Issues for debate

Electronic portfolios in nursing education: A review of the literature

Janet Green*, Aileen Wyllie, Debra Jackson

Faculty of Health, University of Technology, PO Box 222, Lindfield, Sydney, NSW 2070, Australia

ARTICLE INFO

ABSTRACT

As health professionals, nurses are responsible for staying abreast of current professional knowledge and managing their own career, professional growth and development, and ideally, practices to support these activities should start during their student years. Interest in electronic or eportfolios is gathering momentum as educationalists explore their potential as a strategy for fostering lifelong learning and enhancing on-going personal and professional development. In this paper, we present an overview of e-portfolios and their application to nurse education, highlighting potential benefits and considerations of useage. We argue that the e-portfolio can represent an authentic means of assessing cognitive, reflective and affective skills. Furthermore, the e-portfolio provides a means through which nurses can record and provide evidence of skills, achievements, experience, professional development and on-going learning, not only for themselves, but for the information and scrutiny of registration boards, employers, managers and peers.

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Introduction

Electronic or e-portfolios are a relatively new 'tool' being used increasingly by nurses. At their inception, most e-portfolios were in effect 'online curriculum vitae' (CV) -a simple translation of information from paper to an electronic form for online use. They typically contained scanned documents such as certificates of achievement and employment records, a process that was welcomed by nursing regulation bodies. While the electronic storage of such documents is useful, the recent explosion in technology offers much more than greater portability and versatility than their paper-based counterparts, and there is now gathering momentum to explore the potential for e-portfolios as a valuable learning device for on-going personal and professional development.

The paper is a review of the literature on e-portfolios in nursing education, and has been expanded to include literature from other disciplines in higher education. The paper begins with a description of an e-portfolio and how and why it can be used by nurses. This leads into a discussion on the e-portfolio and its potential for learning and professional development, which is supported by underpinning educational theories. There follows some points of note for educationalists who consider using an e-portfolio as a learning tool and ends with a discussion of issues on e-portfolios, assessment, technology and competency in nursing education.

Portfolios and e-portfolios

The word portfolio is derived from the Italian word *Portare* meaning "to carry" and *Foglio* meaning "leaf or sheet" (Meister et al., 2002). In the current context in nursing the portfolio is an organised collection of professional work that follows the trajectory of a nurses' career that should illustrate the background, skills and expertise of the individual (Oermann, 2002). A portfolio of work across time represents a collection of evidence to demonstrate skills, knowledge, attitudes and achievements (EDCAN, 2008); affords an invaluable snapshot of current skills (Siegle, 2002); and provides students and registered nurses (RN's) with the opportunity to reflect on their professional growth and develop new goals. When viewed as a reflective document, a portfolio can promote self-directed learning, thus assisting career development and planning (Hallam et al., 2008; Meister et al., 2002).

Portfolios have been used in a variety of professional disciplines within the university setting for a number of years to encourage reflective practice in students. Nursing education is a relatively late adopter of the concept. The portfolio has also been used for the assessment of student growth and personal and professional reflection (Pincombe et al., 2010), which can be measured over time (Lettus et al., 2001). The portfolio does not replace the CV, but provides information at a volume and depth not found in the CV. While the CV briefly lists the background, experiences and achievements of the nurse; the portfolio can provide the depth of evidence and confirmation of the competencies and expertise developed as a result of the nurse's experience and so represents a

* Corresponding author. Tel.: +61 2 95145740; fax: +62 2 419498432.
E-mail addresses: Janet.Green@uts.edu.au (J. Green), Aileen.Wyllie@uts.edu.au (A. Wyllie), Debra.Jackson@uts.edu.au (D. Jackson).

valuable adjunct to the CV (Oermann, 2002). Furthermore, portfolio development is an active process involving collecting, synthesising and organising relevant and important items which will reflect best evidence of achievement (Joyce, 2005).

Generally it is suggested that there are two types of portfolios, "best work" and "growth and development" (Oermann, 2002). Best work portfolios provide evidence of the nurse's competencies and expertise (McCready, 2006), and can be used as documentation for job applications and annual performance review. Best work portfolios contain carefully selected materials which are prepared for review by an assessor or employer. Growth and development portfolios are work in progress documents designed to help nurses monitor their own progress in meeting their personal and professional goals (Oermann, 2002). Students need to be clear about the purpose of the portfolio when they select material to be exhibited (Pincombe et al., 2010).

The e-portfolio has been defined by Mason et al. (2004) as a self-selected multimedia presentation of students' work that provides a rich, textured view of a student's learning and development. The students collect and select appropriate materials to create a body of work that is representative of their learning over the course of their education. This can be summarised as "collect, select, reflect and connect" (Clark and Eynon 2009). The student chooses what they would like to submit for assessment. The e-portfolio is an electronic version of the portfolio, where a three dimensional record of personal and professional achievement is produced in a form that is able to be made available for the scrutiny of self and others. Ciocco and Holtzman (2011) suggest that e-portfolios are both useful and appropriate for working with students, particularly when considering that many of today's learners are "techno-savvy", "technology networked" and desirous of "completing their work entirely through use of computers"(p.69). Creation of an e-portfolio can be useful at both undergraduate and postgraduate levels and advantages can include personal benefits such as developing technology skills appropriate for e-learning, encouraging more longitudinal portfolios (and thus career) development, easier storage and enhanced ability to circulate copies (Ciocco and Holtzman 2011). Furthermore, as external pressures increase to improve the outcomes from higher education, e-portfolios offer rich and innovative possibilities for universities to provide 'work ready' graduates (Pelliccione and Dixon, 2008). Potential of e-portfolios for learning and professional development.

There is general agreement in the literature of the potential value in promoting e-portfolios in education (Garrett and Jackson, 2006; Butler, 2006; Pincombe et al., 2010; Garrett et al., 2012; Karsten, 2012). E-portfolios are thought to facilitate accountability and autonomy because they encourage students to take responsibility for their learning needs, as well as the direction, progress and quality of that learning (Joyce, 2005). They also have a major advantage over traditional portfolios due to their portability and adaptability as the text and artefacts are able to be held in a central repository where they can be assembled electronically and manipulated and re-versioned to suit differing audiences (Stefani et al., 2007; Mason et al., 2004). These factors mean that individuals are better able to track, reflect and evaluate their learning and growth over time.

Reflection and learning

The theoretical underpinnings for the use of portfolios lie in the andragogical approach espoused by Knowles (1975); the student active experiential learning model derived by Kolb (1984); the novice to expert framework of Benner (1984) and reflection in and on action developed by Schon (1983, 1987). Knowles' (1975) premise was that students are self-directed, with an individual's past experiences

providing a rich resource for learning. Adults as students demonstrate curiosity and are self-motivated to grow and achieve. Their readiness to learn develops from considering life tasks and experiences and solving problems. It needs to be remembered that while not everyone has adult learning tendencies, portfolio construction can nurture and develop these traits if a supportive and facilitative environment is available (Endacott et al., 2004).

Kolb (1984) devised a four-stage cyclical experiential theory of learning that combines experience, perception, cognition, and behaviour. Kolb believes "learning is the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, p. 38).Kolb's (1984) learning cycle explains how personal experience is translated through reflection into concepts. These concepts are then used as guides for the choice of new experiences. Kolb's (1984) work is applicable to the e-portfolio because knowledge can be seen to be created through the transformation of personal experience. Kolb (1984) also developed a learning styles inventory, and four prevalent styles were identified - assimilators, convergers, accommodators and divergers. Kolb argues that individuals differ in how they learn, depending on their learning style. Assimilators prefer sound logical theories; convergers need to be provided with practical applications of concepts and theories; accommodators need hands on experiences in order to learn; and divergers need to be allowed to observe and collect a wide range of information (Kolb, 1984). However, despite learning style differences between individuals, the e-portfolio represents value for learners across all four learning styles because theories, concepts, information, observations and experience are all valuable components that can contribute to the development of an e-portfolio.

Benner's (1984) novice to expert framework is ideally suited to portfolio and e-portfolio development for nurses in that proficiency at each of Benner's levels (novice, advanced beginner, competent, proficient and expert) can be established by evaluating learner outcomes at each stage of his or her career. Over time, with movement from reliance on abstract principles, as a beginner; through to the use of past concrete experience as an expert learning outcome would change, reflecting a learner's place on the learning trajectory. The transition to expert is evident when there is recognition of the situation as a complete whole rather than bits joined together, and professional movement from observer to engaged participant (Benner, 1984).

Reflection is an important process in the development of an e-portfolio. The reflective component of the e-portfolio is thought to provide a bridge between theory and practice, linking the knowledge gained in the classroom with that of the practice environment (Joyce, 2005; McCready, 2006). Thus, it is hoped that students will develop enhanced skills through the application of the e-portfolio; however research evidence is needed to validate this claim. Notions of knowing-in-action, reflection-in-action, and reflection-on-action were central to Schon's educational philosophy. Schon (1983) warned against 'technical-rationality' as the grounding of professional knowledge. Professional everyday practice was considered by Schon (1983) to be complex and not easily understood through conventional technical rational models. Everyday practice was thought to be messy, unpredictable, multifaceted, challenging and stressful, thus practitioners needed to understand the complexities of practice in order to learn from practice (Schon, 1983). From Schon's perspective, understanding involves exploring experiences, connecting with the feelings that have emerged, and attending to theories currently in use. This process builds new understandings that can inform actions in clinical/practice situations as they unfold.

Reflection-in-action and reflection-on-action are both crucial elements that underpin the philosophy of the e-portfolio. Reflection-in-action occurs during an event or situation, at a time when the