Chapter 6
The ePortfolio: Technology-Enhanced Authentic Assessment in the Continuum of Medical Education

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ABSTRACT

As we stand at the threshold of enhanced higher education curricula to meet global standard, this chapter contributes to the on-going discussion on reforms in higher education by clarifying the important role of e-portfolios as technology-enhanced formative and summative assessments of authentic tasks across the continuum in medical education. Medical educators should become adept with technological advancement and apply the same in designing learning experiences that effectively integrate technology in building a conceptual understanding of medical concepts. e-Portfolios are best suited for evaluating skills such as communication, critical thinking, problem-solving, decision-making, leadership and management, and other real-life skills needed to cope with the global demands of the 21st-century global healthcare workplace. The use of portfolios as a workplace-based assessment tool has emerged as an exciting opportunity for learners to record and analyze their learning in a digital environment. The role of reflective learning in a constructivist approach is emphasized.

INTRODUCTION

The recent trend towards democratization of education has been ushered in through increased access to information in continuing professional education via distance mode (Hansen & Reich, 2015; Fernandes et al., 2020). Different countries have addressed the challenges in medical education brought about by the ongoing COVID-19 pandemic with online/distance learning approaches while abiding with country-specific measures such as social distancing to stop the spread of the disease. Medical schools needed to immediately respond with fully online solutions in a short time (Taha, 2020). Both faculty and students needed to shift exclusively from on-campus to distance learning. In service organizations, remote educa-

DOI: 10.4018/978-1-7998-4769-4.ch006

tion through flexible learning aided by technological innovations are helping health teams to overcome the challenges of distance and time limitations (Fratucci, 2016).

eAssessment is an integral part of any technology-enhanced learning continuum (Ghouali et al., 2020). Educators make informed decisions to enhance student achievement and improve educational programs through assessment processes that entails the collection, analysis and interpretation of information about teaching and learning. Weurlander, Söderberg, Scheja, and Hult (2012) described two forms of assessments: formative and summative assessments. Summative assessments quantitatively measure learners' achievements for the purpose of certification at the end of a course or promotion to a next level. Formative assessments promote understanding and support learning through faculty feedback to learners. Moreover, Melland and Volden (1998 as cited in Duers & Brown, 2009) posited that formative assessments prepare students for success in the workplace.

For constructive alignment in the outcomes-based approach to medical education, it is necessary to use assessment methods that would appropriately test for articulated learning outcomes and differentiate student achievement across different levels (Yukowsky et al., 2019). To this end, the ePortfolio-based assessment has been developed and adopted for formative and summative assessments (Lam & Lee, 2010).

The ePortfolio is a "flexible, multifaceted means of collecting evidence of the achievement of competence over time" (Frank et al., 2006). While covering a diversity of methods, ePortfolios use a container concept, a systematic, purposeful collection of evidence that demonstrate students' effort, progress and achievements over time (Friedman et al., 2001; Webb et al., 2002; Oermann et al., 2014). Different kinds of elements from structured assessment tools such as logbooks and encounter cards to unstructured freeform artifacts such as a learning diaries and essays are collected as evidences of learning. The word ePortfolio is derived from the Italian word *Portare* meaning "to carry" and *Foglio* meaning "leaf or sheet" (Meister et al, 2002). When creating an ePortfolio, the learner, rather than the teacher, is the creator of the educational content.

ePortfolios offer the opportunity for authentic, real-world learning, which encapsulates key components of knowledge construction. Authentic learning, according to Lombardi (2007), focuses on the following: 1) real-world relevance through the application of concepts and principles in highly social and realistic context; 2) multiple interpretations of ill-defined problems; 3) complex tasks engaged in over a period of time; 4) varied resources utilizing different theoretical and practical viewpoints; 5) collaboration and teamwork that are integral to the task at hand; 6) reflective learning that promotes metacognition; 7) interdisciplinary lens to promote diverse thinking in teams; and, 8) assessment that is constructively aligned with the intended learning outcome.

In a review of the literature, Frey et al., (2012) found three critical components of authentic assessments, namely: 1) the realistic context of the assessment with tasks that are cognitively complex and performance-based; 2) the role of the student specifies that he is able to defend his answer while engaged collaboratively with teacher and peers in formative assessments, and 3) a scoring system that utilizes multiple indicators, as in an ePortfolio, with criteria that are known or developed by the students and the expected performance is mastery.

The essence of every ePortfolio is an evidence of the learner's knowledge-in-use that denotes the achievement of desired levels of competency through active learning. Its ultimate goal is the pursuit of personal and professional development (McCullan et al, 2003). As a technological affordance in learning environments, ePortfolios assess performance in authentic clinical contexts and encourage reflection of such performance (Scholtz, 2020; Sultana et al., 2020).