

VIRTUAL FIELD EXPERIENCE – PREPARING FUTURE TEACHERS FOR E-LEARNING IN SECONDARY SCHOOLS

Lily Compton

Iowa State University Center for Technology in Learning and Teaching
Ames, Iowa, USA
nkerli@iastate.edu

Niki Davis

University of Canterbury College of Education
Christchurch, New Zealand
Niki.Davis@canterbury.ac.nz

Brad Meek

University of Canterbury College of Education
Christchurch, New Zealand
Brad.Meek@canterbury.ac.nz

ABSTRACT

Virtual Schooling (VS) for secondary students using distance technologies has increased rapidly with the growth of online learning, including e-learning in New Zealand schools. Although VS requires a special set of teaching methods, teacher education programmes rarely include this new mode of schooling. Even less has been offered in terms of field experience. This paper describes a pilot virtual field experience that enabled future teachers to observe how an exemplary VS teacher taught her course using blended technologies in the USA. Future teachers' reflections revealed that they had overcome misperceptions in coming to the realisation that VS brought education into more learners' spaces and places.

INTRODUCTION

In the USA Virtual Schooling (VS) for primary and secondary students developed with the Internet and is increasing exponentially within many states and school districts (Watson & Ryan, 2007; Roblyer, 2008). In 2007, 42 out of the 50 US states had virtual

schools offering online learning courses and Florida Virtual School has become a district in its own right. Distance learning in Australia has included adaptation to an online mode by the Virtual Schooling Service (Davis & Niederhauser, 2005). In New Zealand there are 20 e-learning clusters of schools that increase opportunities for rural youth (Wenmouth, 2005). According to the [V.E.N report \(Browning, 2005, page 3\)](#) “What is evolving is a new form of “blended education” which draws on the methodologies of both face-to-face and distance education.”

However, virtual schooling is contentious and it is important to note that there are misconceptions about the professional and organisational development required (Davis & Rose, 2007), as well as equity issues (Rose & Blomeyer, 2007). There is evidence of changed roles in virtual classrooms such that a distant VS teacher is supported by other educators including a VS site facilitator in the student’s school (Harms et al, 2006; Davis & Niederhauser, 2007). For example, Florida Virtual School significantly increased student retention when it required that each student was supported by a VS site facilitator and Hannum (in press) provides evidence of a significant increase in the quality of VS student experience when VS site facilitators receive training in how students learn online. In New Zealand Lai and Pratt (2005) evaluated developing practice in one of the first e-learning clusters “OtagoNet”, and found that videoconference technology challenged teachers who took time to develop more effective pedagogical approaches. An overview of activity and challenges in New Zealand is included in the 2006 review of VS by Susan Patrick and Alison Powell (2006). Although this new mode of schooling is contentious (Patrick et al, 2007), not least in the changes that it may provoke in the funding of public education, it is happening. This paper addresses the gap that is developing between teacher preparation and twenty first century schooling, namely the lack of attention to VS as a mode of secondary education.

New Zealand’s programmes of pre-service teacher education are similar to those in the USA. In New Zealand a number of teacher education providers have embraced and even in some cases developed on-line learning technologies in order to enhance the distance delivery of their pre-service teacher education programmes, such as the innovative “Interact” online learning management system developed by the Christchurch College of Education (which is now part of the College of Education in the University of Canterbury). As a result student teachers have experience of learning through ICT. However, the modes of education studied only to relate to traditional classroom based teaching and do not include online learning. To date in New Zealand there has been no attempt to include into programmes of initial teacher education the pedagogies required

for teaching in a virtual school or e-learning environment. In the opinion of the New Zealand author, this situation may reflect both an acknowledgement of the need for e-learning in order to reach isolated students scattered across a rugged and sparsely populated country, whilst at the same time signalling a deep seated preference for a face to face education based upon a shared classroom culture and an emphasis on social interaction.

In New Zealand the use of ICT to reach isolated learners faces an added frustration. The infrastructure needed to support ICT technologies also struggles to reach isolated communities. Whilst the urban areas of New Zealand contain the infrastructure, hardware, software and expertise required to engage in on-line learning, the more isolated regions of New Zealand arguably in most need of on-line learning opportunities are less well equipped.

Traditionally teacher education has placed a very high value on various forms of supervised field experience. In New Zealand these are interspersed between blocks of time devoted to theory based courses. Extended practicum experiences tend to increase over time in the level of complexity and challenge until the student teacher is responsible for the learning of a whole class. In addition, shorter episodes of field experience assist students to contextualise their theory learning. In recent years the inclusion of field experiences, which used to include demonstration lessons viewed behind one way mirrors, has declined and has largely been replaced by the use of in-class video to enable a similar kind of guided observation. Knowles & Cole (1996: 659) explain that “Field experiences provide pre-service teachers with their first realisation that schools, as professional communities, are made up of numerous persons in various roles: students, parents, administrators, professional and non professional support staff and other teachers in the schools as well as members of the professional community at large.” They also emphasize the importance of expanding preexisting views beyond the act of teaching into the complexity of interrelated activities undertaken by educators in schools while recognising that future teachers bring misconceptions from their personal histories that need to be challenged and corrected. Field experience in Virtual Schooling, as a new mode of education emerging in twenty-first century schools, has the potential to further expand student teachers’ understanding of the diversity of roles in education (Davis & Niederhauser, 2007). The novelty of VS also provides the opportunity to make the familiar strange in a way that challenges misconceptions by provoking deeper reflection and learning.

Field experience forms part of a learning sequence that scaffolds the transition to a teaching role as it generally involves the initial observation of an experienced and competent teacher role model followed by post observation discussion to clarify and usually expand upon the student teacher's observation insights. When part of a practicum, this discussion will often be followed by co-operative planning involving a single student and the associate (co-operating) teacher. In the early stages such planning will frequently focus upon the needs of a group within the class and, as a result, early teaching experiences usually involve teaching a single lesson or series of lessons to a group rather than the whole class. Such lessons will often provide the student with the opportunity to focus on aspects of lesson delivery such as group management or questioning skills.

The use of the term "planning" potentially hides a difference in educational cultures. In New Zealand the teacher's planning role tends to begin at the level of interpreting the official curriculum as broadly outlined in the New Zealand Curriculum document. The selection of resources and formulation of learning intentions to meet the identified needs of learners are important parts of the planning process. As a result of this view of teaching there are no mandated text books and curriculum is not directly driven by the publisher or state. Extending a New Zealand notion of teaching into the context of on-line learning would therefore place significant emphasis on the construction of the on-line (virtual) classroom itself. This would include the selection of the resources it contained and the design and sequence of the activities intended to engage the learner. In the context of the primary school one consequence of teacher driven curriculum construction is that assessment is also less externally controlled. Involvement in assessment procedures will also occur as a part of New Zealand teacher education field experience and the design of the assessment will also have been part of the student teacher's planning process. The existence of external assessment processes ensure that New Zealand Secondary teachers are often more restricted.

To summarize, there is evidence that the new mode of learning online is spreading within secondary education, that new complementary roles are emerging, and that educators need professional development to ensure a quality learning experience for the students involved. Field experience in schools mentored by a cooperating teacher with oversight from a university supervisor is an important aspect of preparing future teachers for primary and secondary schools and a variety of field experiences are sought where possible. However, few future teachers are prepared for online teaching either through theory based courses or through practical field experience. It is worth noting that there are very real challenges in observing and gaining field experience when there

is no one physical location that contains the students and their teacher. This was the challenge addressed by the first two authors. The first author led the creation of one of the first virtual field experiences and this pilot project will now be described.

METHODOLOGY

The innovation took place as part of a national project to develop a model for US teacher education that includes VS as a model of schooling. The project “Teacher Education Goes Into Virtual Schooling” was led by the second author, and within it the first author undertook case study research. A virtual field experience was created to provide pre-service teachers with opportunities to observe an exemplary virtual teacher at work within her virtual classroom. A qualitative case-study methodology was employed to gain an in-depth and holistic understanding of the impact of the virtual field experience on the participating pre-service teachers and the impact of stakeholders on the process of change (Esterberg, 2002; Merriam & Associates, 2002). The primary data sources were students’ reflective journals, postings online and discussion forum responses to the selected readings. Additionally, the researcher’s journal was used to provide additional insights, especially those relating to departmental culture that the researcher personally experienced.

A VIRTUAL FIELD EXPERIENCE

An early field experience was created and offered in fall 2007 at Iowa State University (ISU) as a one-credit course, which typically involves 15 hours of instruction but which in this case included online instruction plus 20 hours of observation. This early field experience offered future teachers the opportunity “to observe and work with real students, teachers, and curriculum in natural settings” (Huling, 1998:2), which in this case was a virtual high school science course offered simultaneously to different remote sites and taught by an exemplary teacher using blended technologies. The university one-credit course was created within ISU’s learning management system WebCT. The course was divided into ten learning modules that included 24 hours of reading, observation and reflective activities. In the early learning modules, the course focused on introducing the pre-service teachers to the concept of VS through reading reports and documents pertaining to topics such as the national vista of VS, online teaching skills, misconceptions, responsibilities of a VS teacher, and legislative issues. Additionally, these early modules required pre-service teachers to read about the experience of VS from the perspective of the VS student, VS teacher and site coordinator from the Virtual High School website (See Day in the Life at <http://www.govhs.org/Pages/Welcome->

[Home](#)). These readings helped pre-service teachers to identify their misconceptions as well as address some of their concerns about VS as indicated in their reflections below:

At first I believed that virtual schooling could only be used for certain classes and was worried about the teacher/student communication as well as the cost of virtual schooling. A lot of the concerns that I believed about virtual schooling turned out to be myths. And the myths came from just not having the right knowledge about virtual schooling. (Pre-service Teacher HH)

Through the readings I have minimized my own fears and anxieties about VS. It was amazing to see the statistics about how children are learning through VS. I liked to learn as well that VS helps kids who cannot have an actual teacher in their school due to budget or just a shortage in teachers. (Pre-service Teacher MO)

As is typical in early field experiences, the course involved the “joint supervision of a cooperating teacher... and a university supervisor” (Huling, 1998: 2). The university supervisor, who was the first author, coordinated with a VS teacher of Anatomy and Physiology from Iowa Learning Online (ILO) (www.iowalearningonline.org) to gain access to her ILO WebCT course for lurking privileges. The VS teacher provided each pre-service teacher her own login ID and password and listed each as a teaching assistant so they could see not only the student pages but also the teaching tools. Lurking activities allowed the pre-service teachers to observe how the high school course was organized such as the individual reading assignments and kitchen labs, the threaded online discussions, quizzes, and tests. They could also observe each individual unit to see how existing internet resources were carefully selected to complement tasks designed by the VS teacher.

Observation alone is insufficient for effective learning. Huling (1998) reported that “careful guidance and mediation to help candidates focus on critical aspects of classroom teaching and interactions and to interpret what they see are necessary for candidates to benefit from field experiences” (p.3). Therefore, in addition to the lurking activities, the university supervisor and VS teacher also negotiated guided observations which were essential for the completion of later learning modules. An early virtual meeting was arranged as an introductory session for the pre-service teachers to meet the VS teacher. The pre-service teachers met with their university supervisor on ISU campus and joined the VS teacher in a group session using Skype’s web-conferencing tools. The virtual meeting began with introductions using a webcam at both ends. Later, the webcam was replaced with voice chat to reduce technical difficulties. The VS

teacher provided an overview of her Anatomy and Physiology course and addressed questions ranging from her involvement in VS generally to the navigation of the course itself.

A second virtual meeting with the VS teacher provided pre-service teachers the opportunity to observe how she conducted her virtual office hours and used them to address her students' questions and concerns, check on their progress, and provide demonstrations. This session took place at the Iowa Communication Network (ICN) facility (<http://www.icn.state.ia.us/>), a two-way interactive audio-video system with studio classrooms at schools in all Iowa school districts. The preservice teachers met with their university supervisor in an ICN room on the ISU campus and were joined by the VS teacher to her list of remote sites. This allowed the pre-service teachers to observe how the VS teacher managed the technology, i.e. controlled the audio-video system to enable students from different remote sites to see her or students from a specific site. It also allowed pre-service teachers to observe her pedagogy, i.e. demonstrating parts of their curriculum and addressing questions about an upcoming experiment. During this observation, pre-service teachers used Skype as a back channel communication tool to ask questions which were addressed by the VS teacher when her students were working on their units. At the end of the virtual office hour, 15 minutes were provided to allow a debrief between the VS teacher and the pre-service teachers. The pre-service teachers reported that they found the experience interesting and were able to identify skills necessary for effective VS teaching:

The skills that I feel are most important when conducting a smooth office hour include certain aspects such as being able to multi-task, and organisation. Throughout the office hour we were able to observe the teacher doing multiple activities such as talking to the students and asking them questions or answering their questions as well as typing to us answering our questions or letting us know important aspects of the office hour, also keeping an eye on all of her schools that were present during the office hour. (Pre-service Teacher HH)

Another important component of this field experience was the on-site observation of a regional lab. The VS teacher included quarterly regional labs as part of her online course to ensure that students received hands-on experience. Therefore, she arranged regional labs in a few locations to allow students from nearby sites to attend. The pre-service teachers scheduled an observation at their nearest location. Since the pre-service teachers' content area was not science, they were not expected to focus on the

experiments. Instead, they were encouraged to talk to the students and the student coaches to get a better understanding of their experiences and responsibilities in VS.

Huling (1998) reported that field experiences may include other responsibilities including supervising students and grading student work. For this experience, the pre-service teachers were also assigned a specific group of students to monitor. Since the VS course was set up to be flexible and self-paced to a certain extent, tracking a specific group of students enabled the pre-service teachers to follow the students' progress more closely and gain a better understanding of these students' learning situations including their schedules and inevitable timetable clashes at their own schools. In addition, the pre-service teachers were asked to follow a discussion thread for two weeks and facilitate when necessary. At the end of the two weeks, they had to assess their group's involvement in the discussion according to a rubric set by the VS teacher. These individual assessments were then emailed to the VS teacher who took them into consideration when she later assessed the students herself.

Reflective journals were included as part of the pre-service teachers' assignments to encourage reflective observation on and synthesis of VS. These reflections included their thoughts after completing the readings, lurking, virtual and on-site observations, as well as their involvement in assessing learning. Their reflections showed that they were more positive towards the idea of VS and were eager to learn more about it:

I at first was in the class just because I needed to finish my hours for [this course]. Now that I have experienced VS first hand, and see the other side of it, I definitely think it would further my career to be a VS teacher. I would love to work in the classroom as well, but I love the strong role technology plays in VS. I think it would be a challenge to create a course that is good for VS and would like to see and improve on what is already out there. My perception about virtual schooling is changed because I think at first what I had in mind was that it was far away from happening, and everything that was said bad about it. I now know it is such a good thing, and not necessarily better, "just different".
(Pre-service Teacher MO)

When I first signed up for the course I was just worried about getting my required hours in for [this course]. I didn't know much about Virtual Schooling in fact I knew very little about virtual schooling. I am now really glad that I signed up for the course and have changed a lot of my own personal beliefs and values from the time I first began to now. (Pre-service Teacher HH)

FUTURE PLANS

Overall this pilot study has provided evidence that a VS field experience has a positive impact on the future teachers who participated. They became aware of their misconceptions and developed a more balanced view of the place of distance education for secondary students in the twenty-first century. This Midwest University plans to continue to offer this option for VS field experience, hopefully stepping up recruitment. When sufficient students are enrolled at one time greater use of online discussions will be possible as a part of the WebCT course and this will ensure that future teachers have had experience in VS as learners before they visit the VS class online as assistant teachers. The field experience will continue to apply Knowles & Cole's (1997: 665) recommended 'tools' adapted for use within online environments: "(1) gathering *internal* information through autobiographical writing (2) gathering *external* information through extensive explorations of educational contexts and people and their roles within those contexts, primarily through the use of ethnographic research activities." Other programs preparing teachers in the USA have also indicated that they plan to develop virtual field experiences and this has been welcomed by virtual schools and the North American Council of Distance Learning.

In addition it is hoped to develop and adapt a similar field experience in New Zealand to enhance the quality of learning for secondary students involved in e-learning, stimulated by the move of the second author to the University of Canterbury, College of Education. It is hoped that it will be possible to recruit both cooperating teachers and other staff from schools participating in e-learning clusters, supported by evidence that professional development improves student retention and results. We recognize that it is important to provide access for students in their place and in their space while also ensuring their learning may be high quality with appropriate pedagogy, curriculum options personalised to that student and their communities. We are keen to hear other views on professional development for e-learning in New Zealand schools. While such e-learning may be contentious in secondary schools, its development is inevitable in the twenty-first century and teacher education cannot afford to ignore the gap that has begun to develop.

ACKNOWLEDGEMENTS

The contents of this paper were partly developed under a grant from the Fund for the Improvement of Post Secondary Education (FIPSE), U.S. Department of Education. However, these contents do not necessarily represent policy of the Department of

Education, and no one should assume endorsement by the Federal Government. We also wish to acknowledge support from all participating organisations, particularly the Iowa State University Center for Technology in Learning and Teaching. Additionally, we would like to thank Gail Wortmann, our wonderful virtual co-operating teacher as well as Dr. Ann Thompson and Jason Follett in their dedication to help us with this pilot virtual field experience.

REFERENCES

Browning, R. (nd). *V.E.N. Report on eLearning communities*. [Online] Accessed 1 June 2008, <http://www.virtualeducation.net.nz/docs/reporttoven.doc>

Davis, N.E., & Niederhauser, D.S. (2005). Socio-cultural analysis of two cases of distance learning in secondary education. *Education and Information Technologies*, 10(3), 249-262.

Davis, N.E., & Niederhauser, D.S. (2007, May). New roles and responsibilities for distance education in K-12 education. *Learning and Leading*.

Davis, N.E. & Rose, R. (2007). *Report on professional development for virtual schooling and online learning*. Vienna, VA: NACOL. Retrieved November 8, 2007 from http://www.nacol.org/docs/NACOL_PDforVSandOlnLrng.pdf

Esterberg, K.G. (2002). *Qualitative methods in social research*. Boston: McGraw Hill.

Hannum, W. (submitted). Effectiveness of Using Learner-Centered Principles on Student Retention in Distance Education Courses in Rural Schools. *Journal of Distance Education*.

Harms, C.M., Niederhauser, D.S., Davis, N.E., Roblyer, M.D., & Gilbert, S.B. (2006). Educating educators for virtual schooling: Communicating roles and responsibilities. *Electronic Journal of Communication*, 16(1 & 2). Accessed 18 July 2008 from http://www.cios.org/getfile/01611_EJC

Huling, L. (1998). *Early Field Experience in Teacher Education*. Columbus, OH: ERIC Clearinghouse on Teacher and Teacher Education. (ED 429 054)

Knowles, J.G. & Cole, A.L. (1996). Developing practice through field experiences. In F. Murray (Ed.). *The teacher educator's handbook. Building a knowledge base for the preparation of teachers*. San Francisco: Jossey-Bass.

Merriam, S.B. & Associates (2002). *Qualitative research in practice: Examples for discussion and analysis*. San Francisco: Jossey-Bass.

Patrick, S, Clements, K., Hanley, R., Koch, D., Young, J. (2007). *VS Trends, Benefits and Elluminate (part 1)*. A webinar accessed 12/7/08 at http://sas.illuminate.com/site/external/event/description?instance_id=8402

Patrick, S. & Powell, A. (2006). *An International Perspective of K-12 Online Learning: A Summary of the 2006 NACOL International E-Learning Survey*. NACOL. Accessed 15/7/08 at <http://www.nacol.org/docs/InternationalSurveyResultsSummaries.pdf>

Roblyer, M. D. (2008, in press). Virtual schooling: Redefining a place called “school.” In J. Voogt & G. Knezek (Eds.), *International Handbook of Information Technology in Primary and Secondary Education*. Amsterdam, NL: Springer-Verlag.

Watson J. & Ryan, J. (2007). *Keeping Pace with K-12 Online Learning: A Review of State-level Policy and Practice*. Vienna, VA: NACOL. Retrieved November 8, 2007 from <http://www.nacol.org/docs/KeepingPace07-color.pdf>

Wenmoth, D. (2005). The New Zealand Correspondence School and the Video Conferencing Cluster Schools Network. In Commonwealth of Learning, *Proceedings of the International Conference on Open Schooling*, Goa, India, Jan 23-25 2005.