

## **Developing Pedagogy and Course Design Skills in Novice Virtual School Teachers in Australia**

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Ten secondary schools in a large state-wide education system initiated a virtual school network to address the lack of upper secondary school courses for university entry in smaller high schools. This article highlights the yearlong professional learning program designed to prepare a cohort of classroom teachers, who were novices to teaching online, for developing and teaching fully-online courses. In accordance with program goals, data include pre/post measures of teachers' capabilities and external course reviews using the iNACOL National Standards for Quality Online Teaching. Results show that teachers grew in all standards of their self-reported online teaching skills, and reviewers rated two-thirds of the 21 quality items as being Very Satisfactory and Satisfactory for a majority of the courses prior to teachers beginning to teach students. Findings indicate areas of emphasis for the ongoing work of the cohort's professional learning community.

## **DEVELOPING PEDAGOGY AND COURSE DESIGN SKILLS IN NOVICE VIRTUAL SCHOOL TEACHERS IN AUSTRALIA**

In times of growing complexity in education, schools and school systems in North America and Australia increasingly seek success for all students through technology that enables access to relevant education opportunities and personalization of the learning experience. For many schools, an online course offering has become part of their student success program (Hughes, Zhou & Petscher, 2015; Lewis, Whiteside & Garrett Dikkers, 2014; Powell, Roberts & Patrick, 2015). Concurrently, individual teachers are developing their effectiveness with students, their reputation in the profession, and their career options through an increasing range of professional learning pathways. For many teachers, professional learning communities focused on innovative teaching practice have become part of their development agendas (Owen, 2015). For teachers who are launching their journeys as online teachers, new skills are needed (Cavanaugh, 2013).

This article highlights a yearlong professional learning program designed to prepare classroom teachers in Western Australia who were novices to teaching online for developing and teaching fully-online courses in a new system-wide virtual school program. The education system that developed the new program serves 163 schools with 77,000 students spread across the state of Western Australia, a geographic area of over 1 million square miles. The schools range from city schools of over 1,800 students to remote desert schools with fewer than 50 students. The average school size is about 500 students, and 25% of schools have 200 or fewer students.

### **RELATED LITERATURE**

As with launching any new school, creating a new virtual school program requires the selection of a virtual learning approach, procurement of the necessary digital content for the courses, and enlistment of qualified teachers. Numerous factors underlie the choice to outsource virtual learning to third-party programs, to license course content from such providers to be taught by in-house teachers, or to provide courses using both local content and teachers (Keller, 2015). For example, when the local context is unique, including pedagogy, curriculum and student needs, the case is strong for locally created and taught online courses. When the expertise and support exist for local course development, benefits include scalability, sustainability, and increased teacher capability in both virtual and physical teaching (Lowes, 2010).

Across primary and secondary education, leaders are called on to invest in teachers as the transformers (European Civil Society for Education, 2017) and change makers (Tait & Faulkner, 2016) in schools. As educator

professional learning shifts to continuous, practice-focused, and job-embedded approaches, professional learning communities (Owen, 2015) with mentoring (Kennedy & Archambault, 2014; Kennedy & Cavanaugh, 2010) offer a promising pathway for developing virtual teachers.

Australia has a long history of innovation in K-12 online and distance learning; establishing correspondence programs around 1922 (Stevens, 1994; Stacey & Visser, 2005); schools of the air for radio lessons in 1948, some of which continue to operate in five of the mainland states and territories (Moore & Kearsley, 1996); and at least 25 K-12 online programs predominantly offered by governments or independent schools (Europace, 2013). No Catholic schools or diocese have been identified as offering online courses for their context, although they serve 20% of students in the country (Australian Bureau of Statistics, 2017). An independent school online secondary program offers teacher-developed virtual courses at Northern Beaches Christian School with a high completion rate (Harris, 2015), using International Society for K-12 Online and Blended Learning (iNACOL) standards as guidance in the absence of localized standards.

Research in K-12 online learning in Australia has emphasised feasibility for access to secondary courses in remote and rural areas (Russell, 2006). Early government virtual school service programs were evaluated as effective alternatives to schools of the air, boarding schools, and other options, finding that a synchronous virtual school brought exemplary teaching to remote students (Kapitzke & Pendergast, 2005) and that synchronous lessons engage primary school students (Hastie, Chen, & Kuo, 2007). Little research exists examining the teacher preparation journey in Australian virtual schooling.

## CONTEXT

In 2017, 10 of the 40 secondary schools in the Catholic Education Western Australia (CEWA) system's rural and remote schools offered few or none of the year 11-12 courses required for university admission. The lack of year 11 and 12 courses was not new to these schools. Some of the schools had provided the courses using government distance education program at a cost of \$2000 per student per course. These courses were not found to apply best practice in engagement and transactional distance for secondary learners. To offer a full program for the students needing it would cost over \$200,000, thus being unsustainable and non-scalable, in addition to offering a suboptimal learning experience. Based on our internal calculations, providing the full catalogue of courses needed in these schools would require up to 50 specialist teachers at a cost of at least \$3 million per year.

The mean socio economic level of the system's families is below the state mean. Thus the 11,000 students who attended school outside of the urban region had very limited access to the full range of classes they may need due to low levels of family and community resources, low numbers of school staff in small schools, and challenges of recruiting teachers in rural communities. These limitations of available classes and academic programs has meant that rural families have been faced with inadequate options: moving all or part of the family to access a school with necessary programs, move the student to a city boarding school, stop the student's education, or enroll the student in a government-provided online correspondence course. Each of these options came with implications for families including financial costs, loss of family unity, loss of connection to the community, and unengaging education experiences in the short term. Longer term, communities suffered losses of professional capital and curtailed economic potential (Barbour & Hill, 2011; Irvin, Hannum, Farmer, de la Varre, & Keane, 2009).

This situation meant that approximately 125 students who would be attending years 11-12 in these schools did not have access to the courses they needed in their own schools, and many other students had limited ranges of these courses in their schools. Leaders in one of the schools needing a year 11 and 12 program began self-developing online courses and quickly realized that the special skills and pedagogy that secondary online courses require was not fully available in a small regional school.

An alternative considered by leaders in the impacted schools was to provide online courses built by teachers using effective research-based approaches (Clark & Barbour, 2014), designed to build caring relationships among teachers and students (Borup, Graham, & Velasquez, 2013), taught by the system's accredited teachers, and facilitated by trained onsite mentors (Ferdig & Cavanaugh, 2010). Implementing a virtual school entails providing purpose-built course content, skilled virtual teachers, and program oversight, including enrolment, orientation, policy, quality assurance, among other considerations. Because virtual schooling for secondary students differs from both classroom schooling and adult/tertiary learning, a unique, specific, and relatively new skillset is needed to develop and offer a virtual school program (Cavanaugh, 2013). Most education systems either license virtual programs from established providers or they hire teams of qualified developers and instructors. Fewer systems develop and teach virtual programs by upskilling existing staff. CEWA chose to work with existing staff to establish its virtual school program for several reasons.

- **Containing costs.** Funding external programs or people would divert resources from important programs.

- **Increasing individual and system capacity.** Training teachers builds CEWA's ability to provide online and blended programs and increases general digital teaching capability. Virtual teachers serve as digital pedagogy experts for colleagues.
- **Infusing the system culture and identity.** Creating their own virtual courses enables schools to maintain its established brand and identity.

Ten secondary schools joined together as a virtual school network to address this need. They initiated a collaborative strategy for designing and delivering the first 10 courses for member schools and other schools in the system. Technically, the virtual school network was possible because in the same year, the school system implemented a comprehensive digital transformation that included a next generation digital learning environment.

During the development year, the goals for the virtual school program were to establish program policies and practices; to launch the digital learning environment which was new to the system that year; to measurably develop teachers' capabilities in effective online pedagogy; to launch external course quality review; to enrol students in each course; to on-board and train a school site mentor in each school; and to provide orientation modules to each student.

The iNACOL National Standards for Quality Online Teaching (2011) were adopted as the benchmarks for teaching and course delivery for this program in the absence of national, state, or system guidelines for K-12 virtual courses. The iNACOL standards provided (1) a focus of reflective job-embedded professional learning over the year of course development from the teacher perspective, teaching the core competencies of effective online teachers and courses; (2) a program assessment identifying from the virtual school program perspective the areas needing further attention; and (3) a baseline to document from a system perspective annual progress in teacher competencies and course design practices.

## METHOD

### Participants

At the start of 2017, 10 specialist year 11 teachers were recruited from member schools to learn virtual pedagogy and course design during the year in preparation to teach their courses the following year. The teachers received limited release time from their full teaching schedules outside of eight days of workshops. They gathered between March and October with virtual school program leaders and system leaders who had experience in learning design and online learning, detailed below. The work of the teachers throughout the year in an online professional learning community (PLC)

was facilitated by the program leader and system leaders who had extensive experience in K-12 online course design, teaching and research. The PLC was guided by the iNACOL National Quality Standards (iNACOL, 2011).

The goals for teachers during the development year were to build relationships in their community of practice which would constitute the core support through the initial year of teaching online; to learn facilitative virtual pedagogy; to learn engaging course design principles; to learn the digital learning environment; to develop the first term of their online course; and to become confident advocates and representatives of their program in the state.

The 10 teachers were recruited from eight secondary schools. At the start of 2017, they had an average of 11.8 years of classroom teaching experience, ranging from 1 to 31 years. Due to the lack of online learning programs for students and teachers in the state, teachers had very little exposure to online teaching prior to starting the new program. Half of the teachers had no online teaching experience and no online course design experience. The others had little experience in online teaching or course design. They ranged from no to extensive online learning experience, which was limited to designing and facilitating individual lessons or activities rather than full courses.

### **The Professional Development Experience**

The teachers met for a total of eight days of face-to-face training over the 12 months preceding the start of virtual course delivery, spaced through the year at two days per quarter. In between the days of training, teachers participated in online activities which supported prior learning and provided a personal online learning experience to draw on. Given that the virtual learning environment was new to the teachers as well as to the school system, and a strong local culture of online learning had not yet developed, it was essential for teachers to come together to develop the necessary skills and understandings. The parallel themes of the training experience were virtual pedagogy and course design, with key activities outlined below.

#### ***Virtual Pedagogy.***

1. iNACOL Teacher Standards. Teachers unpacked the standards through group discussion and then conducted a self-review of the standards against their own abilities. Results were shared and key points highlighted with the group. The self-review was repeated at the end of the year and results from earlier in the year compared.

2. Communication and relationships. Teachers read articles about humanizing their courses and addressing needs of diverse learners online. They also watched videos of CEWA students with experience in online learning who shared their perception of a good online lesson. Teachers then applied the key messages to their course development and brainstormed the ways in which they could build positive connections with their online students. The teacher group also connected with an experienced online secondary teacher in New Zealand via Skype, who shared her tips and advice for building positive connections with students online. In the intervening virtual PLC sessions, teachers practiced these skills.
3. Formative assessment. Teachers discussed the importance of formative assessment for monitoring and feedback purposes and then brainstormed ways in which to conduct formative assessments using the technology available.
4. Authentic learning online. A local researcher in authentic online learning led a session on the importance, value and delivery of authentic learning experiences.
5. Feedback. A question and answer session with CEWA technology experts allowed the teachers to understand the capacity of the technology to create feedback opportunities in an effective and efficient manner.

### ***Course Design.***

1. Technology platform and enabling course design. Teachers had guided exploration of the new system-wide technology tools (e.g., OneNote, Teams, Forms, Stream, Sway, Cloned) for the delivery of online learning. A workflow for teachers was outlined, with Teams and OneNote being the two main tools used for lesson delivery. Throughout all eight days, teachers added key points and reminders to an 'exemplary lesson' and created a strong online lesson template. Components included lesson structure, opportunities to communicate, feedback, positive connections, and formative assessments.
2. Introduction to design principles. System level visual design and learning design experts facilitated the teachers in a purpose-built online course that modelled the use of the technology tools over a 5-week period. The course addressed visual design elements such as color, fonts, typography, and learning experience design principles such as chunking, use of icons, and course and lesson navigation.

3. Content analysis for course curricula. Teachers inventoried their digital course resources to identify those that would be effective in the online environment, those that would need adaptation, and those affording completely new experiences online. This gap analysis resulted in a clear list of new resources that needed to be sourced or created.
4. Student and teacher workflows. Teachers used an intersecting teacher and student workflow diagram as the basis for group discussion and planning their course development work. They each added key points relevant to their own content.
5. Digital citizenship. CEWA's Head Librarian led a session on copyright for virtual resources, in which the teachers presented scenarios for advice.
6. Quality assurance course reviews. A two-part quality assurance process was implemented with the new online courses. Part A was a review against State Curriculum Standards and examined course compliance, depth of knowledge, timing, and appropriate resourcing. These reviews were conducted by recognized course experts external to the virtual teacher group. Part B was a review against select iNACOL teaching standards and was conducted by CEWA staff with online learning experience. The results from both parts of the review were shared with the teachers for them to action prior to course commencement.

## Instruments and Data Collection

**Online Teaching.** During their first virtual teaching professional learning session in March 2017, each teacher rated her perceived level of accomplishment on the 65 competencies in the 11 standards of the iNACOL National Standards for Quality Online Teaching (2011). They used a 5-level Likert scale for the rating, ranging from 1 to 5 as follows.

1. Absent: unable to apply component
2. Unsatisfactory: needs significant improvement
3. Somewhat Unsatisfactory: needs targeted improvement
4. Satisfactory: discretionary improvement required
5. Very Satisfactory: no improvement needed

In addition to the 64 hours of intensive scheduled professional learning and many hours of informal PLC work over six months, teachers worked independently to develop their digital content and to design their courses. At the conclusion of the workshops in October 2017, all teachers again completed the Online Teaching scale.



The self-report survey data provided a limited view into the teachers' readiness to teach online. However, the data provided an indicator of the teachers' general confidence to teach online, which aligns with the professional capital (Nolan & Molla, 2017) the teachers needed as the school system's first virtual teachers. The survey also indicated teacher confidence with the technology for online teaching, which is associated with their eventual use of the technology with students (Liu, Ritzhaupt, Dawson, & Barron, 2017).

**Online Courses.** Each of the ten courses developed by teachers was reviewed twice at the end of the course development year. The content review was conducted by an educator external to the virtual school program who had subject matter knowledge in the specialist domain of the course to ensure that the content adhered to state standards. The virtual design review was conducted by an educator external to the program who had experience in quality online courses and learning design. The virtual design review consisted of ratings and comments on 21 items derived from the iNACOL Standards for Quality Online Teaching (2011). These standards most closely aligned to the teachers' work in their first design stage, and have also been supported by research and experts (Adelstein & Barbour, 2017). Ratings for each item were given using the following options:

- Very satisfactory
- Satisfactory
- Somewhat Satisfactory
- Unsatisfactory
- Absent or unable to rate

The teachers as a group began the year with very limited online learning, online teaching, and online course design experience. Some were still in their first two years as educators and their virtual teaching would begin in the year following the professional learning and course development year. Further, they participated in the professional learning sessions and course development as an added responsibility beyond their full-time teaching roles. Thus, expectations were not that the courses would uniformly demonstrate high levels of quality at the outset. The course design review process was conducted with three goals in mind. First, use of the quality rubrics built competence among the teachers of effective online teaching benchmarks while they designed and redesigned their courses. Second, the outcome of the 2017 review provided early personalized formative feedback for each teacher to use in the subsequent course refinements prior to starting

the courses with students. Third, the outcome of the 2017 review combined with a review scheduled at the end of 2018 will show each teacher's progress and the growth of the group as well as areas for the program to target for program refinement.

## RESULTS

### Online Teaching

Teachers' perceived skill in online teaching was self-reported using a survey based on the 11 following standards, using a 1-5 Likert scale. All teachers responded to the same survey at the start and end of the course design year.

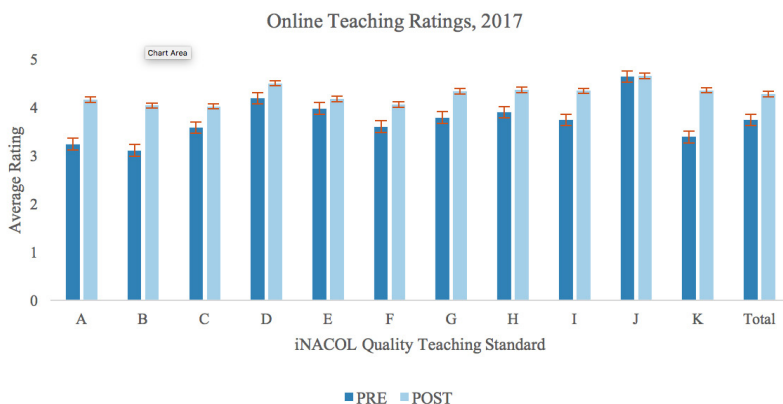
- A - Structures and concepts for effective online instruction
- B - Using technology
- C - Strategies for encouraging learning and participation in the online environment
- D - Student success through clear expectations, prompt responses and regular feedback
- E - Encouraging legal, ethical and safe behaviour related to technology use
- F - Diversity of student academic needs and accommodations
- G - Implementing online assessments
- H - Meeting standards around student assessment and student achievement
- I - Using data to modify content and to guide student learning
- J - Professional interaction with students, parents and other key staff
- K - Arranging media and content to help students and teachers transfer knowledge most effectively in an online environment

The Online Teaching ratings at the start of 2017, on average, ranged from 3.1 to 4.6 for the standards, shown in Table 1. The two highest rated standards in both pre and post surveys were the ones most related to general teaching skills: Standard J, professional interaction with students, parents and other key staff, and Standard D, student success through clear expectations, prompt responses and regular feedback. The lowest rated standards initially were Standard A, structures and concepts for effective online instruction, and Standard B, using technology, both of which are very specific to online pedagogy. Standards A and B also included the items with the highest standard deviations.

**Table 1**  
Mean pre and post teacher ratings of the iNACOL teaching standards

STANDARD	PRE	POST	CHANGE	RANKED CHANGE
A	3.24	4.16	0.92	3
B	3.11	4.04	0.93	2
C	3.58	4.03	0.45	8
D	4.19	4.50	0.31	9
E	3.98	4.18	0.20	10
F	3.60	4.06	0.46	7
G	3.79	4.33	0.54	5
H	3.90	4.37	0.47	6
I	3.74	4.35	0.61	4
J	4.64	4.65	0.01	11
K	3.39	4.36	0.97	1

At the end of the year, all average ratings increased, to a range of 4.0 to 4.7. The two highest rated standards interestingly showed growth despite not being specific to online teaching. In the post survey, the lowest rated standards were Standard B and Standard C, strategies for encouraging learning and participation in the online environment. The greatest increases during the year were reported for Standards B and K, those addressing using technology and arranging media and content to help students and teachers transfer knowledge most effectively in an online environment.



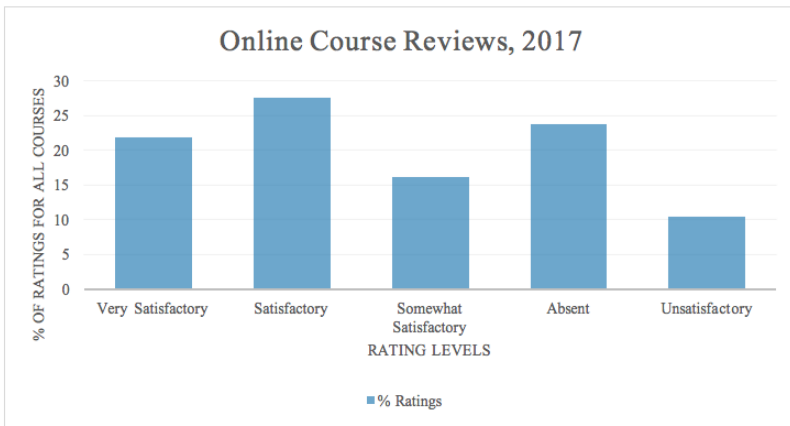
**Figure 1.** Pre and post online teaching ratings (means).

**Online Courses**

Using select rubrics for Quality Online Teaching, the external course design reviewers rated each course according to the 21 items in the following standards to represent competency that could be observed in course design.

- A - Structures and concepts for effective online instruction
- B - Using technology
- C - Strategies for encouraging learning and participation in the online environment
- D - Student success through clear expectations, prompt responses and regular feedback
- E - Encouraging legal, ethical and safe behaviour related to technology use
- F - Diversity of student academic needs and accommodations
- H - Meeting standards around student assessment and student achievement
- I - Using data to modify content and to guide student learning
- K - Arranging media and content to help students and teachers transfer knowledge most effectively in an online environment

In aggregate, reviewers rated 66% of the items as being Very Satisfactory and Satisfactory for a majority of the courses, and the other 33% of the items as being Somewhat Satisfactory, Unsatisfactory, or Absent for a majority of the courses. This result indicates a strong starting point prior to course launch with these novice online teachers. Figure 2 shows how ratings ranged for all courses and all rated standards.



**Figure 2.** Percent of course ratings for all standards.

The top-reviewed items were the ones related to clear expectations of students and course objectives, meaningful learning practices, and appropriate selection of tools and resources for learning. This result is not a surprising outcome for a group of successful subject specialist classroom teachers. The lowest-reviewed items related more specifically to online practices that are new to the teachers, including expectations for online interaction, online behaviour criteria, and engagement strategies in the online environment. Through the first year of teaching with students and collaboration within the community of practice, these skills are likely to develop.

### DISCUSSION AND IMPLICATIONS

Although standards for online teaching have been available for a decade, and research into online teaching practices are established, approximately only 1-2% of preservice teacher education programs include a virtual teaching practicum experience (Archambault, DeBruler, & Freidhoff, 2014). Thus it was to be expected that the 10 novice virtual teachers in this program had little to no online teaching experience. Challenged to build a new range of pedagogy and course design capability among a diverse cohort of teachers within one year, adoption of effective professional learning experiences was essential. A job-embedded year-long professional learning community designed for virtual teachers (Dawson & Dana, 2014) was used to address this challenge.

In accordance with Dawson and Dana's guidelines for online teacher professional development, this virtual school program ensured that an "evaluation system is in place to determine the effectiveness of and guide the improvement of the professional development" (Dawson & Dana, 2014, p. 255). By using a pre/post survey of teaching quality and a post-training pre-teaching review of course quality, teacher skill development could be assessed at the end of the initial year of professional development and could inform design of teacher learning experiences during the subsequent year as they began teaching online.

Results of the online teaching surveys in March and October bear out the relationship between practice and expertise (Ericsson, 2006). Teachers' grew in their perceived skills in all eleven standards areas, indicating at least increased confidence brought about by the awareness and practice of the standards during their professional learning experience. Their subject knowledge and classroom experience provided them some foundation in online pedagogy, as demonstrated by the standards that were rated as strong at the outset. Their PLC experience enabled them to feel growth in several standards that are learnable prior to teaching online, particularly those related to technology, media, and content. However, some standards related to online learning facilitation and moderation remained lower and have priority for the PLC in the following year.

Beyond teacher perceptions of skill, the courses they designed are direct evidence of their content presentation capability. The course reviews confirmed that the teachers showed strength in areas of course design that transcend physical and virtual learning environments and showed most limitation in aspects specific to online courses.

Overall, the yearlong virtual teacher PLC appears to be effective but not sufficient for bridging classroom and virtual teaching skill. Teachers grew in expertise through guided practice building on their prior skill and identified key abilities they have yet to develop as they begin teaching virtually in the year ahead. Explicitly identifying the skills needing attention will enable the teachers and their mentors to focus their efforts on the teaching and course practices that will result in quality learning experiences for the students who have enrolled in this new program for a better way to prepare for university while remaining in their communities. Because these skills, knowledge and abilities are described in detail in the standards, PLC initiatives and professional development activities can be aligned to the needs of the group, and activities and resources for each standard can be used by individuals in their personal growth plans.

This study's ability to deeply and holistically examine the novice online teacher's learning journey is limited. The population of teachers in this case was learning to develop courses for the specific context of the Australia Year 11 curriculum, and was preparing to teach the courses using the specific learning environment used in CEWA. Thus results may have limited generalizability to other contexts. Additionally, while the group of teachers was diverse, the sample size was small, and the data came from self-report instruments, bringing risk of bias. The study does not address actual teacher practice or performance with students in online courses. Finally, the survey was not designed as a research instrument, and has unknown reliability and validity, so it may have limitations in measuring true teacher skill.

Continued research is needed in this Western Australian program and in virtual teaching more broadly to describe the journeys and needs of novice virtual school teachers, especially those with the dual roles of teaching and course development. Australia is not yet providing pre-service teacher training to teach online, even as online options grow in government, independent, and Catholic schools. While digital content is available that aligns to Australian standards, full online courses provided for local schools to franchise are quite limited. Thus, schools must develop and deliver their online courses in most cases. Both activities require specialized skills and have been studied as independent professional learning experiences (Gyabak, Ottenbreit-Leftwich & Ray, 2015; Oliver, Kellogg, Townsend & Brady, 2010; Roy & Boboc, 2016; Zweig & Stafford, 2016). Until a school has the scale or resources to hire developers and teachers, many will employ teacher-developers. A research-based cohesive learning pathway is needed for simultaneous development of online teaching and course design skills.

## References

- Adelstein, D. & Barbour, M. (2017). Improving the K-12 Online Course Design Review Process: Experts Weigh in on iNACOL National Standards for Quality Online Courses. *The International Review of Research in Open and Distributed Learning*, 18(3). <http://www.irrodl.org/index.php/irrodl/article/view/2800/4176>. Accessed: 18 Mar 2018
- Archambault, L. M., DeBruiler, K., & Freidhoff, J. (2014). K-12 online and blended teacher licensure: Striking a balance between policy and preparedness. *Journal of Technology and Teacher Education*, 22(1), 83-106.
- Australian Bureau of Statistics. (2017). 4221.0 *Schools, Australia, 2017*. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/4221.0> Accessed 17 March 2018.
- Barbour, M. K., & Hill, J. (2011). What are they doing and how are they doing it? Rural student experiences in virtual schooling. *International Journal of E-Learning and Distance Education*, 25(1).
- Barbour, M. K., & Kennedy, K. (2014). K-12 online learning: A worldwide perspective. In A. Hirumi (Ed.), *Grounded designs for online and hybrid learning: Trends and technologies* (pp. 53-74). Washington, DC: International Society for Technology in Education.
- Borup, J., Graham, C. R., & Velasquez, A. (2013). Technology-mediated caring: Building relationships between students and instructors in online K-12 learning environments. In M. Newberry, A. Gallant, & P. Riley (Eds.), *Advances on Teaching: Vol. 18. Emotions in school: Understanding how the hidden curriculum influences relationships, leadership, teaching, and learning* (pp. 183-202). Bimbley, UK: Emerald Books.
- Cavanaugh, C. (2013). Student achievement in elementary and high school. In M. Moore (ed.) *Handbook of Distance Education*, 3rd edition. Mahwah, NJ: Lawrence Erlbaum Associates.
- Clark, T. & Barbour, M., Eds. (2015). *Online and Distance Education in Schools: Global Perspectives on Policy and Practice*. Stylus.
- Dawson, K. & Dana, N. (2014). Professional Development for K-12 Online Teachers. In R. Ferdig & K. Kennedy (Eds.), *Handbook of Research on K-12 Online and Blended Learning*. Pittsburgh, PA: Entertainment Technology Center Press, Carnegie Mellon University.
- Ericsson, K. A. (2006). The influence of experience and deliberate practice on the development of superior expert performance. In Ericsson, K. A., Charness, N., Feltovich, P. J., Hoffman, R. R. (Eds.), *The Cambridge handbook of expertise and expert performance* (pp. 683-703). Cambridge, England: Cambridge University Press.
- European Civil Society for Education. (2017). *Reimagining education for the digital age*. Brussels: Author. [http://lllplatform.eu/lll/wp-content/uploads/2015/09/DigitalPaper\\_final.pdf](http://lllplatform.eu/lll/wp-content/uploads/2015/09/DigitalPaper_final.pdf) Accessed 20 January 2018
- Europace. (2013). Researching Virtual Initiatives in Education. <http://www.virtualschool-sandcolleges.eu/index.php/Australia> Accessed March 17 2018.
- Ferdig, R. & Kennedy, K., Eds. (2014). *Handbook of Research on K-12 Online and Blended Learning*. Pittsburgh, PA: Entertainment Technology Center Press, Carnegie Mellon University.
- Ferdig, R. & Cavanaugh, C. (Eds.). (2011). *Lessons Learned from State-Led Virtual Schools: Experiences and Recommendations from the Field*. Vienna, VA: iNACOL.
- Harris, S. (2015). *Online Learning in Australia, a Case Study*. In Clark, T. & Barbour, M., Eds. (2015). *Online and Distance Education in Schools: Global Perspectives on Policy and Practice*. Stylus.
- Hastie, M., Chen, N.-S., & Kuo, Y.-H. (2007). Instructional design for best practices in the synchronous cyber classroom. *Educational Technology & Society*, 10(4), 281-294.

- Hughes, J., Zhou, C. & Petscher, Y. (2015). *Comparing Success Rates for General and Credit Recovery Courses Online and Face to Face: Results for Florida High School Courses*. REL 2015-095. Tallahassee: Regional Educational Laboratory Southeast.
- iNACOL. (2011). *Standards for Quality Online Teaching*. Vienna, VA: Author.
- Irvin, M. J., W. H. Hannum, T. W. Farmer, C. de la Varre, and J. Keane. (2009). Supporting online learning for advanced placement students in small rural schools: Conceptual foundations and intervention components of the facilitator preparation program. *The Rural Educator*, 31(1): 29–36.
- Kapitzke, C. & Pendergast, D. (2005) Virtual schooling: Productive pedagogies or pedagogical possibilities? *Teachers College Record*, 107(8), 1626-1651.
- Keeler, C. (2015). Instructional design: teaching with intent. In Clark, T. & Barbour, M. (Eds.) *Online and Distance Education in Schools: Global Perspectives on Policy and Practice*. Stylus.
- Kennedy, K. & Archambault, L. (Eds.). (2012). *Lessons Learned in Teacher Mentoring: Supporting Educators in K–12 Online Learning Environments*. Vienna, VA: iNACOL.
- Kennedy, K. & Cavanaugh, C. (2010). Development and Support of Online Teachers: The Roles of Mentors in Virtual Schools. *Journal of Technology Integration in the Classroom*, 2(3), 3742.
- Lewis, S; Whiteside, A; Dikkers, A Garrett. (2014). Autonomy and Responsibility: Online Learning as a Solution for At-Risk High School Students. *Journal of Distance Education*. 29 (2), 1-11.
- Liu, F. & Cavanaugh, C. (2011). Online Core Course Success Factors in Virtual School: Factors influencing student academic achievement. *International Journal of E-Learning*, 10(4), 43-65.
- Liu, F., Ritzhaupt, A.D., Dawson, K. & Barron, A. (2017). Explaining technology integration in K-12 classrooms: a multilevel path analysis model. *Educational Technology Research and Development*, 65(4), 795-813.
- Lowes, S. (2010). The Teacher as Migrant: How Teaching Online Can Change Classroom Practice. *Distance Learning* 7(2), 29-36.
- Moore, M. G., & Kearsley, G. (1996). *Distance education: A systems view*. Boston, MA: Wadsworth Publishing.
- Nolan, A. & Molla, T. (2017). Teacher confidence and professional capital. *Teaching and Teacher Education*, 62, 10-18.
- Oliver, K., Kellogg, S., Townsend, L. & Brady, K. (2010). Needs of elementary and middle school teachers developing online courses for a virtual school. *Distance Education*, 31(1), 55-75.
- Owen, S. (2015). Teacher professional learning communities in innovative contexts: 'ah hah moments', 'passion' and 'making a difference' for student learning. *Professional Development in Education* 41(1), 57-74.
- Powell, A., Roberts, V. & Patrick, S. (2015). *Using Online Learning for Credit Recovery: Getting Back on Track to Graduation. Promising Practices in Blended and Online Learning Series*. Vienna, VA: International Association for K-12 Online Learning.
- Russell, G. (2006). Globalization, responsibility and virtual schools. *Australian Journal of Educational Technology*, 50(2), 140-154.
- Smith, R.D. (2009). Virtual voices: Online teachers' perceptions of online teaching standards. *Journal of Technology and Teacher Education*, 17(4), 547-571.
- Stacey, E., & Visser, L. (2005). The history of distance education in Australia. *Quarterly Review of Distance Education*, 6(3), 253-259.
- Stevens, K. (1994). Australian developments in distance education and their implications for rural schools. *Journal of Research and Rural Education*, 10(1), 78-83.
- Tait, A. & Faulkner, D. (2016). *Edupreneur: Unleashing Teacher Led Innovation in Schools*. Victoria: Wiley.