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The use of tablet PCs to access an electronic portfolio in the clinical setting: A pilot study using undergraduate nursing students

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Summary
Background: In 2006, a digitalised clinical portfolio was introduced into an undergraduate nursing program. The use of a tablet personal computer (PC) with wireless broadband access could overcome issues around computer access in the clinical setting enhancing authenticity and timeliness of assessment.
Methods: In July 2007, a Hewlett–Packard TC 4400 tablet PC was issued to three participating students. A focus group utilising a semi-structured interview and a survey collected data from the students at the end of the trial to determine the effectiveness of the strategy.
Results: Participants used tablet PCs to access their portfolios. However, lack of space, busy wards and concerns about the security of the PCs limited their use in the clinical setting. The majority of their journal entries were made at home and within similar time frames to those prior to access to tablet PCs. Participants also used the PCs to provide education to other students and staff but were reluctant to use them in front of patients.
Conclusion: Barriers limiting the use of tablet PCs in the clinical setting may be overcome with greater proficiency in their utility and increased portability of the technology. Tablet PCs offer advantages related to and beyond portfolio use in the clinical setting.

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Introduction

In 2006, the School of Nursing and Midwifery at the University of Queensland introduced the clinical practice performance electronic portfolio (CPPeP) into the final year of its Bachelor of Nursing program. This digitalised evolution of the School's existing paper-based clinical practice performance portfolio allows students to undertake and demonstrate Australian Nursing and Midwifery Council competencies while in the clinical setting.

An evaluation (Cooper et al., 2006) of the CPPeP identified it was highly valued by students, preceptors and faculty staff alike. However, poor computer access in the clinical setting limited the electronic portfolio's use by students and their preceptors. The low number of desktop personal computers (PCs) available in the clinical setting, the inability of students to leave the patient's bedside to use a computer in critical care areas and use of computers for specific purposes such as clinical data entry resulted in frustration amongst CPPeP users. One respondent commented ''... *give each preceptor/student a laptop with wireless Internet access*'' (p. 15).

In 2007, a pilot study trialling the use of tablet PCs further investigated the use of the CPPeP in the clinical environment. It was anticipated that tablet PCs would overcome limitations relating to computer access. The participants' ability to collect evidence and receive feedback at the point of care would result in a greater degree of authenticity and accuracy in the education and assessment processes. This paper reports the findings of this pilot study.

Literature review

Portfolios are recognised as valuable tools to aid in the credentialing or licensure process of nurses (Ramey and Hay, 2003; Skiba, 2005). Key strengths of the portfolio include: involving the student with their learning whether in the classroom or on clinical placement (Nairn et al., 2006); providing a framework of skills for development or refinement (Hawthorne and Bogossian, 2005); and as a method of assessment whereby students demonstrate their development over a range of activities which may be otherwise difficult to assess (Andre and Heartfield, 2007). Students can observe progress towards competency and role transition by comparing the naivety or simplicity of statements or observations made early in their education with the increasing complexity of those developed later (Scholes et al., 2004).

Portfolios contain 'process-orientated' and 'product-orientated' items. Product-orientated items are seen as the ''...*end* product of learning or professional activities and experiences'' (Andre and Heartfield, 2007); process-orientated items relate to how outcomes have been achieved. Evidence of critical reflection, an integral component of the portfolio, is a process-orientated item. Portfolios assist students to understand their clinical experiences by linking them with theoretical knowledge and providing them with a means of dealing and coping with difficult experiences faced on clinical placement. Students have reported this cathartic role to be as important as the ability to develop their own learning (Nairn et al., 2006).

Support is seen as an integral requirement for effective portfolio use and students do not necessarily believe academic staff or clinical preceptors prepare them adequately for portfolio use (Nairn et al., 2006). Students initially prioritise information perceived to be more immediately useful — such as submission dates — over how to use the portfolio. Preparing clinical preceptors working in a variety of clinical settings and locations to use and assess the portfolio is also a challenge (Scholes et al., 2004).

Garrett and Jackson (2006) state that ''...*the* proliferation of technology and advanced computing has given rise to the availability of on-line and mobile technologies in the workplace'' (p. 648). The paper-based portfolio has evolved into the digitalised portfolio (McKenzie et al., 2002) and, in line with higher education, nursing has embraced the electronic portfolio as a method of presenting work, demonstrating personal development and assessing learning (Skiba, 2005).

Advantages of the electronic portfolio

The electronic portfolio possesses advantages over the paper-based version. Physically, the bulkiness of the latter (Hawthorne and Bogossian, 2005) is overcome. Students can collect, manage and retrieve information via multiple media applications stored conveniently on a hard drive or web-based information management system (Andre and Heartfield, 2007) while reducing the volume of paper being generated (Lawson et al., 2004). When reflective journaling is paper-based, students' learning can become disjointed as each semester's work is viewed independently rather than as a continual process of development (Sher et al., 2002). Utilised continuously across many semesters, the electronic portfolio can achieve a cohesive structure to students' learning.