Impact of Graduates from an Online Program in their Work Environment

NORMA SCAGNOLI, MELISSA STEPHENS & THOMAS ANDERSON
University of Illinois at Urbana-Champaign, USA

ABSTRACT Online distance education programs are populated by adult learners who try to continue or complete their education without having to leave their jobs or places of residence. Their work environment becomes not just their working place, but also the lab where they apply new knowledge. The general expectation is that after graduation they will make an impact in their work environment through their job and through interacting with peers and supervisors. This study explored the influence that K-12 teachers had in their work environment as they pursued and graduated from an online Master's program in Education. The study shows the impact that the participants had and how they became agents of change in their immediate workplace.

Introduction

Professional development for teachers is defined – by state laws, school districts, and professional organizations (such as the National Council of Teachers of Mathematics [1]) – as activities that produce relevant experience for the participants and result in enhanced student learning. Educators are encouraged to follow an approved plan recommended by the school districts, or to create their individual professional development plan that complies with state standards for developing in the teaching profession. Every three or five years teachers have to show proof of the activities that are leading to their ongoing professional development.[2] This is rewarded in different ways: salary increases (or 'lane changes'), promotions, or tenure. Professional development activities are in most cases also paid for in full or in part by the school district or the state.

Given the option of creating their individual professional development plan, some teachers opt for going back to school and pursuing graduate programs, which provide through the course credit allocation the hours needed for professional development whilst the teachers advance professionally and acquire a college degree. Such is the case of many of the teachers who enroll in the CTER (Curriculum, Technology, and Education Reform) online Master of Education program at the University of Illinois at Urbana-Champaign.

Taking an online Master's program as their choice for improvement has two relevant implications for the influence that professional development activities will have on the participants involved. One is related to the time of engagement and the other is related to the method of engagement. Because this is a Master's program, it takes longer to complete compared to regular professional development activities for teachers, such as workshops, independent courses, or short-term projects. This means that teachers spend more time engaged in their professional development activities, and therefore the impact of their learning may be perceived before the program is completed, and reinforced as they move on with their studies and finalize their degree. The second implication has to do with the method of engagement. Since the program is online, teachers are involved in their regular professional activities at the same time as they go on with their everyday tasks in schools. This condition, also known as the 'situated learning approach' (Lave & Wenger, 1991; Anderson et al, 1996; Stein, 1998), favors the conditions of applying theory

and research in the real world. This situation led us to explore what impact online professional development in the form of a Master's program would have in the participants' work environment.

Purpose of the Study and Research Methods

This research study aimed to analyze the facets of online professional development for teachers, and evaluate the impact that graduates from an online program have in their work environment. This study followed a multiple case study analysis approach (Stake, 2005), exploring several cases to inquire into the phenomenon of the impact that online learners have in their work environment. A purposeful sampling of teachers who have graduated from the CTER online Master of Education program at the University of Illinois at Urbana-Champaign constituted the population for this research. Data collection consisted of observation, interviews, and the study of documents. Data analysis included within-case analysis, that is the analysis of each case in particular, and cross-case analysis, or the process of comparison between cases. To insure validity, we used different strategies such as member checking and participants' review for the observations and the interviews. The cross-case procedure also served as a form of validation.

Literature Review

The idea that learning and professional development have to be tied to a real-life environment to ensure transfer has been supported by several researchers (Herrington et al, 1997; Bennett et al, 2002; Ormrod, 2004), and their studies coincide with the concept of situated learning. According to the literature, by following a situated learning approach, knowledge is acquired and learning is transferred by 'embedding subject matter in the ongoing experiences of the learners and by creating opportunities for learners to live subject matter in the context of real-world challenges' (Stein, 1998, p. 1). This is true for what happens in the cases studied. In the CTER program, as students take their courses, they work within a cohort model, and the working style in the different classes encourages students to communicate with another person who is either more or equally knowledgeable (such as an instructor, technical support, a teaching assistant, or peer) for the purpose of completing or improving a task (such as problem solving, completing course assignments, or iteratively improving a personal or professional project). At the same time, the courses are project-based, which encourages application of the theory in their real work environment, or within the realms of their discipline or area of expertise. Then, learning is situated in a 'community of practice' (Lave & Wenger, 1991), and the blending of theory and application enhances the meaningfulness of the learning process.

According to Ausubel's theory of meaningful reception learning, three conditions are essential for meaningful learning: (1) the learner must employ a meaningful learning set for any learning task; (2) the material must be potentially meaningful; and (3) the material students try to learn must relate to what they already know (Driscoll, 2002, pp. 116-125).

These theories are particularly relevant to online professional development because they emphasize the situatedness of learning and the importance of tying student learning into professional practice. The situated learning of professional teachers in a community of practice benefits the individuals, communities – such as departments, disciplines, cohorts – and the organizations where the participants are embedded – such as the public schools and school districts in this case.

Therefore, as far as the CTER program goes, students engage in the professional development process formally and informally. While they are students, they formally engage in professional development processes by talking to instructors, support staff, and fellow students. They also develop informally by learning from co-workers, friends, and family outside of the online classroom setting. This situation led us to believe that students undergo a major paradigm shift as they learn in a situated learning context, and that it takes time for the full effects and resolutions to be realized. This research study helped us to understand the value of situated learning in professional development and the relevance of online education in facilitating the situatedness and meaningfulness of such a professional development process.

Within-Case Analysis

Before a thorough description of the results of this study can be presented, it is important to understand each participant's individual background to truly understand the impact he has had in his own professional development and the impact he has had in his own workplace. Table I shows the individual cases and their areas of expertise. The analysis of the data is presented following a within-case analysis format, and then the cases are compared and contrasted, and the results are discussed in the cross-case analysis section.

Case	Pseudonym	Area	Grade level
One	Andrew	Science teacher	Middle school
Two	Robert	Health teacher and coach	Middle school
Three	Steve	Science teacher	Middle school
Four	Jason	Special education and technology	Middle school

Table I. Details about the participants in the study.

This study presents findings of the impact as perceived by the participants themselves. This impact is described in two ways: the impact of the CTER degree on the individual and the professional impact the individual has had in his own workplace.

Case One: tech-savvy department coordinator leaving a stronger mark

Andrew, the middle school science department coordinator, has taught for eight years. He became interested in technology in his first years of teaching and was introduced to the CTER program by a colleague. He received his Master of Education in CTER four years ago. Using technology in his classroom motivates him because, he says, it is a great way to keep things current and more interesting for himself and the students. He sees his role as an 'interactive guide encouraging students to become involved in the learning process'.

Andrew says: 'I am frequently asked questions by fellow staff members for ideas and help in areas related to technology.' He has been able to get more technologies into his department, such as an additional LCD (liquid crystal display) projector, access to United Streaming and Bugscope, as well as more regular use of PowerPoint in lectures. In his own classroom, he has used technologies such as PowerPoint for lectures/discussions, 'graphing calculators with probeware, computers for research projects, digital video projects, webquests, creating brochures, creating aclass web page, and posting digital grades, and Bugscope'. Andrew also says that his students enjoy and have come to expect the use of technology in his classes. It also has been a time-saver, in that, by reducing the record-keeping time, he can increase learning time.

Andrew believes that his district is interested in integrating technology into the classroom, since each middle school in his district holds technology workshops in the summer and has an information technology specialist who develops the ways each department can use technology. Although they are interested in technology in each classroom, Andrew, himself, does not receive physical support. 'It is often viewed as a positive thing but little time or resources are given to truly support teachers in their efforts,' Andrew comments. 'Technology is still viewed as "nice to have" but it is an extra.' Andrew observes that in his district, technology is not viewed as a way to guide instructional practices.

Andrew, as a CTER graduate, regularly shares his ideas with his department and with others in his school. Many teachers like the ideas presented, but, he says, they often need extra time or help to actually institute them in their classrooms. Andrew is a self-starter and is motivated by current, interesting and creative ways to present knowledge. This enthusiasm has rubbed off on his colleagues because now his co-teachers are using United Streaming and creating web pages for assignments and grades.

Case Two: curious coach turning tech-savvy

Robert, a middle school health teacher and physical education coach, never considered himself to be a technologically savvy person. Over time, he grew more and more curious about technology as he saw children and students using a variety of different technologies. He knew that using technology in the classroom was something that would be important in the future because he saw students becoming interested, motivated, and proficient. His curiosity kept growing, and a CTER alumnus encouraged him to take his first leap and try integrating technology in his classroom. They talked about integrating technology into the classroom several times, and the alumnus encouraged him to pursue a Master of Education in CTER. His curiosity motivated him and, he says, 'CTER pushed me into using technology.'

Robert and another teacher closely collaborated through their Master's experience. They met face-to-face and discussed innovations. As time went on, they would email each other and then, later, chat online about class topics or projects. Now, several years later, he has also taught industrial technologies, physical education, music, art, and health – all with a technology-based curriculum. He says:

> I use it [technology] every day; such as United Streaming, and other videos and information about health or coaching. We also have the team website up. I use it to do lesson plans, to make DVDs with learning materials on them. This year as we were choosing textbooks, we specifically chose textbooks that used technology – that had references to websites and things in it.

Robert also played a major role in convincing his school to buy a laptop and a projector, rather than more videos.

The administration's acceptance of Robert's technology usage has increased over the past few years:

> When we first started [using technology] upon graduation from CTER, the administration was not so supportive. I had to prove every single thing that I requested. Now, the current administration is more supportive of technology. For example, they went out of their way to get the bulb for my projector.

However, Robert also comments that:

> If I need to download something, I have to go through the district to have access to certain programs and to download some applications. That is a terrible delay. They track what is going on in the Internet. They don't like people using their personal computers … [there are] too many hoops to jump through now. A new technology director is coming in now; he seems more encouraging.

Robert adds:

> I have influenced my colleagues. Because I was older, they saw me as someone with more authority. What [the other CTER alumnus] was doing with me I was doing with them. I became mentor of many teachers, and two of them became CTER students later.

Case Three: science teacher becomes technology mentor and grant-writer

Steve, an eighth-grade science teacher with 11 years of teaching experience, described himself before pursuing his Master of Education in CTER by saying: 'I have always been one who has wanted to and willing to use technology.' The CTER program was a good choice for him because it modeled the concept of applying technology, explained good uses of technologies in schools, and expected students to integrate technologies well in their classrooms.

Now, six years after receiving his degree, Steve says:

> I push myself to always expand the [science] labs that we do so that students can be exposed to the technologies we use in the real world … The greatest impact on me, as a professional, has been when I have become more of a mentor to other teachers in the building. I think that was one of the biggest impacts of the CTER program on me.

Steve is a valuable asset to his peers as he mentors other teachers in projects, advises others on software applications, and tutors in computer uses. His professional expertise reaches even further since he has become successful as a grant-writer who seeks additional funding for his school.

Steve says that technology has been somewhat disregarded in his school, as the emphasis on the content areas in No Child Left Behind (NCLB) [3] has increased: 'we spend too much time preparing students for tests now; that does not give us much time for real learning and exploration.' Nonetheless, Steve has received grant money and additional resources for his school; and he feels that although the district's financial support of incorporating technology into the classroom is lacking, the external support is sufficient. Seeking this additional funding has been important to him, because, as he says: 'I push myself to always expand the [science] labs that we do so that students can be exposed to the technologies we use in the real world.'

Additionally, Steve's influence has been felt as he has collaborated with and mentored others:

> Working with other CTER alumni in the building [lets me share my ideas of how I can incorporate technology into my classroom more]. We share a lot. But with the three people that I have in my team, I have mentored and they use so much technology now. They feel so much more comfortable using technology [in their English, history, and math classes]. I feel that people have followed the leads I have given.

He adds: 'I don't mind when people come to me for troubleshooting. I encourage them to go through the process of troubleshooting. The reaction in general has been positive.' Having a CTER degree has helped Steve reinforce his ideas, use technology better, start using new technologies, and mentor others. Students' reaction to the use of technology in their classes has also been positive: 'They feel motivated. They feel it is cool.'

Case Four: 'Mr Technology' becoming more integral and cautious

Even before he pursued his Master of Education in CTER, Jason, a middle school special education teacher and a 10-year employee of a local communications laboratory, was always helping others with computers and technology. He described himself as 'Mr Technology', so a degree in CTER was an excellent choice for him. He says that 'CTER allowed me to formalize ideas that I already had in my head. I learned to reflect more and to teach others to think more of technology in terms of curriculum.' In other words, Jason had two domains of knowledge: that of teaching special education courses and that of using technology. However, only after he began his work on his Master's degree did it finally 'click' on how to integrate those two domains of knowledge by using technology in his special education classes.

Jason has received professional advantages from his advanced degree. In addition to teaching at a high school, he also works at a local community college – 'a very important part of my professional life,' he says, and adds:

> CTER allowed me to formalize ideas that I already had in my head. I learned to reflect more and to teach others to think more of technology in terms of curriculum. After [my] CTER [experience], I have encouraged more use of web pages, and I've helped some colleagues and my school. Some examples of these are the projects of network expansion in my school, helping teachers make decisions about technology, and even inviting teachers to be part of CTER.

Not all disciplines can apply technology in the same way, Jason believes, but some people have started to use his ideas in their own projects. For example, Jason helped a biology teacher make some decisions about her budget and incorporate technology in her classroom. He helped her think about her curriculum and how technology could assist. She bought a Smart Board and learned how to use it to maximize its potential in her class. Some teachers, though, 'demand help and do not want to learn how to do things by themselves' – a drawback to being a technologically savvy person in a school. When some agreed to work on technology-related projects, Jason says: 'they expected me to deal with it instead of troubleshooting together. That became an overload and I decided to back off from several interesting projects for that reason.'

Administratively, though, Jason believes everything has become more centralized; but even though it is not easy to be heard or considered, his administration is receptive to more ideas for using technology in the classroom.

> Many projects were not possible to carry on because of other school demands. School will put emphasis where funding is going, so if there is funding for literacy projects, or ESL [English as a second language] or something else, technology takes the back seat in funding – especially after NCLB.

However, to indicate the administration's receptivity, they specifically listen to him and consult him for changes in technology-related issues.

Cross-Case Analysis

The results in this cross-case analysis indicate that teachers who pursue professional development in the form of graduate studies online without leaving the workplace have a relevant influence in their work environment during and after the learning process. The findings from the cross-case analysis are presented as general findings by type and area of influence.

In general, the results show that teachers have a direct influence in their immediate environment – colleagues and school – although there was no evidence of direct influence in the school districts. Table II displays the type and the area of influence that teachers have. One of the roles the participants agree that they play is 'as a consultant'. All cases indicated that they are consulted by colleagues and, sometimes, by the school when new decisions about technology integration are made, or when new plans or proposals need to be presented to the district. Unfortunately, in many cases new policies hinder the implementation of new ideas or plans, or produce delays in such implementation. As Robert commented: '[there are] too many hoops to jump through' when it relates to uses of hardware and software within the school system. The second coincidence regarding their role and area of influence is 'as a mentor'. Participants said that they become mentors of their colleagues, either helping them to implement changes in their curricula or providing guidance on the application of new practices, or even advising them to pursue graduate school. Third, the participants admitted to playing 'a role in new purchases' or in determining the department or school budget, including purchases of new software, hardware, or equipment. Finally, some of the participants indicated that the incorporation of new technologies in the department or in their area had led to work on new policies for the use of technology, and they had some influence through their learning and experience on those new policies.

Role	Area of influence		Evidence
	Colleagues	Department or school	
As a consultant	X	X	Colleagues and school consider them as experts regarding technology or technology integration.
As a mentor	X		They fulfill a role as mentors of other teachers who want to implement changes in their curriculum or integrate new practices.
In purchases or budget	X	X	Both colleagues and their school or department benefit from their involvement in grant-writing. They also influence the purchase of equipment, textbooks, software, or licenses.
In change or generation of new policies		X	Application of technology or new integration practices result in changes in policies that affect the use of technology mainly in their areas or schools.

Table II. Role and influence in the work environment of the participant in the online program.

Cross-Case Analysis by Key Theme

In the cross-case analysis we could see some key themes that were present in all cases, so we grouped the results by key themes. We present the results in the following narratives.

Key Theme One: use of technology in the classroom

All participants agreed that this professional development helped them to get started with or enhance their uses of technology in the classroom. The most relevant aspect of it was that they were implementing changes as they were taking courses. This means that the transfer of learning and the individual impact occurred continually: both during and after the professional development event. The participants indicated that they have used technology in the ways shown in Figure 1, ranked in order of increasing occurrence.
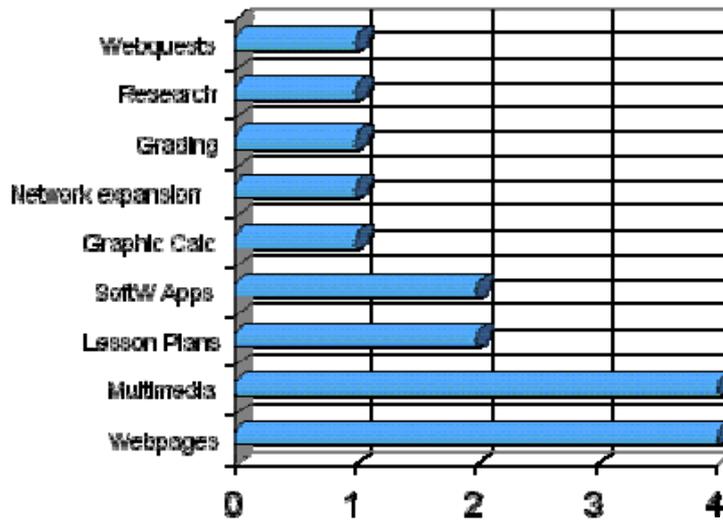

Figure 1. Uses of technology by frequency of cases.

Here are some examples of those uses: 'This year as we were choosing textbooks, we specifically chose textbooks that used technology – that had references to websites and things in it.' Another participant said:

> Yes, I have used technology in my classroom. Primarily, I use technology for PowerPoint in my lectures/discussions, graphing calculators with probeware, computers for research projects, digital video projects, webquests, creating brochures, creating a class web page and posting grades, and Bugscope.

Key Theme Two: motivation to integrate technology in the classroom

All of the participants in this study agreed that there were internal and external factors that motivated their use of technology in the classroom. The internal factors that were mentioned include: an internal drive; a desire to teach better; a desire to keep things current and interesting; and a desire to expose students to technologies used in the 'real world'. The external factors include: the reward of better learning, funding, or grant money; better Internet connectivity or access to a better broadband connection; students expecting technology-based lessons; motivating students; using time-saving devices for record-keeping; and greater accessibility to information.

Key Theme Three: innovations of technology in the classroom

The participants mentioned some practices as being 'innovative' in their school environment; for example, selecting textbooks that are integrated with online resources as a way to keep their content updated. Another example is the use of videos from online sources such as United Streaming, and having an influence on their schools to purchase the license so that other classes can replicate this innovative use of technology in the classroom. Another innovative use of technology that was mentioned was joining other institutions in collaborative projects such as Bugscope, an educational outreach program of the University of Illinois for K-12 classrooms. Through the

participation in this project, teachers have access, over the Internet, to remotely operate an electron microscope to image 'bugs' at high magnification.

Key Theme Four: knowledge sharing and collaboration

All of the participants acknowledged that one main influence they were able to have in their own school environment was due to their sharing of ideas and interest for collaboration with colleagues. Jason's earlier account of helping a biology teacher use a Smart Board in her classroom is an example of this. In some cases, sharing knowledge and new ideas led to some changes in the participant's work environment, such as access to a wider variety of multimedia or technology-related resources and software programs.

Additionally, colleagues of the CTER graduates began to use the same technologies and looked up to the CTER graduates as role models. This has been motivating because this makes them keep learning. Along these lines, Robert has simply stated: 'I like to try to stay ahead of the curve.' And Robert has influenced the purchase of equipment (such as a laptop and projector) to further collaborate and support the knowledge-sharing process.

In other cases, such as in the case of Steve, the reaction of peers was not encouraging. He said: 'People come to me for consulting. I don't mind when people come to me for troubleshooting. I encourage them to go through the process of troubleshooting. The reaction in general has been positive.' However, he also described his mentoring of some teachers who, instead of learning the technologies themselves, wanted him to do the work for them. He said it was a negative experience and 'they expected me to deal with it instead of working together. That became an overload and I decided to back off from several interesting projects for that reason.'

Key Theme Five: hindrance or inability to
apply new skills or innovative uses of technology

Three of the four participants also described situations that have prevented them from applying the skills that they had gained in the Master's program. The top three hindrances to using innovations in their classrooms as freely as they would like include: (1) various school demands; (2) priorities within NCLB; and (3) change to a more centralized district administration. Incorporating several of these ideas, Jason said:

> Many projects were not possible to carry on because of other school demands. School will put
> emphasis where funding is going, so if there is funding for literacy projects, or ESL [English as a
> second language] or something else, technology takes the back seat in funding – especially after
> NCLB.

He continued to indicate that another drawback is when colleagues expect that he will deal with all aspects of projects related to technology integration: 'they expected me to deal with it instead of working together. That became an overload and I decided to back off from several interesting projects for that reason.' The third aspect that was mentioned as a problem was a new district policy that centralized the schools network. One of the participants summarized what the others had expressed in these words:

> Centralized networking is discouraging. If I need to download something, I have to go through
> the district to have access to certain programs and to download some applications. That is a
> terrible delay. They track what is going on in the Internet. They don't like people using their
> personal computers … A new technology director is coming in now; he seems more
> encouraging.

Although a lot is said about the importance of the use of technology in the classroom, the participants said that the changes that the school or department want to see in the classroom are not quite related to the incorporation of technology. Steve's explanation is a good example of this:

> Now I see more support to content areas disregarding technology (NCLB) I am afraid these
> demands will move us away from exploring and using technology. I feel that this may be quite
> discouraging. Also the physical environment has prevented us from working as real scientists do,

so I would like to work more to have our lab set up. Another thing is the quarter time
assessment, we spend too much time preparing students for tests now; that does not give us
much time for real learning and exploration.

Key Theme Six: institutional receptivity to technology usage

Administrators' support of technology usage in their schools, our participants said, varies: some are
receptive, but not monetarily supportive; some are receptive and provide training for their
teachers; some are hesitant; and some were supportive, but now are less supportive. Jason said:
'They are receptive, but now everything has become more centralized so it is not as easy to be
heard or considered. There are many decisions that are no longer taken at the school level.' Steve
said: '[My administration has been] very encouraging till now. But, unfortunately, NCLB is pushing
other priorities in the school administration.' Robert commented: 'When we first started [using
technology] upon graduation from CTER, the administration was not so supportive. I had to prove
every single thing that I requested. Now, the current administration is more supportive of
technology.' Andrew agreed and added that the best evidence of the support can be seen in

each middle school having an Information Technology Specialist whose job is to work with
teachers in all curricular areas developing technology use in those classes. The district also has
summer workshops for teachers to train them on technology use in the classroom.

Key Theme Seven: perceived support for integrating technology in the classroom

Although the receptivity to technology usage varies widely, the support that administrators have
given to these four participants is somewhat similar. Administrators ask for their input and respect
their opinions about technologies. Administrators are supportive of grant-writing and of grant
monies awarded. And some administrators allow flexibility to choose textbooks and additional
supporting materials for their classrooms or departments. Andrew's description encapsulates
Jason's, Steve's, and Robert's experiences. He said:

Unfortunately I receive not tangible or physical support. It [technology integration] is often
viewed as a positive thing but little time or resources are given to truly support teachers in their
efforts. This is improving with the purchasing of equipment and maintaining the network. Most
time and energy is still put into the basics. Technology is still viewed as 'nice to have' but it is an
extra. It has not gotten to the level of full support or viewed as a way to truly guide instructional
practices.

Conclusion

The findings in this study lead us to believe that one of the unexpected results of the
implementation of online education courses and programs for professional development has been
the opportunity of providing situated learning experiences for the participants. Taking graduate
courses at the same time as teachers stay in their workplace produces an impact that changes the
participants' working habits, as they acquire and apply new practices, and blend research and
practice in their everyday job. The changes and new ideas that they bring to their jobs not only
influence their classroom practice, but also have an impact on colleagues and introduce innovations
into their school environment. For those who are still skeptical about the advantages of online
courses for adult professional development, this study indicates that not only adults benefit
(because they improve their formal education without leaving their workplace or city of residence),
but schools also benefit because they host the motivated individuals who become the agents of
change in their work environment. The impact of online programs as professional development is
doubled: learning and the blending of both theory and practice influence participants, make an
impact in the participants' work environment, and finally result in enhancing K-12 students'
learning.

Notes

[1] National Council of Teachers of Mathematics, Professional Development Resources.
http://www.nctm.org/resources/default.aspx?id=230

[2] See, for example, New Jersey Department of Education, A New Vision of Professional Development for New Jersey Teachers: implementation guide 2001-2002.
http://www.state.nj.us/njded/profdev/guide/; Chicago Public Schools, Office of Teacher Recertification and Professional Standards. http://www.csc.cps.k12.il.us/teacher_recertification/; New York State Education Department, Office of Teaching Initiatives, Frequently Asked Questions. http://www.highered.nysed.gov/tcert/faq.htm; Chicago Public Schools, Department of Human Resources, Professional Development, National Board Certification.
http://www.cps-humanresources.org/nbc/index.htm

[3] No Child Left Behind Act of 2001, Public Law 107-110.

References

Anderson, J., Reder, L. & Simon, H. (1996) Situated Learning and Education, *Educational Researcher*, 25(4), 5-11.

Bennett, S., Harper, B. & Hedberg, J. (2002) Designing Real-life Cases to Support Authentic Design Activities, *Australian Journal of Educational Technology*, 18(1), 1-12.

Driscoll, M.P. (2002) *Psychology of Learning for Instruction*. Boston: Allyn & Bacon.

Herrington, J., Oliver, R., Herrington, T. & Sparrow, L. (1997) Enhancing Transfer from Interactive Multimedia to Real-world Practice. Paper presented at the Australian Society for Computers in Learning in Tertiary Education (ASCILITE) conference, Curtin University of Technology, Perth, 7-10 December.
http://www.ascilite.org.au/conferences/perth97/papers/Herrington/Herrington.html

Lave, J. & Wenger, E. (1991) *Situated Learning: legitimate peripheral participation*. Cambridge: Cambridge University Press.

Ormrod, J.E. (2004) *Human Learning*, 4th edn. Upper Saddle River: Pearson Education.

Stake, R. (2005) *Multiple Case Study Analysis*. New York: Guilford.

Stein, D. (1998) Situated Learning in Adult Education, ERIC Digest No. 195, Report No. ED 418250.
http://www.ericdigests.org/1998-3/adult-education.html

NORMA SCAGNOLI has a PhD in Human Resource Education from the University of Illinois at Urbana-Champaign. She currently works as an e-learning specialist in the College of Business at the University of Illinois at Urbana-Champaign. She has been involved in online education for a decade and her research in the field has produced several publications and presentations at national and international conferences. Her publications include: 'Internet Tools for Global OD Interventions' in *OD/Leadership News* (2003); 'Finding the Right Online Professional Development Course' in *Essential Teacher* (2004); and 'Impact of Online Education on Traditional Campus-based Education' in the *International Journal of Instructional Technology and Distance Learning* (2005). *Correspondence*: Norma Scagnoli, 219 Wholers Hall, College of Business, 1260 S. Sixth Street, Champaign, IL 61820, USA (scagnoli@uiuc.edu).

MELISSA STEPHENS worked as an evaluation assistant in the CTER program at the University of Illinois at Urbana-Champaign from 2003 to 2006. Before that, she worked as an evaluation assistant at the Center for Instructional Design at Brigham Young University. She holds a Bachelor's degree in mathematics and a Master's degree in Instructional Psychology and Technology with emphasis on evaluation and instructional design. Her research interests lie in evaluating the use of technology in Science, Technology, Engineering, and Mathematics and online programs. She is currently a PhD candidate in Educational Psychology at the University of Illinois at Urbana-Champaign. *Correspondence*: 349 Paddock Drive West, Savoy, IL 61874-9625, USA.

THOMAS ANDERSON is Emeritus Professor in the Department of Educational Psychology at the University of Illinois at Urbana-Champaign. He has been the instructor for graduate courses in the

areas of psychology of classroom learning, psychology of social adjustment, statistics and research design, classroom management, conflict and conflict resolution, and computer uses in schools since 1970. He was also the director of the CTER online Master's degree program for teachers from 2003 to 2006. His multiple contributions to research and the community include his work as senior researcher and co-director for the Center for the Study of Reading, and his current position as mediator with Champaign County Court Diversion Services – VORP (Victim Offender Reconciliation Program), which he has held for over a decade, and the position as coordinator of action projects with the Peace and Justice Initiative of the First Mennonite Church of Champaign-Urbana. *Correspondence*: Thomas Anderson, 2206 Brownfield Road, Urbana, IL 61802-7612, USA (thand@uiuc.edu).