

Evaluating Program Effectiveness for an Online Elementary Education Cohort

Cindy A. Dell

Assistant Professor

Department of Educational Theory and Practice

Montana State University Billings

Billings, MT 59101 USA

cdell@msubillings.edu

Abstract

Online classes and even fully online programs are becoming efficient means of providing teacher preparation opportunities to students, especially to those who have limited access to on-campus classes. But teacher education programs and school districts need to be confident that teachers are of high quality and ready to teach. The results of the longitudinal study reported in this paper indicate that cohort members completing an online elementary education program demonstrated the same level of competency as those in a traditional face-to-face program. These findings may give teacher education faculty and policymakers some confidence in implementing quality online programs.

Keywords: programmatic outcomes, student teaching, elementary teacher education, cohorts, learning community, program evaluation, program quality, comparing effectiveness of online and traditional modes, InTASC standards

Introduction

Online education is no longer an emerging medium for providing classes and programs for college students, but has been established as an effective and efficient method of delivery. [Keengwe and Schnellert \(2012\)](#) observe that "the number of distance learning courses has dramatically increased in many universities across the nation" (p. 28). They explain that online classes are affordable, have easy access, and provide flexible options for students. One approach of providing fully online programs is through a cohort model. [Potthoff, Fredrickson, Batenhorst, and Tracy \(2001\)](#) explain that there are three types of cohorts (as defined by Basom, 1993). The first type of cohort is a closed cohort, in which all students in a group complete all of their coursework together, from beginning to end. The second model is an open cohort, in which students complete some classes together, but may also take classes outside of the prescribed cohort. The third is a fluid cohort, in which students can move in and out at any time. As with effective online classes, effective cohort programs require high-quality teaching, interaction between students and instructors, clearly communicated expectations, and active learning. These characteristics could also apply to traditional face-to-face formats, and as such, the quality of the instructor can be said to be more important than the delivery platform ([Bernard et al., 2004](#); [Kassop, 2003](#); Swan, 2003).

To that end, effective online teaching can enhance important factors related to pre-service teacher success, including but not limited to critical thinking, enhanced reflection, self-regulation, professional development, and effective instructional techniques ([Dell, 2006](#); [Devlin-Scherer & Daly, 2001](#); [DeWert, Babinski, & Jones, 2003](#)). In addition, students in online cohort programs form strong learning communities (as defined by Wenger, 1998), which provide constructive learning experiences through shared knowledge, social support, and self-regulated learning ([Dell, 2006](#); Engstrom, Santo, & Yost, 2008; [Pribesh, Dickinson, & Bucher, 2006](#)).

Theoretical Framework

Students in rural areas can be well served by online programs, especially if they lack access to campus classes ([Anstine & Skidmore, 2005](#); Dell & Hobbs, 2007; [Keengwe & Schnellert, 2012](#)). Many communities in rural states find it difficult to find highly qualified teachers, but the problem can be

somewhat alleviated by offering fully online programs to people who have an interest in earning either degrees or licensure in education. Many potential pre-service teachers already work in their community schools, and can continue their employment and carry out required fieldwork in those schools (Dell & Hobbs, 2007) while undertaking an online program in teacher education.

That being said, the theoretical framework that guided this study included work by several researchers who found that while a cohort program provides support, learning communities, and other important benefits, they are not necessarily "better" or "worse" than face-to-face programs ([Anstine & Skidmore, 2005](#); [Beachboard, Beachboard, Wenling, & Adkison, 2011](#); [Russell, Kleiman, Carey, & Douglas, 2009](#)). It was hoped that it would be found that students studying almost exclusively online would perform as well as those in traditional face-to-face programs.

Purpose of the Study

A teacher education program offered through a small university in the western United States provided the opportunity for rural students to study through a cohort program and earn initial teacher licensure. The program culminated in either a bachelor's degree in elementary education or a master's degree in education leading to licensure in elementary education. It was hoped that students studying almost exclusively online would demonstrate pre-service teacher outcomes at the same level as those in a traditional face-to-face program. The purpose of this study, therefore, was to determine if there were differences in outcomes measured during student teaching for students in the online cohort program compared with students in the traditional face-to-face program. The null hypothesis was that there would be no differences in student teaching outcomes between the two programs.

Literature Review

Online Courses and Programs in Teacher Education

Only a few researchers have examined the outcomes of teacher education programs in which students take a majority (if not all) of their classes online, and little research has been done comparing the programmatic outcomes to those of traditional programs. However, much of the research that does exist indicates that student outcomes tend to be similar or the same for online and face-to-face groups. For instance, [Caywood and Duckett \(2003\)](#) studied student teachers who took a required behavior management class; one group took the class online and the other face to face. They compared the two groups' performance measures on behavioral management during student teaching as rated by mentor teachers and supervisors, and found no significant differences between the groups. [DeWert et al. \(2003\)](#) studied the effectiveness of online support of teachers following graduation. They describe a program they developed called the Lighthouse Project, which involved collaborative consultation that took place in online discussions. Their results indicate that teachers felt supported and less isolated, were more confident and enthusiastic, and were better at problem solving in their first year of teaching as a result of participating in the project.

[Anstine and Skidmore \(2005\)](#) compared examination scores for two courses in a Master of Business Administration program, one offered online and the other face to face. They found that students' levels of knowledge in those classes did not differ according to the platform. Instead, they discovered that the demographics were different for students who took online classes. For example, students taking online sections tended to have children at home at a higher rate than those taking face-to-face sections. The authors concluded that the online sections were providing access to students who would not have been able to take the classes had they only been offered in the traditional format, and that the learning outcomes were virtually the same for both groups.

[Russell et al. \(2009\)](#) conducted an experimental design study to determine if levels of interaction affected course outcomes in eight-week professional development classes for teachers that were offered online. They provided four types of online classes to middle school mathematics teachers, each incorporating different types and levels of interaction. The first type was highly interactive, with feedback and facilitation provided by a mathematics content specialist as well as an expert in online instruction. Opportunities for interaction included discussion groups, e-mail communication with instructors, and collaboration with other students. The content specialist supplied feedback on assignments. The second type of class included interaction that was facilitated by peers only on discussion boards, with feedback on assignments supplied by the content specialist. The third type involved instructor support only, with no interaction among peers. Finally, the fourth type of class was a self-paced content-only class, with no interaction or support from instructors or peers. The results of the study were surprising in that all four

types of class led to the desired course outcomes. For example, overall, teachers across all groups gained increased confidence in their mathematics skills and knowledge, became more student centered (and less teacher centered) in their attitudes and approaches, and changed their beliefs in favor of the view that students can be responsible for their own learning. Russell et al. reported that the positive effects of the classes did not vary across the four groups of teachers, and the satisfaction ratings were also consistent across all groups. According to them, "the findings suggest that when a course is well designed and employs high-quality reading material and learning activities, the high levels of facilitation or interactions among participants may not be necessary to produce positive effects" (p. 462).

Online Cohort Programs

Adult learners enrolled in graduate and undergraduate programs are often adept at drawing upon prior knowledge and function well in a learning community such as a cohort ([Richardson, MacRea, Schwartz, Bankston, & Kosten, 2008](#)). Richardson et al. maintain that such learners are intrinsically motivated, are self-directed learners, and when allowed to apply what they know to real-life problems and settings, become much more engaged online. As in [Dell's \(2006\)](#) research, learning communities that developed within online cohorts contributed to the achievement of self-regulated learning and improved student outcomes.

[Pribesh et al. \(2006\)](#) argue that the most important aspect of fully online degree programs is a strong sense of community among the learners and the faculty. Online programs can be perceived as lower quality, but Pribesh et al. recommend that faculty not only build community among students, but also change how outcomes are assessed. They suggest that faculty who teach the programmatic classes use well-designed and clear rubrics, supply detailed instructions for assignments, provide examples that show what is and is not acceptable, and encourage students to undertake authentic and project-based assessments. Multiple-choice and true/false questions, they believe, are not as effective. They further point out that these types of outcomes-based assessments are being driven by accrediting agencies for all types of programmatic outcomes, not just those online, and are therefore important for all programmatic formats or platforms.

[Beachboard et al. \(2011\)](#) maintain that students in cohort programs stand to benefit greatly from them. They explain that the benefits of a cohort program include improvements in students' critical thinking and communication skills, better learning outcomes, higher grades, and greater likelihood that students will take responsibility for their own learning. Retention and persistence rates in these programs also tend to be higher. In their study of cohort outcomes, Beachboard et al. found that cohorts promoted exchange of ideas, increased critical feedback, increased learner effort and competence, enhanced knowledge in reading and writing, improved decision making capabilities, and improved oral presentation skills. They also observed that cohorts fostered trust between members, which encouraged the development of professional networks among them.

Notwithstanding the benefits, cohorts can also have negative effects on members, say [Beachboard et al. \(2011\)](#). They warn that students in a cohort can develop a sense of comfort and lack of challenge. Students can become too familiar and cozy, and undesirable effects can occur, such as the formation of cliques, behavioral conformity, excessive socializing, and disruptive or rebellious behaviors. Once groupthink sets in, the group may excessively challenge the instructor and even engage in academic misconduct (e.g., cheating).

Moreover, [Beachboard et al. \(2011\)](#) caution that better outcomes may not necessarily be due to membership in a learning community. They conducted a study to determine if cohort participation would increase students' feelings of "relatedness, which leads to improved student motivation and educational outcomes: specifically students' abilities to communicate effectively, think critically and analytically" (p. 854). They wanted to know if the time, effort, and money spent on organizing and directing a cohort program was worth it in terms of educational outcomes. They hypothesized that cohorts would give rise to learning environments that would increase feelings of relatedness, which in turn would positively influence academic performance.

Using data from the 2005 U.S. [National Survey of Student Engagement \(2005\)](#), [Beachboard et al. \(2011\)](#) sought to determine the relationships that existed between participation in a cohort and other study variables including SAT scores, higher order thinking assignments, and enrichment activities. Feelings of relatedness were measured in terms of several psychosocial factors such as school climate, teacher–student relationships, self-efficacy, engagement, interest in school, grades, and retention. Beachboard et

al. found that cohort membership did not predict academic development or success, and that more importantly, student feelings of relatedness and higher level thinking skills were independent of belonging to a cohort. They further concluded that when cohort programs included curricula, assessments, and activities aimed at engendering higher order thinking, as well as other elements such as social interaction leading to relatedness, students fared better overall, regardless of the learning community ([Beachboard et al., 2011](#)).

In closing, results of recent research demonstrate that online classes and programs can be effective, and that cohorts have many desirable potential outcomes. However, a preponderance of the evidence from several studies suggests that cohort membership alone is not a predictor of academic success. Online programs need to be challenging; be staffed with dedicated faculty who provide clear guidance to students, especially in the way of instructions for assignments and assessments; and offer authentic and real-life experiences to students in preparation for their future careers.

Method

Program Description

The context and focus of the present study was an online cohort program in elementary education at a university located in a sparsely populated western U.S. state. The program was developed over a seven-year period, and was designed to be equivalent to the traditional on-campus teacher education program in elementary education offered by the university. The program led to initial licensure and included both undergraduate and graduate pathways. Both the online and traditional programs were based on a single conceptual framework, with the same programmatic outcomes. In order to make certain the programs were equivalent, the online and on-campus students were required to take the same classes and complete similar assignments, with a few exceptions. Cohort students were required to take an additional field experience each semester, and had to spend one summer on campus to take methods classes and meet the faculty. Another requirement added to the online program to enhance learning was attendance at "linking seminars" designed to connect theory covered in methods classes with practice encountered by students in their field placement schools. The linking seminars were required every semester and were taught by the coordinator of the program. Students needed to complete at least 45 hours each semester in their local schools prior to the pre-student teaching and student teaching experiences. Cohort members consistently reported that the field experiences were the most important aspect of the program for them, especially since they were able to begin to forge relationships with mentor teachers in their schools.

Time on campus was also an essential part of the program, even though most of the classes were offered online. A mandatory cohort program orientation was run on campus to afford students opportunities for meetings and for some socialization with one another and program faculty. In addition, as mentioned earlier, one summer on campus taking specific methods courses was an essential component of the program. Summer session allowed for further bonding among the students, which further enhanced the learning community and provided faculty the ability to interact with cohort members over an extended period.

Subjects

The cohort program was designed to serve students in rural communities who, for various reasons, could not come to campus on a regular basis. Many were married with children; many worked at least part time in their small towns. Moving to another city to take classes for three or four years was not possible, and traveling three to six hours for classes several times a week was simply not realistic for these students. As such, many of the students enrolled in the online cohort program would not have been able to study teacher education at all without the availability of a program delivered in this mode.

Members of five separate cohorts of online learners pursuing the program were the participants in this longitudinal study. The cohort program studied commenced in 2002 and ended in 2009. Cohorts were closed, meaning that each cohort of students completed all of their coursework as a group, from beginning to end (see Basom, 1993). All cohort members were required to start and finish their programs together, with acceptance into the program and entrance into field placement schools staggered, so that as one cohort was student teaching, another was beginning their program. All of the members of the five cohorts ($N = 67$) were included in the study. Cohort members were compared with a stratified random sample of on-campus elementary education majors selected from the same student teaching semester as the comparison group of cohort members ($N = 86$).

Instruments

Two separate instruments were used to evaluate student teachers from both the online and on-campus groups. The *Student Teaching Performance Evaluation* form included six performance indicators aligned with the Council of Chief State School Officers' (CCSSO) Interstate Teacher Assessment and Support Consortium (InTASC) standards (CCSSO, 2011a). According to the CCSSO website, InTASC:

is a consortium of state education agencies and national educational organizations dedicated to the reform of the preparation, licensing, and on-going professional development of teachers. Created in 1987, InTASC's primary constituency is state education agencies responsible for teacher licensing, program approval, and professional development. Its work is guided by one basic premise: An effective teacher must be able to integrate content knowledge with the specific strengths and needs of students to assure that all students learn and perform at high levels. (CCSSO, 2011b, para. 1)

Furthermore, the InTASC standards "outline the common principles and foundations of teaching practice that cut across all subject areas and grade levels and that are necessary to improve student achievement" (CCSSO, 2011a, p. 3).

The elementary education program's conceptual framework was partially aligned with the InTASC standards, and utilized student teaching evaluation forms to measure the outcomes in relation to those standards. Rubrics designed based on the standards were provided to guide evaluators and were used for each student in both groups.

The original evaluation form (from here on referred to as "Form A") was used to evaluate student teachers from both groups from Fall 2006 through Fall 2008, and was based on six performance outcomes, namely: (1) Planning; (2) Content Knowledge; (3) Instructional Strategies; (4) Assessment; (5) Motivation and Management; and (6) Reflective Practice and Professionalism.

In 2007, the teacher education program's conceptual framework was revised from one of partial alignment with the InTASC standards to one whose defined performance outcomes mapped directly to – and in fact were essentially a re-statement of – each of the 10 standards. The *Student Teaching Performance Evaluation* form was revised in the Fall of 2007 to reflect this change, and the new form began to be used during the Spring of 2008. From Fall 2008 to Fall 2009 all of the student teachers was evaluated using the revised instrument (from here on referred to as "Form B") with 10 performance indicators: (1) Content Pedagogy; (2) Student Development; (3) Diverse Learners; (4) Multiple Instructional Strategies; (5) Motivation and Management; (6) Communication and Technology; (7) Planning; (8) Assessment; (9) Reflective Practice and Professionalism; and (10) School and Community Involvement. The mentor teacher and the university-based supervisor evaluated each student teacher in both groups. Only the final evaluations were used in the analysis.

Analysis

Although both versions of the *Student Teaching Performance Evaluation* form (Forms A and B) contain well-defined rubrics to guide mentor teacher and university supervisor evaluations, the ratings data generated are ordinal. Thus a chi-squared test for independence was used to determine the existence of a relationship between the two dependent variables – in this case, the online program and the face-to-face program. For the purpose of this test, frequencies for individuals classified into categories were used, in this case ratings on a scale of 1-3 or 1-5 (depending upon the iteration of the form) by the mentor teachers and the university supervisors on specific performance indicators. The null hypothesis was that the populations would have the same distributions or proportions within the distribution. The alternative hypothesis was that the proportions or distributions would be different. The chi-squared test for independence was run for all four of the data sets: (1) mentor teacher evaluations done using Form A; (2) university supervisor evaluations done using form A; (3) mentor teacher evaluations done using Form B; and (4) university supervisor evaluations done using Form B.

Results

Mentor Teacher Evaluations – Form A

When the mentor teacher evaluation ratings for the student teachers from both groups done using Form A were compared, there were no significant differences found between the groups on any of the student teaching outcomes. Therefore, the null hypothesis could not be rejected (see Table 1).

Table 1. *Mentor teacher evaluations using Form A (N = 101)*

Performance Measure	χ^2	df	p
Planning	0.400	2	.819
Content Knowledge	0.963	2	.618
Instructional Strategies	0.070	2	.965
Assessment	0.839	2	.657
Motivation and Management	3.016	2	.221
Reflective Practice and Professionalism	0.889	2	.641

* $p < .05$ – No tests showed significant differences at this level.

University Supervisor Evaluations – Form A

When the university supervisor evaluation ratings for the student teachers from both groups done using Form A were compared, there were no significant differences found between the groups. Therefore, the null hypothesis could not be rejected (see Table 2).

Table 2. *University supervisor evaluations using Form A (N = 101)*

Performance Measure	χ^2	df	p
Planning	0.889	2	.641
Content Knowledge	4.852	3	.183
Instructional Strategies	3.345	3	.341
Assessment	2.693	3	.441
Motivation and Management	2.911	3	.405
Reflective Practice and Professionalism	0.045	2	.978

* $p < .05$ – No tests showed significant differences at this level.

Mentor Teacher Evaluations – Form B

When the mentor teacher evaluation ratings for the student teachers from both groups done using Form B were compared, there were no significant differences found between the groups. Therefore, the null hypothesis could not be rejected (see Table 3).

Table 3. *Mentor teacher evaluations using Form B (N = 52)*

Performance Measure	χ^2	df	p
Content Pedagogy	4.686	2	.096
Student Development	3.182	2	.204
Diverse Learners	0.736	2	.683
Multiple Instructional Strategies	5.388	3	.145
Motivation and Management	2.273	2	.321
Communication and Technology	2.924	2	.232
Planning	2.627	2	.269
Assessment	2.353	2	.308
Reflective Practice and Professionalism	2.868	3	.412
School and Community Involvement	4.310	3	.230

* $p < .05$ – No tests showed significant differences at this level.

University Supervisor Evaluations – Form B

When the university supervisor evaluation ratings for the student teachers from both groups done using Form B were compared, there were no significant differences found between the groups. Therefore, the null hypothesis could not be rejected (see Table 4).

Table 4. *University supervisor evaluations using Form B (N = 52)*

Performance Measure	χ^2	df	p
Content Pedagogy	1.362	2	.506
Student Development	0.031	2	.985
Diverse Learners	3.167	2	.205
Multiple Instructional Strategies	0.071	2	.965
Motivation and Management	0.422	2	.810
Communication and Technology	2.006	2	.367
Planning	0.573	2	.751
Assessment	2.870	2	.238
Reflective Practice and Professionalism	1.002	2	.606
School and Community Involvement	3.661	2	.160

* $p < .05$ – No tests showed significant differences at this level.

Discussion and Conclusion

The purpose of this study was to determine if there were differences in outcomes measured during student teaching for students in an online cohort compared with students in a traditional face-to-face program. The null hypothesis was that there would be no differences in student teaching outcomes between those in the online cohort program and those in the traditional teacher education program. Since chi-squared analyses indicated there were no significant differences in student teaching outcomes between cohort members and non-cohort members, it can be said with some confidence that the students who completed the elementary education program through an online cohort performed at the same level as those who completed the program in the traditional manner. These results are consistent with other studies comparing outcomes of cohort programs, such as those reported by [Anstine and Skidmore \(2005\)](#), [Beachboard et al. \(2011\)](#), and [Russell et al. \(2009\)](#). The results of this study are particularly important because the 67 students who were in the cohort programs would not have been able to complete their degrees without the option to take the classes online. It is reassuring to know that completing the program online did not negatively affect their ability to perform well in an elementary education classroom. The results provide support for the continued use of online classes and programs for teacher preparation.

Recommendations

[Russell et al. \(2009\)](#) assert that the design of online classes is key to achieving positive educational outcomes, even more so than the level of interaction within a course. They suggest that "when a course is well designed and employs high-quality reading material and learning activities, the high levels of facilitation or interactions among participants may not be necessary to produce positive effects" (p. 462). [Pribesh et al. \(2006\)](#) stress that online instructors should ensure assessments used are authentic, and that real-life experiences should be part of an online class or program. In the case of this study, cohort members were required to complete at least 45 hours of field experience in their local schools and be mentored by a practicing teacher for the entire duration of the program. Authentic assessment of student teaching performance was a major component of the cohort program.

The results of this study bring the program full circle, and teacher education faculty and administrators can feel some confidence when designing and implementing an online program, since there were no significant differences in the quality of student teaching outcomes between those in online cohort programs and those who followed the traditional route. The results suggest that the caliber of student teachers in terms of their teaching performance does not differ between delivery modes. Therefore, the following recommendations can be made:

- 1) Teacher education programs serving remote and rural areas and states should strive to provide high-quality online programs to prepare teachers for employment in small communities. Many rural communities have difficulty recruiting new and adequately qualified teachers (Dell & Hobbs, 2007). High-quality online programs entail rigorous classes taught by qualified and experienced faculty. Classes should include assignments and discussions that emphasize higher level thinking and problem-solving skills and feature the use of authentic assessments ([Bernard et al., 2004](#); [Devlin-Scherer & Daly, 2001](#); [DeWert et al., 2003](#); [Pribesh et al., 2006](#)).

- 2) A cohort model can and should be considered, as this can serve as an effective means of program management. However, the results of several studies (e.g., [Beachboard et al., 2011](#)) suggest that cohorts may not be necessary. Nevertheless, the design of the cohort programs in this study included extensive field experiences and time on campus to enhance student outcomes. Although the results of the study do not show that cohort student success was dependent upon the extra time spent in a classroom setting, [Pribesh et al. \(2006\)](#) suggests that additional classroom time may lead to authentic experiences and assessment.

Future Research

The study of online teacher education is just beginning. There are several additional areas that need to be examined, including the feedback and opinions of school and district leaders such as principals and superintendents. It is imperative to continue to follow the cohort members as they become new teachers and keep on improving their skills as educators. Follow-up studies aimed specifically at those who employ online cohort members will be an important part of those studies.

Ongoing research on current and future cohorts is also in order. If the online cohort model is to be accepted and adopted by policymakers and faculty in teacher education, evidence of quality is critical for all stakeholders. Access is important to assist pre-service teachers in completing teacher preparation programs, and online offerings are a valid means of providing such programs that will meet the needs of students and their communities.

References

- Anstine, J., & Skidmore, J. (2005). A small sample study of traditional and online courses with sample selection adjustment. *The Journal of Economic Education*, 36(2), 107-127. Retrieved from [JSTOR database](#). (30042641)
- Basom, M. (1993). Educational leadership faculty involved in teacher education. *Connections! Conversations on issues of principal preparation*, 2(1), 3.
- Beachboard, M. R., Beachboard, J. C., Wenling, L., & Adkison, S. R. (2011). Cohorts and relatedness: Self-determination theory as an explanation of how learning communities affect educational outcomes. *Research in Higher Education*, 52(8), 853-874. doi:10.1007/s11162-011-9221-8
- Bernard, R. M., Abrami, P. C., Lou, Y., Borokhovski, E., Wade, A., Fiset, M., & Huang, B. (2004). How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. *Review of Educational Research*, 74(3), 379-439. doi:10.3102/00346543074003379
- Caywood, K., & Duckett, J. (2003). Online vs. on-campus learning in teacher education. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 26(2), 98-105. doi:10.1177/088840640302600203
- Council of Chief State School Officers. (2011a). *Interstate Teacher Assessment and Support Consortium (InTASC) Model Core Teaching Standards: A resource for state dialogue*. Washington, DC: Author. Retrieved from http://www.ccsso.org/documents/2011/intasc_model_core_teaching_standards_2011.pdf
- Council of Chief State School Officers. (2011b). *The Interstate Teacher Assessment and Support Consortium (InTASC)*. Retrieved from http://www.ccsso.org/Resources/Programs/Interstate_Teacher_Assessment_Consortium_%28InTASC%29.html
- Dell, C. A. (2006). Emergence of self-regulation among online learners. *Academic Exchange Quarterly*, 10(4), 8-12. Retrieved from <http://www.rapidintellect.com/AEQweb/cho3572z6.htm>
- Dell, C. A., & Hobbs, S. (2007). Building effective online education programs for rural preservice teachers. In *The changing face of rural. Proceedings of the 27th Annual Conference of the American Council on Rural Special Education* (pp. 41-50). Morgantown, WV: ACRES.
- Devlin-Scherer, R., & Daly, J. (2001). Living in the present tense: Student teaching telecommunications connect theory and practice. *Journal of Technology and Teacher Education*, 9(4), 617-634. Retrieved from [Ed/ITLib Digital Library](#). (8411)

- DeWert, M. H., Babinski, L. M., & Jones, B. D. (2003). Safe passages: Providing online support to beginning teachers. *Journal of Teacher Education*, 54(4), 311-320. doi:10.1177/0022487103255008
- Engstrom, M. E., Santo, S. A., & Yost, R. M. (2008). Knowledge building in an online cohort. *Quarterly Review of Distance Education*, 9(2), 151-167.
- Kassop, M. (2003, May/June). Ten ways online education matches, or surpasses, face-to-face learning. *The Technology Source*. Retrieved from <http://ts.mivu.org/default.asp?show=article&id=1034>
- Keengwe, J., & Schnellert, G. (2012). Fostering interaction to enhance learning in online learning environments. *International Journal of Information and Communication Technology Education*, 8(3), 28-35. doi:10.4018/jicte.2012070104
- National Survey of Student Engagement. (2005). *Exploring different dimensions of student engagement: 2005 annual survey results*. Bloomington, IN: Center for Postsecondary Research, Indiana University. Retrieved from http://nsse.iub.edu/pdf/NSSE2005_annual_report.pdf
- Potthoff, D. E., Fredrickson, S. A., Batenhorst, E. V., & Tracy, G. E. (2001). Learning about cohorts – a masters degree program for teachers. *Action in Teacher Education*, 23(2), 36-42. doi:10.1080/01626620.2001.10463062
- Pribesh, S., Dickinson, G. K., & Bucher, K. T. (2006). A comparison of online and face-to-face cohorts in a school library media specialist graduate program: A preliminary study. *Journal of Education for Library and Information Science*, 47(4), 303-323. doi:10.2307/40323823
- Richardson, P. K., MacRea, A., Schwartz, K., Bankston, L., & Kosten, C. (2008). Student outcomes in a postprofessional online master's-degree program. *The American Journal of Occupational Therapy*, 62(5), 600-610. doi:10.5014/ajot.62.5.600
- Russell, M., Kleiman, G., Carey, R., & Douglas, J. (2009). Comparing self-paced and cohort-based online courses for teachers. *Journal of Research on Technology in Education*, 41(4), 443-466. Retrieved from ERIC database. (EJ844275)
- Swan, K. (2003). Learning effectiveness: What the research tells us. In J. Bourne & J. C. Moore (Eds.), *Elements of quality online education: Practice and direction* (pp. 13-45). Needham, MA: The Sloan Consortium.
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge, UK: Cambridge University Press.



This work is published under a Creative Commons Attribution-Non-Commercial-Share-Alike License

For details please go to: <http://creativecommons.org/licenses/by-nc-sa/3.0/us/>