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Student preparedness for university e-learning environments

Mitchell Parkes [a,*], Sarah Stein [b], Christine Reading [a]

[a] School of Education, University of New England, Armidale 2351, NSW, Australia
[b] Distance Learning Office, University of Otago, Dunedin 9054, New Zealand

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ABSTRACT

The current generation of learners have been referred to as 'digital natives' in reflection of their apparent ease and familiarity with digital technology. However, questions remain about how prepared students are for university e-learning environments. This research explores student and staff perceptions of the level of preparedness for students for a university e-learning environment mediated by a Learning Management System. Findings suggest that while students may be reasonably prepared to deal with the technology of e-learning, for activities such as, reading and writing, being clear and concise in responses, synthesizing ideas, planning strategies, making arguments, and working with others, students are not well prepared.

1. Introduction

Prensky (2001) argues that the rapid proliferation of digital technologies over the past decades has had a profound influence on the students we teach. According to Prensky, a "discontinuity" has developed and as a consequence, society can now be broadly categorized into two groups, "digital natives" and "digital immigrants" (2001, p.1, 3). As digital natives, students today "are all 'native speakers' of the digital language of computers, video games and the Internet" (Prensky, 2001, p.1).

Prensky's work, which has subsequently been expanded upon by other authors, has led to the idea that the post 1980s generation—those who have grown up with access to computers and the Internet—are "inherently technology-savvy" (Margaryan, Littlejohn, & Vojt, 2011, p. 429). In a university context, which has seen the rise of e-learning as the preferred method of course delivery, it might seem reasonable to expect that these technologically-savvy, digital native students would be well suited for such learning environments. However, anecdotal evidence suggests that students often to struggle with e-learning. Further evidence can be found in attrition rates for e-learning courses which are generally higher than for traditional face-to-face courses (Waugh & Su-Searle, 2014). All of these act to question the preparedness of students for university e-learning environments.

This paper reports the results of a study designed to explore the preparedness of students within the context of a university e-learning environment. In this study, students and staff at a regional university in New South Wales, Australia were asked to rate 58 e-learning competencies according to their level of student preparedness. These e-learning competencies had been previously developed using a process known as Hybrid BARS.

The original motivation for the study was a response to a series of questions posed by Arif (2001), on the preparedness of students for e-learning:

> As a starting point, is the student well prepared for using the computer technology? Then, is the student competent in using the Web for accessing course content and navigating through it easily? Moving towards educational concepts, is the student well equipped for self-assessment and judgment to adapt new directions in learning? Finally, the ultimate question, is the student ready for a change in the old studying techniques to the new ones? (p. 37)

Coincidently, the works of Prensky and Arif are contemporaneous. However, while Prensky argues that as 'digital natives' students should be well prepared for e-learning, Arif questions to what extent students actually are. The aim of the study reported in this paper was to look beyond the *supposed* preparedness of students for university e-learning environments in order to determine their *actual* preparedness for such environments.

2. Literature review

Despite the rapid proliferation and increased popularity of e-learning at the university level, very little research appears to have been done on the preparedness or readiness of students for such learning environments. One of the earlier studies on student readiness for online learning was conducted by Warner, Christie, and Choy (1998) using a sample drawn from the Australian Vocational

* Corresponding author. Tel.: +61 2 67735082.
E-mail addresses: mparkes2@une.edu.au (M. Parkes), sarah.stein@otago.ac.nz (S. Stein), creading@une.edu.au (C. Reading).

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Education and Training (VET) sector. Results indicated that students were not sufficiently prepared for, or accepting of, online learning. In particular, students possessed low skills in sophisticated computer and Internet related tasks; had a preference for traditional methods of course delivery (i.e., face to face) over online delivery of learning; and were generally ill-prepared for online learning (Warner et al., pp. 2–3). However, in 1998, online delivery was still in its infancy and so the low skill levels and preference for traditional forms of delivery could have been due to students' lack of exposure to online learning. Despite this, the study remains valuable today as it helps establish a point of reference with respect to levels of student preparedness for online learning.

In 2000, McVay developed a *Readiness for Online Learning* questionnaire that used attitudes and behaviors as predictors of online student learning readiness. A number of subsequent studies have explored the utility and reliability of this instrument across a range of different contexts (e.g., Atkinson & Blankenship, 2009; Blankenship & Atkinson, 2010; Smith, 2005; Smith, Murphy, & Mahoney, 2003).

Smith et al. (2003) administered the *Readiness for Online Learning* questionnaire to 107 undergraduate students across a range of courses in Australia and the United States. Subjected to reliability and factor analysis, the instrument fared well with respect to reliability and yielded a two factor structure identified as *comfort with e-learning* and *self-management of learning* (Smith et al., 2003, p. 57). The authors concluded that while the *Readiness for Online Learning* questionnaire would be useful in both research and practice, the questionnaire might be better refined and its predictive validity determined.

Smith (2005) applied the *Readiness for Online Learning* questionnaire to 314 undergraduates at an Australian university and reconfirmed the two factor solution that he and others had identified in a previous study (Smith et al., 2003). Smith concluded that *Readiness for Online Learning* questionnaire was measuring learner preferences that had been identified in broader studies designed to investigate preferences or styles (2003, p. 10).

Atkinson and Blankenship (2009) examined differences between male and female undergraduate students and found significant differences in how comfortable these two groups felt communicating electronically—with males being significantly more comfortable than females. Atkinson and Blankenship went on to suggest that time management and self-directed skills should be taught to students at an earlier age to better prepare them for online learning environments.

Blankenship and Atkinson (2010) administered the McVay (2000) *Readiness for Online Learning* questionnaire to 146 undergraduate students at a mid-sized university in the United States and reconfirmed the two-factor solution of Smith's (2005) study. However, slightly different factor loadings led Blankenship and Atkinson to suggest that the factor *comfort with e-learning* be changed to *comfort with non face-to-face communication* while the factor *self-management of learning* should remain unchanged. The study also found no significant differences between urban and rural students or between male and females students based on the survey factors. In addition, the authors found evidence suggesting that students were becoming increasingly more comfortable with online environments. Blankenship and Atkinson came to the conclusion however, that research still remained inclusive as to the identification of critical success factors for effective student learning in online learning environments.

While McVay's *Readiness for Online Learning* questionnaire remains a popular instrument for measuring student readiness for e-learning environments, a number of different instruments have been used. Watkins, Leigh, and Triner (2004) modified a previous e-learning readiness scale developed by Watkins (2003). This earlier scale originally had 40 items which, based upon the results of Confirmatory Factor Analysis, Watkins et al. (2004) were able to reduce to a 27 item scale. Six dimensions were identified: *Technology Access*, *Online Skills and Relationships*, *Motivation*, *Online Audio/Video*, *Internet Discussions* and *Importance to your success*.

Hung, Chou, Chen, and Own (2010) developed and validated a multidimensional instrument for university students' readiness for online learning in Taiwan. The authors identified five dimensions of online readiness: *self-directed learning*; *motivation for learning*; *computer/Internet self-efficacy*; *learner control*; and *online communication self-efficacy* (2010, p. 1084). Research data collected from 1051 college students indicated that student levels of online readiness were high in *computer/Internet self-efficacy*, *motivation for learning* and *online communication self-efficacy* dimensions, but were low in *learner control* and *self-directed learning* (2010, p. 1086).

Dray, Lowenthal, Miszkiewicz, Ruiz-Primo, and Marczynski (2011) constructed a survey instrument consisting of two subscales: learner characteristics and technology capabilities. Their first subscale expanded upon previous surveys (e.g., Bernard, Brauer, Abrami, & Surkes, 2004; Mattice & Dixon, 1999; McVay, 2000) adding items such as individual beliefs, self efficacy and time management. Their rationale was that many characteristics that make successful learners in traditional learning environments would translate into success for online environments. The second subscale measuring technology capabilities was expanded to include the ability to use email and the Internet; access to technology; and the nature and frequency of technology use (Dray et al., 2011, p. 32). Factor analysis confirmed that the scale fitted best to a five-factor model based upon, *learning characteristics*, *mental access*, *material access*, *skills access*, and *usage access* scales.

The various survey instruments described above show that online readiness scales have tended to converge into two broad categories of personal qualities that can be used to predict e-learning readiness: technical skills and learner characteristics. However, from a practical perspective, the issue with online learning readiness scales is that while they may assess the readiness of students to *be* online learners, very few of these scales provide assessment of the actual knowledge, skills and attitudes students require *as* online learners. Furthermore, in many of the readiness scales there is the tendency to describe what students *have to be* (e.g., self-directed, self-aware, motivated) rather than what students *need to do*. Focusing on what students have to be, often results in the description and assessment of traits and characteristics rather than observable and measurable behaviors. The problem is that traits and characteristics are personality descriptors which may be formed early in life or inherited (Parry, 1998). As a consequence, traits and characteristics are resistant to change and are difficult to develop and measure (Cocanougher & Ivancevich, 1978; Parry, 1998).

By shifting the focus to behaviors that are observable and measurable, would make their evaluation easier. Critically, such behaviors can also be taught, developed or improved (Parry, 1998). To reflect such a distinction, in this paper, the term *preparedness* rather than *readiness* is used. By assessing the preparedness of students for a range of e-learning competencies described in behavior-specific terms, the study described in this paper helps to address this gap in the e-learning readiness and preparedness literature.

3. Method

3.1. Data collection

Student and staff e-learning stakeholders at a regional university in New South Wales, Australia were asked to rate, via a web-based survey, 58 e-learning competencies according to their level of student preparedness. Stakeholders were selected based upon the basis of either having previous learning (for students) or teaching experience (for staff) with e-learning. The e-learning competencies rated had previously been identified using a process known as the Hybrid Behaviorally Anchored Rating Scale (Hybrid BARS). Hybrid BARS has the capacity to capture aspects of effective performance and present them in