 2000; Carless, 2007); these preliminary findings suggest that this may be one important connection between technology and assessment to be further explored within the research study framework.

It is anticipated that as this research is finalized, findings and implications shall be explored in terms of increasing worldwide demands for enhanced ICT use and learning oriented assessment in higher education, as well as the potential challenges of implementing learning oriented-assessment and innovative assessment practices in high-stakes test-centric environments (Carless, 2011a).

LIMITATIONS

The current study has some limitations inherent to research in progress. The first is that the full collection and analysis of the intended data has not been achieved. However, the value of evaluating and presenting work in progress is that this can shape and inform both data collection and analysis in a beneficial and ongoing manner. Second, the presentation of the outcomes space (i.e. how findings are presented for optimal comprehension and impact) needs development. The authors recognize this and in presenting this work, hopes to foster a positive but critical discussion as part of the conference presentation.

CONCLUSIONS

If research is critical to informing practice, then it is imperative that more and better research into eportfolios as assessments in higher education be conducted, to meet both global and regional needs. Studies that do adopt a critical perspective reveal benefits weighed against significant difficulties, ranging from the challenge of adopting new technology to stakeholders' conceptions of assessment practice (Ayala, 2006; Cummings & Maddux, 2010). Research into eportfolios as assessment in higher education hence needs further development. This study aims to accomplish this through theorizing and investigating relationships between conceptions and utilization of assessment and technology. This study addresses the significant interconnected global and local problems of understanding eportfolio use as higher education assessment and seeks to close the gap between eportfolio adoption and theoretically informed research. Initial findings from this ongoing study merit discussion and have significant implications for assessment practice, technology adoption, and the use of technology to enhance assessment.

REFERENCES

- Ayala, J. I. (2006). Electronic Portfolios for Whom? *Educause Quarterly*, 29(1), 12-13.
- Banta, T. (December, 2009) Assessing Learning Outcomes for the 4-Year Curriculum Keynote speech presented at the UCG symposium Enhancing and Assessing Students' Learning Outcomes for the New 4-year Curriculum, Hong Kong Polytechnic University, Hong Kong.
- Barrett, H. C. (2007). Researching electronic portfolios and learner engagement: The REFLECT initiative. *Journal of Adolescent & Adult Literacy*, 50, 436-449.
- Bond, M. H., & Hwang, K. K. (1986). The social psychology of Chinese people. In M. H. Bond (Ed.), *The psychology of Chinese people* (pp. 213-266). Oxford, UK: Oxford University Press.
- Boud, D. (2000) Sustainable assessment: Rethinking assessment for the learning society. *Studies in Continuing Education*, 22(2), 151-167.
- Brown, G. T. L. (2004). Measuring attitude with positively packed self-report ratings: Comparison of agreement and frequency scales. *Psychological Reports*, 94, 1015-1024.
- Brown, G. T. L. (2006). Teachers' conceptions of assessment: Validation of an abridged instrument. *Psychological Reports*, 99, 166-170.
- Brown, G. T. L. (2008). *Conceptions of assessment: Understanding what assessment means to teachers and students*. New York: Nova Science Publishers.
- Brown, G. T. L. (2011). Self-regulation of assessment beliefs and attitudes: A review of the Students' Conceptions of Assessment inventory. *Educational Psychology*, 31(6), 731-748.
- Brown, G. T. L., & Wang, Z. (2011). Illustrating assessment: How Hong Kong university students conceive of the purposes of assessment. *Studies in Higher Education*, iFirst. doi: 10.1080/03075079.2011.616955
- Carless, D. (2007). Learning-oriented assessment: conceptual basis and practical implications. *Innovations in Education and Teaching International*, 44(1), 57-66.
- Carless, D. (2011a). *From testing to productive student learning: Implementing formative assessment in Confucian-heritage settings*. New York: Routledge.
- Carless, D. (March, 2011b). Learning-oriented assessment and the development of student learning capacities. Plenary speech, International Conference EVAL trends 2011 Learning by Assessing at University Level: Innovative Experiences, Cadiz: Spain.
- Chau, J., & Cheng, G. (2010). ePortfolio, Technology, and Learning: a Reality Check. *Journal of Interactive Learning Research*, 21(4), 465-481.
- Cummings, R. & Maddux, C. D. (2010). The use of e-portfolios as a component of assessment and accreditation in Higher education. In N. Buzzetto-More (Ed.) *The eportfolio paradigm: Informing, educating, assessing and managing with e-portfolios* (pp. 207-223). Santa Rosa, CA: Informing Science Press.
- Deneen, C. C. How good am I? Self-evaluation and ghosts of the past in an examination culture. In P. Hanstedt & J. Curry (Eds.) *Reading Hong Kong, Reading Ourselves*. Bloomington, IN: Indiana University Press. (Accepted; projected publication date of June, 2014)

- Deneen, C. C. & Boud, D. (2013). Patterns of Resistance in Managing Assessment Change. *Assessment & Evaluation in Higher Education*, (advance online publication). DOI:10.1080/02602938.2013.859654
- Deneen, C., Brown, G.T., Bond, T., & Shroff, R. (2013). Telling the difference: A first evaluation of an outcome-based learning innovation in teacher education. *Asia-Pacific Journal of Teacher Education* (pagination forthcoming).
- Fisher, D., Hokling, C., Pickard, V., Chen, J., Cheung, T., & Wong, A. (2011). *Integrating ePortfolios into teaching and learning: 10 CityU case studies*. Hong Kong: City University Press.
- Kember, D. 2010. Opening up the road to nowhere: Problems with the path to mass higher education in Hong Kong. *Higher Education* 59, 167–79.
- Kennedy, D. (March, 2011) Using ePortfolios for motivation, engagement and authentic assessment. Keynote speech presented at the UGC sponsored symposium Advancing Teaching and Learning: Evidence, Outcomes and E-learning, Lingnan University, Hong Kong.
- Lam, T. C. M., & Klockars, A. J. (1982). Anchor point effects on the equivalence of questionnaire items. *Journal of Educational Measurement*, 19(4), 317-322.
- Lorenzo, G., & Ittelson, J. (2005). An overview of E-portfolios. *Educause Learning Initiative*, 1, 1–27.
- Miles M. B. & Huberman, A.M. (1999) *Qualitative research: An expanded sourcebook* (2nd ed.). Thousand Oaks CA: Sage Publishing
- Shroff, R., Deneen, C. C., & Lim. C. P. (April, 2012). Using E-portfolios to Enhance Student-Teacher Ownership of Learning in Career Development. Paper presented at the American Educational Research Association Annual Meeting. 13-17 April, Vancouver, British Columbia.
- Shroff, R., Deneen, C., & Ng, E.M.W. (2011). Analysis of the technology acceptance model in examining students' behavioural intention to use an e-portfolio system. *Australasian Journal of Educational Technology*, 27(4), 600-618.
- Stefani, L., Mason, R., and Pegler, C. (2007). *The educational potential of e-portfolios: Supporting personal development and reflective learning*. London: Routledge.
- Strijbos, J., Meeus, W., & Libotton, A. (2007). Portfolio assignments in teacher education: A tool for self-regulating the learning process? *International Journal for the Scholarship of Teaching and Learning* 1(2), 1–16.
- Strivens, J., Baume, D., Grant, S., Owen, C., Ward, R., & Nicol, D. J. (2009) *The Role of e- Portfolios in Formative and Summative Assessment: Report of the JISC-funded Study Prepared by the Centre for Recording Achievement for JISC*. Retrieved from <http://www.jisc.ac.uk/whatwedo/programmes/elearning/eportfolios/studyontheroofeporfolios.aspx>
- Teo, T. (2009). Modeling technology acceptance in education: A study of pre-service teachers. *Computers & Education*, 52(2), 302-312.
- University Grants Committee of Hong Kong (UGC). (2010). *Aspirations for the Higher Education System in Hong Kong: Report of the University Grants Committee*. Retrieved from <http://www.ugc.edu.hk/eng/ugc/publication/report/her2010/her2010.htm>.

- Wong, V., & Chau, J. (2008) Student learning WOES: The 'Wishes', 'Opportunities', 'Expedition' and 'Sustenance.' *Asian Social Science*, 4(6), 32–38.
- Yin, R. K. (2009). *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publications.

ACKNOWLEDGEMENT

The authors wish to thank the research team and University Grants Committee of Hong Kong for their support of GRF project HKU 743412, entitled "From conception to action: Understanding eportfolios as assessment in higher education."