

# PST Online: Preparing pre-service teachers for teaching in virtual schools

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Improvements in available technologies and an increased popularity of online learning spaces have seen a shift in the dominant ways students engage with formal and informal learning in their day-to-day lives. This is especially true for the distance education experience through the rise in virtual schools. As this shift occurs, it becomes increasingly important to reflect these new changes in curriculum design for pre-service teachers. Increasingly, these pre-service teachers will be engaging with students, not just in the traditional, physical classroom space, but also in online spaces and via distance. These new virtual learning environments require their own separate skillset to be properly navigated by both the learner and teacher to provide meaningful and rich learning experiences. In order to develop resources to facilitate the learning of these skills, current pre-service teachers have identified their own understandings of online learning and their readiness to teach within these new spaces.

**Keywords:** virtual schools, pre-service teachers, online teaching, OER, distance education

## Introduction and background

The growth of online collaboration and communication opportunities has expanded the potential for learners to create meaning across a range of new, modern teaching spaces. The online environment also creates the capacity for teaching to occur in new and more powerful formal and informal types of distance education. As dominant modes of learning shift, it has become increasingly important to recognise the need to ensure that pre-service teachers both are aware of the new skills required for teaching into increasingly online and virtual learning environments and are well supported in this transition. In particular, the recent emergence of virtual schools reflects new, purely online spaces that pre-service teachers may find themselves teaching into.

The University of New England (UNE), Australia, is a world-leader in distance and blended learning, with the majority of its students studying by distance (over 80%) (University of New England, 2014). This provides academics with a higher education perspective of teaching and learning within the virtual space, and first-hand experience of the changing needs and expectations for high quality engagement, content delivery and behaviour management. However, despite this, many teacher education programs, especially those focused on Primary and Secondary Education, are not yet adapting to adequately cover this need of “preparing pre-service teachers to teach in this [virtual] environment successfully” (Bull, 2010, p. 29), instead focusing on face-to-face, physical teaching environments.

This paper reports the first phase of a research project funded by the Office for Learning and Teaching (OLT), focused on preparing pre-service teachers for teaching in virtual schools. The project aims to create a suite of resources for pre-service teachers to use and draw on to support their ability to successfully engage in a virtual school teaching environment. The initial phase centres specifically on exploring the perceptions of current teacher education students regarding readiness for online teaching, their understanding of what virtual schooling is, and identifying key topics which they see as important as preparation for teaching into these virtual spaces.

## Literature review

It has been predicted that “by the end of the next decade, secondary schools will offer up to half of all courses in virtual formats” (Bull, 2010, p. 29). Indeed, in the United States of America, “virtual schooling is a fast growing option for K–12 students” (Kennedy, 2010, p. 21). Similar forays into virtual schooling are occurring in New South Wales where a new 7-12 virtual high school, Aurora College, opened this year, 2015. These changes in education delivery will necessitate a new approach to curriculum design: a re-shaping of discipline-based courses in higher education institutions with regard to teacher education and also re-definition of the use of information and communication technologies.

In developing a suite of resources to assist pre-service teachers with the development of online teaching skills, the researchers draw on the currently available literature as to what constitutes best practice in online teaching. In Australia, there is very little written about such teaching in schools and it is necessary, for the Australian context, to draw on the literature around online teaching in higher education institutions (Downing & Dymont, 2013; Gregory & Salmon, 2013). A more specific bank of literature has emerged in North America, including not only research into school online teaching requirements (DiPietro, Ferdig, Black, & Preston, 2010; Murphy & Manzanares, 2008; Murphy, Rodríguez-Manzanares, & Barbour, 2011), but also the development of standards for teachers in online environments (International Association for K-12 Online Learning, 2011; International Society for Technology in Education, 2008).

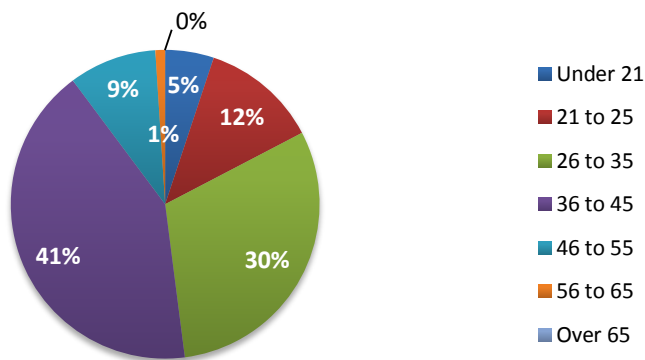
It is argued in the literature that teaching online necessitates a different range of skills from those currently covered in teacher education programs. It is also argued that classroom management, including behaviour management, is one of the most important challenges for teachers and one of the biggest concerns of pre-service teachers (O'Neill & Stephenson, 2011; Peters, 2009). While initial teacher education programs deliver a range of units designed to overcome these concerns by developing the requisite face-to-face skills, online teaching changes the dynamics and “necessitates a shift from a practice of controlling to engaging students’ attention” (Murphy & Manzanares, 2008, p. 1061). These researchers argue that there are contradictions in moving from face-to-face teaching in a conventional classroom to teaching online and teachers “may benefit from opportunities to develop new skills, techniques and strategies” (Murphy & Manzanares, 2008, p. 1070).

The current project, in developing a resource to assist both teacher educators to teach new skills and pre-service teachers to understand these skills, has the capacity to begin to prepare new teachers for the realities of 21<sup>st</sup> century education (Partnership for 21st Century Skills, 2009) and thereby, in the long term, to improve education opportunities for school age children.

## **Method**

Before developing resources to support pre-service teachers’ understandings of online education, it was important to engage with current pre-service teacher education students to gauge their understanding of what virtual schooling is, their perceived strengths and weaknesses within this arena, and key areas they felt were important or problematic to be addressed within these resources. A survey was developed covering these and other questions around online education, with responses to inform future direction and focuses for the project.

The survey was sent to current UNE students studying across twelve of the initial teacher education degrees offered at the university. This sample captures the views of pre-service teachers from a range of contexts including: Primary, Secondary and Early Childhood; on-campus and external cohorts; and those both early and late into their degree of study. The survey received 202 respondents from across these contexts, providing a rich and varied perspective regarding their knowledge and beliefs about online teaching. The participants ranged in age from under 21 to over 65, with the predominant age bracket being the 26 to 45 age group (two groups), as depicted in Figure 1.



**Figure 1: Age of Student across all pre-service teacher courses**

Initial demographic questions provided the frequencies of age, gender and location of the participants. The majority of participants in the survey were female, 167 (83%), with 35 males (17%). This is typical of pre-service enrolment at UNE. Table 1 provides information in relation to where the participants were located. These results not only reflect the range of respondents, but also highlight patterns of average pre-service teaching degree participants. Of particular note, the data highlight the average pre-service teacher as being in their thirties, and thus not a direct school leaver themselves, and most frequently located in capital cities. This latter observation reflects pre-service teachers' own engagement with online distance education as a viable learning environment in contrast to physical locations of study. This higher education experience, with either blended or wholly online learning, provides them with a learner's perspective of virtual teaching and learning. However, the perspective requires explicit expansion to adapt these skills and experiences to provide effective virtual school teaching in pre-tertiary contexts.

**Table 1: Participant location statistics breakdown**

Participant Location	Response	%
Rural	11	5%
Rural Town	19	9%
Small Regional Town / City	26	13%
Small Non-Regional town / City	6	3%
Regional City	35	17%
Non-Regional City	3	1%
Regional Major City	24	12%
Non-Regional Major City	9	4%
Capital City	69	34%

## Results

Participants were asked to rate their knowledge of Information and Communication Technology (ICT) skills and online teaching capabilities on a 5 point Likert scale ranging from very low to very high. They were also asked to contrast this knowledge prior to beginning their course with their view of their current knowledge. In all cases, students identified their skills and knowledge as improving since beginning their course – with the mode response shifting from 'average' to 'high' in both instances (see Table 2). This shift is indicative of positive student engagement with technology enhanced learning throughout their studies, through both modelled use of learning technologies integrated into their units of study and explicit ICT in Education units of study.

In the open-ended questions, participants were asked to consider important factors for developing a positive online learning experience and also what concerns they had or challenges they might face if appointed to teach using online technology. They identified a range of important factors in developing positive online learning experiences. Responses often drew from participants' own higher education experiences with online learning, much of which parallels the needs of teaching within virtual schools,

including: timely access to teachers and support; online etiquette; quick response time; meaningful feedback; the ability to interact with other students to develop relationships and build meaning; tailoring content to individual needs; and pacing. In contrast, other responses highlighted the dissonance between important skills in tertiary online education and those involved in virtual schooling – a focus on time-management skills for online learners, over behaviour management in an online space.

**Table 2: Student self-perceptions of ICT skills & online teaching readiness**

Question	Very Low (1)	Low (2)	Average (3)	High (4)	Very High (5)	Mean
Your skill level with respect to ICT in general prior to commencing your current course	6	22	82	55	21	3.34
Your skill level with respect to ICT now	1	2	65	89	29	3.77
Your knowledge level with respect to teaching online prior to commencing your current course	30	52	72	26	6	2.6
Your knowledge level with respect to teaching online now	6	21	58	84	17	3.46

Even experienced academics find the pedagogy involved to teach effectively online is quite different from learning online. A recent example of this was when a professional development workshop, presented by two experienced online teaching academics, elicited an interesting response from the academics. They were running a workshop for local teachers. However, not all could attend in person. Therefore, half the participants attend face-to-face whilst the remaining attended through video-conferencing. The academics stated that they were ‘struck by how different it was to work with the teacher mentors who were online compared to the face-to-face.’ There was a realisation that this particular academic ‘needed to reconsider [her] pedagogy for any future workshops presented for the project’. Hence, there is a need for pre-service teachers, with the changing technological world, to be able to teach online as opposed to learn online.

## Conclusions and next steps

Presented is a snapshot of the wide range of pre-service teacher contexts and identified self-perceived strengths and knowledge in teacher education students towards ICT education and online learning. Interestingly, pre-service teacher responses were more focussed on their learning as opposed to their teaching (or future teaching). In addition to identified strengths and areas pre-service teachers identify as beneficial to the creation of positive online learning experiences, the data also reveals gaps and misconceptions in student understandings of virtual schooling and online education within the pre-tertiary space, which can be captured when designing resources to facilitate the further development of these pre-service teacher skills.

The survey data provides a rich overview of current pre-service teachers’ understandings of virtual and online teaching, and identifies key problematic areas to be focused on in the next phase of the project – the creation of an open, online collection of resources for pre-service teacher use centred on virtual teaching. These resources will be developed in the form of an educational website containing a suite of resources for use by current and pre-service educators. The site aims to contain a series of modules around identified topic areas, and contain support materials, short videos and case studies, and classroom resources within each module. The use of open source learning platforms such as Moodle and WordPress will allow for adaptable yet accessible resources in a familiar and easily navigable format for pre-service teacher use, and allow resources to be built utilising a range of learning management tools and activities to facilitate a broad range of multi-modal materials across learning styles and needs.

At the conclusion of the survey, participants were able to identify themselves and opt-in to a follow-up workshop to be held in Armidale or Parramatta. These workshops will further assess quality and use cases of the online resources developed and inform further improvements and modules to benefit pre-service teacher readiness and understanding of online education environments within their own pre-tertiary contexts.

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