

An Evaluation of Online versus Campus-Based Teacher Preparation Programs

Una Evaluación sobre Programas Online de Preparación de Docentes Comparada con Programas dentro de un Campus

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Abstract

Preparing teachers who can effectively meet the needs of today's schools is a challenging task. This study compared an innovative online-supported teacher preparation program with more traditional campus-based programs in a large state university system. The study analyzed data from 2003 through 2009 annual systemwide evaluations of teacher preparation programs. Participants were program graduates who had completed one year of professional teaching and their employment supervisors. Ratings were consistently higher for the online program than for a selected campus-based program and for the system as a whole. Characteristics identified in the literature on effective online learning and on effective teacher preparation provided the framework for describing the advantages of the online program over more traditional pathways. Results contribute to the knowledge base on innovative online teaching and learning practices by investigating an entire program rather than an individual course, by using a large population of participants over a period of years, and by suggesting key characteristics that might be particularly critical in the design of an effective online teacher preparation program.

Keywords: online instruction, distance learning, teacher education, program evaluation

Resumen

La preparación de profesores que puedan satisfacer adecuadamente las necesidades actuales de las escuelas, es una tarea difícil. Este estudio comparó un programa innovador online de preparación de profesores, con programas más tradicionales dentro de un campus en un sistema de universidades públicas. El estudio analizó datos de evaluaciones anuales de todo el sistema de programas de formación docente desde el 2003 hasta el 2009. Los participantes eran egresados que habían completado un año enseñando profesionalmente, y también sus supervisores. Las calificaciones fueron consistentemente más altas para el programa online, que para un programa seleccionado de enseñanza dentro del campus, y que para el sistema en su conjunto. Las características identificadas en la literatura sobre el aprendizaje online eficaz y la formación docente eficaz, sirvió de marco para la descripción de las ventajas del programa online sobre vías más tradicionales. Los resultados contribuyen a la base de conocimientos sobre innovación en enseñanza online y las prácticas de aprendizaje investigando todo un programa, en lugar de un curso individual, utilizando una gran población de los participantes durante un período de años, y al sugerir las características clave que podrían ser especialmente críticas en el diseño de un programa online eficaz de preparación de profesores.

Palabras claves: instrucción online, aprendizaje a distancia, formación del profesorado, evaluación de programas

Introduction

Preparing future teachers who are empowered to respond to the diversity, societal changes, and often-conflicting mandates affecting today's schools is a complex and challenging task. Teachers are

increasingly held accountable for promoting the learning of students with varying experiences, levels of income, cultures, and languages. Likewise, schools and colleges of education are charged with documenting the effectiveness of their programs to prepare such teachers.

According to Carroll (2007), many new teachers leave the profession because the teaching practices they have been taught are still reflective of the past. He asserted that, "Schools of education and the colleges and universities that host them are under increasing criticism for the gaps between their teacher preparation programs and the needs of today's schools. These gaps have significant consequences for teaching quality and student achievement (p. 52)."

Miller, Duffy, Rohr, Gasparello, and Mercier (2005) suggested that closing the gap between the skills teachers need and those they receive in their preparation programs would help close the gap for low-income students. They asserted that closing this skills gap in teacher preparation requires addressing more effectively the complexities of learning to teach. Three particular problems in learning to teach that support the complexity of this endeavor are, "the problems associated with the 'apprenticeship of observations,' the difficulty of enacting teaching intentions, and the enormous complexity of teaching, which requires integrating many kinds of knowledge and skills in making judgments about how to pursue multiple goals with learners who have diverse needs" (Hammerness et al., 2005, p. 390).

Can online teacher preparation programs effectively address these three problems and provide future teachers with the knowledge and skills to meet current and future challenges in P-12 schools? Are there particular characteristics that seem to contribute to the overall effectiveness of an online teacher preparation program? This study investigated these questions by analyzing results from surveys collected over a period of seven academic years from credential program graduates after one year of teaching and their employment supervisors. Some of the graduates had completed a program with an innovative online curriculum and others a more traditional campus-based program.

Literature Review

The literature on effective teacher preparation suggests certain characteristics of effective programs while emphasizing the need for continuing research on how best to prepare future teachers. As online and other forms of distance learning becomes ever more ubiquitous, the importance of identifying in what ways and under what circumstances it might be at least as effective as face-to-face instruction become increasingly important. The potential intersection of these two areas of the literature provide valuable insights into an investigation of whether online teacher preparation is an effective pathway to teaching and provide the framework for comparing an online-supported program to more traditional pathways.

Components of an Effective Teacher Preparation Program

University-based teacher preparation programs consist of a combination of academic coursework and clinical field experiences, in most instances in response to state or other standards for teacher preparation. According to the American Association of State Colleges and Universities (AASCU, 2004), teacher preparation best practices include promoting closer contact between higher education faculty and school district personnel, increasing field experiences earlier in programs, providing a sequence of courses, and connecting programs to state student content standards. Darling-Hammond, Hammerness, Grossman, Rust, and Shulman (2005) described the results of an investigation of seven exemplary teacher education programs and found that they were particularly well integrated with strong connections between the coursework and clinical field experiences and that the program had a consistent vision of good teaching practice.

A teacher preparation curriculum that consists of unrelated courses rather than an integrated program design can inhibit candidates' ability to learn the complexities of teaching and translate them to practice. One effective approach to curriculum design is Bruner's (1977) spiral curriculum where basic ideas are presented in a spiral, iterative manner. A curriculum as it develops should revisit these basic ideas repeatedly, building upon them until the student has grasped every idea that goes with them (Darling-Hammond, et al., 2005).

Among the most influential elements of a teacher education program are the field experiences it provides the teacher candidates. Early field experiences can help provide candidates with a sense of the big picture. The National Commission on Teaching and America's Future (NCTAF) stated, "Clinical practice, in diverse settings, under the supervision of faculty and accomplished teachers, contributes to the development of a highly qualified teacher" (NCTAF, 2003, p.77).

In discussing the critical importance for university-based teacher education programs to conduct rigorous research that provides evidence of the effectiveness of their programs, Grossman (2008) advocated for more studies that look across different pathways into teaching, that characterize features that matter most in preparing teachers, and that use a sample that includes large public institutions. In particular, Grossman indicated that research must address how the preparation program affects teaching practice and if there is a link between teacher preparation and how teachers teach.

The Effectiveness of Online Learning

Originally offered in the form of correspondence courses, advances in technology and increased Internet access have shifted the focus of distance education to online, Web-based learning. These advances facilitate interaction of students not only with the course information, but also with teachers, students, and others as part of their learning experience.

Results of many studies indicate that online courses can be at least as effective, if not more so, than face-to-face courses and a major recommendation of the Federal Communications Commission (2010) in their National Broadband Plan is to support and promote online learning. Sponsored by the U.S. Department of Education, Means, Toyama, Murphy, Bakia, and Jones (2009) conducted a meta-analysis of research studies from 1996 through July 2008 on online learning. Their results indicated that "on average, student in online learning conditions performed better than those receiving face-to-face instruction" (p. ix).

Major advantages for online learning include the greater flexibility it offers, the opportunities it provides the learner to utilize resources that might not be locally available, and the opportunities it provides for "just in time" support and reflection (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009). In a review of the research on teaching online courses, Tallent-Runnels et al. (2006) found that not only do students generally have positive attitudes toward online learning, they may also increase their learning time, which may have a positive impact on their overall learning outcomes.

Although many studies, such as those analyzed by Means et al. (2009), have found that online courses are at least as or more effective than face-to-face courses, and although students generally have positive attitudes toward online learning, its effective use is not without challenges. A major obstacle to online learning is the lack of access to high-speed Internet access (Lin 2008-2009). In addition, research has found reservations among some P-12 and higher education faculty and administrators regarding the quality and effectiveness of online learning, although this seems to be changing somewhat (Allen & Seaman, 2010). Lin (2008-2009) found that the comfort and familiarity of face-to-face instruction could serve as a barrier for some students participating in an online course. Directly converting a face-to-face course to online without appropriate adjustments for the online environment can also reduce the effectiveness of online learning (Tallent-Runnels, et. al., 2006). McPherson and Nunes (2004) emphasized the importance of a sound pedagogical foundation that is specific to the context in order for online learning to be effective. Dede et al. (2009) noted that most research on the effectiveness of online learning used data collected shortly after the experience rather than after some time had passed reducing the ability to investigate a more permanent impact of the learning.

Zhao, Lei, Lai, and Tan (2005) conducted a meta-analysis of studies on the effectiveness of distance education and found that although some of the earlier studies showed little difference between distance and face-to-face, some later research found marked differences. The authors analyzed the major characteristics of the individual studies to see if particular characteristics were significant predictors of distance over face-to-face education and vice versa. They found that one of the most important predictors of a positive effect of distance learning was how recently the distance learning under exploration had occurred. The more recent the distance learning, the more the results indicated an advantage for distance learning over face-to-face instruction. The extent to which students were able to interact with peers and instructors was also an important characteristic leading to better results in terms of learning outcomes for distance education.

Results of this analysis also showed that content was a significant predictor of the difference between distance and face-to-face education. For example, distance learning was found to be more effective than face-to-face in studies of education programs in business, computer science, and medical science. No significant difference was found in the social science and science areas, although face-to-face learning showed a slight advantage.

Description of an Online-supported Teacher Preparation Program

The online-supported elementary teacher credential program investigated in the study is a four-semester, post-baccalaureate program that serves students throughout the state. The curriculum design of this program is consistent with Bruner's spiral curriculum. Rather than separate courses each term, teacher candidates take one 10-unit course that is a coherent combination of coursework and fieldwork. The academic content consists of 25 modules of 98 activities plus a *Teaching Performance Assessment* required by the state. Appendix A shows an overview of the online curriculum. At the end of each module candidates write a reflection in which they synthesize their learning during that module. All curriculum is online and candidates are given a pacing guide with due dates for each module. Within that structure they can complete assignments at their convenience. There is also a help system in place for students and faculty when they have technical problems.

Candidates are in a classroom for a clinical field experience from the beginning of the program. Candidates in Term One spend 90 hours in clinical fieldwork and complete 30 activities of academic work; in Term Two they spend 180 hours in clinical fieldwork and complete 28 activities of academic work; in Term 3 they spend 225 hours in initial student teaching and complete 27 activities of academic work; and in Term Four they spend 300 hours in student teaching and complete 12 activities of academic work.

In addition to their fieldwork and academic coursework, candidates participate in online asynchronous discussions and attend a series of Saturday seminars, approximately one per term. Seminars focus on strategies for teaching English language acquisition, mathematics, science, visual and performing arts, reading, and health/physical education. A faculty member, who is assigned a cohort of students in a geographical sub-region, evaluates academic work and discussion board participation, and observes classroom teaching.

The faculty member is the primary contact between the program and the teacher candidate and between the program and K-12 school personnel. Each term the candidate's faculty member makes four visits to the field placement classroom to conduct observations of teaching or field visits. Students and their assigned faculty regularly communicate through email and discussion boards. Many faculty also use Skype for videoconferencing with their students, some of whom may be some distance away. Candidates submit work for evaluation through an online work folio. The faculty member evaluates and provides feedback to the candidate.

The purpose of the present study is to compare the effectiveness of an online-supported teacher preparation program to that of more traditional, campus-based programs.

Method

Participants in the Study

This survey research utilized data collected over a seven-year period from graduates of elementary credential programs in a large state university system after one year in the classroom and from their employment supervisors.

Participants in the study were graduates from the online program, the campus-based program on one of the host campuses for the online program, and from across the university system. In addition, the employment supervisors of the new teachers participated in the study. The online program has a current enrollment of over 700 candidates in 50 counties and employs 50 faculty. The campus-based program is offered by an institution serving 21,500 students and employing 1100 faculty. The system has 23 campuses and serves 433,000 students while employing 44,000 faculty and staff.

Table 1 shows demographic information by percent of student respondents who completed their credential program during 2007-2008. This information is particularly relevant to this research in that no randomization was possible and the teacher groups could not expect to be equivalent. Demographic data were not available for the supervisors; however the supervisors were rating these various teacher group members and might have been affected in some way by demographic differences.

Data Collection

Annually since the 2000-2001 academic year, an evaluation of teacher preparation termed the *Systemwide Evaluation of Professional Teacher Preparation Programs* has been conducted across credential programs in this large state university system. The purpose of the evaluation is to monitor the effectiveness of the system's 23 colleges and schools of education and to enable them to make needed improvements in the preparation of K-12 teachers under their leadership.

Each campus forwards to the Chancellor's Office (CO) a list of former students at that campus who, during a prior 12-month period, met the standards for state certification as K-12 teachers. The CO enlists the assistance of state agencies to provide information about the graduates. School sites are identified for approximately 55 percent of the completers from these sources. After receiving data from the three state agencies, the CO and campuses make a second effort to find the school locations of additional teachers by directly contacting approximately 1,000 school districts and 50 county offices of education, yielding site information for an additional 30 percent of recent program completers [Center for Teacher Quality (CTQ), 2009]. Participants completed and submitted the survey online.

Table 1. *Demographic information by percent for 2007-2008 program completers*

	Online Program	Campus-Based	Systemwide
Age			
<25	22	49	39
25 - 40	71	40	48
>40	8	11	11
Gender			
Female	85	72	78
Male	15	28	23
Ethnicity			
Native American	2	3	2
African American	4	2	3
Asian	4	9	11
Latino	22	32	25
White, not Hispanic	68	59	62
Salary Status During Credential Program			
Emergency Teacher	11	4	5
Salaried Intern	37	16	20
No Salary – Student	50	80	75
Employment Prior to Credentialing			
Taught Private School	9	1	4
Emergency Credential	6	4	4
Paid Intern	4	2	2
Teaching Assistant	22	20	20
Certified Teacher	1	1	1
Outside Education in Profession Related to BS	27	18	22
Employment not related to College Education	25	44	36
No Employment History	7	11	11

Instrument

The survey consisted of 110 items. Program graduates after teaching for one year and their employment supervisors completed separate but parallel instruments. Responses were indicated on a four-point Likert scale with the following choices: Well Prepared, Adequately Prepared, Somewhat Prepared, and Not At All Prepared. The instrument collected information about the extent to which K-12 teachers who

were recent graduates of teacher preparation programs perceived the effectiveness of their preparation for important teaching responsibilities, and the extent to which their program coursework and fieldwork were professionally valuable and helpful to them during their initial year of teaching (CTQ, 2009).

The instrument included common items for all respondents and credential-specific questions for particular groups, such as elementary, secondary, and special education teachers. All participants were asked about the extent to which the graduates were prepared for important responsibilities that are commonly assigned to K-12 teachers in all teaching positions. Graduates were also asked questions about the extent to which major features of their preparation programs, such as pedagogical coursework and fieldwork activities, proved to be valuable and helpful during subsequent teaching. Finally, all graduates were asked questions about the quality of their credential program in relation to prominent standards for state and national accreditation. For data analysis the items were grouped together into composite scores of related items. Each composite score represents an important aspect of teaching, for example, preparation to teach subjects such as reading and math and preparation to work with diverse learners.

Development and Validation of the Instrument. Deans of Education in the system reviewed instruments used by other universities and by research centers to develop an extensive set of items. Alignment of items with state content standards, state expectations for newly credentialed teachers, and state and national accreditation standards strengthened validity. This alignment was performed by individuals who had participated in drafting and implementing the state's accreditation standards for universities and its performance expectations for teachers (CTQ, 2006). To expand validity, the Deans of Education also completed an "alignment project" that enabled the CO to produce evaluation reports in which explicitly align evidence of program outcomes with state and national standards.

Reliability. Uncertainty about findings comes from two principal sources, the numbers of participants and the extent of their concurrence with each other (Gall, Borg, & Gall, 1996). The findings become increasingly certain to the extent that the questions in a composite are answered by increasing numbers of a program's completers (or their employment supervisors). Since inception of the survey, each year's data set yields the percent of respondents who gave specified answers to the questionnaire and includes reliability estimates for each finding in the form of confidence intervals. These are based on both the number of respondents and the concurrence or homogeneity of responses.

In 2003, the Deans of Education grouped together survey items that were substantively related to each other. For example, the survey includes several items related to preparing teachers for diversity in education. The Deans grouped these questions together in a composite called *Preparing for Equity and Diversity in Education*. The grouping of items in this and other composites facilitates the analysis and interpretation of large amounts of complex data. The composite scores are substantially more reliable than are the evaluation of participants' responses to individual survey items and many are sufficiently valid and reliable to serve as the basis for academic and professional decisions about teacher preparation by faculty and administrators at system campuses (CTQ, 2006). The reliability for the composite scores for the system, the online program, or the campus-based program range from zero to two percentage points at the 90 percent confidence level.

To allow for a comparison of the online program's preparation of elementary teachers with the campus-based program data and the systemwide data and to present the data in a consumable form, the use of mean scores was selected. The mean is generally considered the best measure of central tendency. Its advantage over the median, which was also considered, is that it is more stable (Gall, Borg, & Gall, 1996). Thus the mean score from across the years for which composite data exist for all participants was selected to represent the best single measure of evaluation for each composite.

Results

For academic years 2002 through 2008, a total of 99,314 fully credentialed new teachers were produced by system institutions with a low count of 9,213 in 2007 and a high of 13,933 in 2004. The return rates for the evaluation survey vary among campuses and from year to year. In the highest return year, 2005, the system received responses from 3,690 teachers and 3,457 supervisors. In 2001, the lowest year, the system had 1408 responding teachers and 1186 responding employment supervisors. The response rate only includes teachers and supervisors who were located and received an invitation to participate; it does not include graduates who did not teach or who could not be found.

Table 2 shows the percent of return obtained in 2009 for students who completed the program in 2008 for the three groups whose scores are reported in this research. These return rates should be viewed as exemplary when compared to almost any survey data (Gall et al., 1996). It should be noted that the

online program had the highest return percentage of the system campuses and the campus-based program was third highest in both number and percentage of completed surveys (CTQ, 2009).

Table 3 shows the employment supervisors' composites scores from annual reports evaluating the preparation of 2001-2008 program completers at the end of their first year of teaching. The results presented are the average of the mean scores of supervisors who rated the specific teacher as well or adequately prepared, the two highest categories of the four-point scale, in the respective areas. The N presented is the total number of respondents in each of the three groups. Nearly all supervisors across all reporting years indicated that they were elementary building principals.

Table 2. *Number and percentage of 2008 graduates and their employment supervisors who completed the survey in 2009*

	MS Teachers		MS Supervisors	
	N	%	N	%
Systemwide	947	50	682	51
Campus-based program	93	67	72	67
Online program	195	75	163	84

Table 3. *Mean Composite Scores for Supervisors of Teachers graduating in the Years 2001-2008 who Rated Program Completers as Well or Adequately Prepared*

	Online Program N = 595	Campus-Based N = 626	Systemwide N = 9224
Overall Program	83%	79%	81%
To Teach Reading-Language Arts in K-8	85%	81%	83%
To Teach Mathematics K-8	87%	83%	84%
To Teach Subjects other than Math or Reading K-8	80%	75%	78%
To Plan Instruction	86%	83%	84%
To Motivate Learners	86%	82%	83%
To Manage Instruction	84%	81%	82%
To Use Instructional Technology	85%	80%	81%
For Equity and Diversity	80%	77%	79%
To Teach English Learners	81%	79%	78%
To Teach Special Learners in Inclusive Schools	81%	76%	78%

Percentages for the online program completers were higher than the campus-based program and the systemwide percentages in all composites. Because there was no access to individual subject responses, no inferential statistic could legitimately be calculated. The greatest difference in preparation between the online program and the system was the use of instructional technology (online 85% and system 81%). The greatest differences between the online program and the campus-based program were preparation to teach math, use technology, and teach special learners in inclusive settings, all 5-point differences. On the overall program rating, a composite using all of the rating items, 83 percent of the online program graduates were rated as well or adequately prepared compared to 79 percent for the campus-based program graduates and 81 percent for systemwide graduates.

Table 4 shows the graduates' own rating of the preparation they received from the credential program they attended. The online program graduates rated the preparation they received better than the control groups by a much wider margin than was seen with the supervisors' ratings. Not only was every composite higher for the online program, but also the differences between composite scores ranged from

an 18-point difference on preparation to use technology to six points on graduates' rating of their field experience. The overall program rating showed a 15-point advantage over the campus-based program and 12 points over the systemwide average. Even the highest rated preparation area, teaching reading, found a seven- and eight-point advantage for the online program over the campus-based programs.

Discussion/Conclusions

The System has invested heavily in the CTQ and the *Systemwide Evaluation of Teacher Preparation*. The Deans of Education who devised the system set as a goal obtaining a minimum of 80 percent in each composite area while aspiring to score even higher. Annually each campus must submit an *Improvement and Accountability Plan* to the CO detailing efforts to raise four campus-identified areas in greatest need of improvement along with the proactive steps being taken by the program to raise each area to a minimum score of 85 percent well or adequately prepared. The online program is consistently approaching this level; the rest of the system aspires to this level of performance.

Table 4. Mean percentage of 2001-2008 program completers who rated at the end of their first year of professional teaching they had been well or adequately prepared by their preparation program

	Online Program N = 1038	Campus-Based N = 768	Systemwide N = 11894
Overall Program	86%	71%	74%
To Teach Reading-Language Arts in K-8	91%	84%	83%
To Teach Mathematics K-8	89%	79%	82%
To Teach Subjects other than Math or Reading K-8	76%	59%	64%
To Plan Instruction	91%	80%	80%
To Motivate Learners	90%	76%	78%
To Manage Instruction	88%	72%	74%
To Use Instructional Technology	79%	61%	64%
For Equity and Diversity	87%	72%	74%
To Teach English Learners	88%	74%	76%
To Teach Special Learners in Inclusive Schools	85%	72%	70%
Overall Coursework	87%	76%	78%
Overall Field Work	90%	84%	84%

The inability to use measures other than descriptive statistics makes it difficult to provide definitive statements that allow comparisons of program evaluations. It is clear, however, that the online program cannot be interpreted as doing a lesser job of preparing the teachers, according to the supervisors. The graduates of the online program clearly feel their preparation was superior as compared to the campus-based programs. The number of participants in each group is substantial, the smallest N is nearly 600 and nearly 12,000 respondents' scores are included in the largest group. These large numbers make the size of the differences between the graduate groups even more impressive.

Some differences may be easily interpreted. The largest advantage area, graduates' rating of preparation to use technology is logical. The online program was almost entirely technology based and it may be assumed those participants selected that format, at least in part, because they were comfortable with that genre. The magnitude of advantage of the online program cannot be easily explained in the other areas.

An examination of the demographic data shows that some differences do exist among the groups. The online program graduates tend to be older, with 79 percent over 24 years old compared to 51 percent and 59 percent for the other two groups, a sizeable percentage over the "typical" college student age range. Noticeably fewer males pursued the online option for teacher preparation. During the credential program 50 percent of the online students were employed as teachers compared to 20-25 percent of the campus based students. Likewise, prior to entering the program, 42 percent of the online students had employment related to teaching compared to 28 percent and 31 percent for the other two groups. The

ethnic distribution for the three groups is fairly similar with the online group closely aligned with the systemwide numbers. Increased experience in itself could be perceived as an advantage and it would increase the background of experience to which candidates could tie the new knowledge being acquired.

Even given these demographic differences, the results of this study suggest that a well-designed online teacher preparation program can be as effective or more effective as a campus-based program and should be considered in preparing teacher candidates to meet current and future challenges. This study responds to Grossman's (2008) recommendations that future research look across different pathways into teaching, characterize features that matter most in preparing teachers, and employ a sample that includes large public institutions. Little research on preparation program effectiveness includes so many participants and so many data points.

Results of the study are also consistent with results of reviews and meta analyses of online learning studies indicating that certain online learning conditions and characteristics result in more effective learning than face-to-face instruction (Dede et al., 2009; Means et al., 2009; Tallent-Runnels et al., 2006; Zhao et al., 2005). Because participants were surveyed one year after completing a preparation program, results are more indicative of a long-term impact of the preparation rather than the short-term impact often measured in studies of effective online learning (Dede, et al., 2009).

As recommended by Darling-Hammond et al. (2005), online program faculty members have increased opportunities for contact with K-12 school faculty. Four visits to each candidate per term are scheduled. However, unlike traditional student teacher supervision, these visits are lengthy, generally for at least a half-day. This increased time on site provides ample opportunity for visiting with the master teachers and other school personnel, both to receive feedback about the candidate but also to become familiar with each school site's curriculum and instructional plan.

The online program design closely integrates coursework and fieldwork, a characteristic of exemplary teacher preparation programs identified by Darling-Hammond et al. (2005). The spiral design of the curriculum provides a coherent sequence that allows candidates to revisit important skills and knowledge at an increasingly complex level.

The online program also offers the flexibility, opportunities to utilize resources that might not be locally available, "just in time" support, and reflection that are advantages to online learning (Dede et al., 2009). Instead of having disparate instructors scattered about teaching online courses, the online program employs a cadre of full-time well-trained faculty who are continually up-dated who have continual input on curriculum development as recommended by Zheng and Smaldino (2006).

This study compared the effectiveness of an online-supported teacher preparation program to more traditional campus-based programs in a large public university system. Ratings for the online-supported program were consistently higher for the online-supported program than for a selected campus-based program and for the system as a whole. This study contributes to the knowledge base on innovative online teaching and learning practices in a number of ways. It examined an entire program rather than an individual course as is common in much of the literature. In addition, it analyzed data from a large population of participants over a period of several years. It suggested some characteristics that might be particularly critical in the design of an effective online teacher preparation program. The descriptive nature of the study limited the ability to make inferences about the significance of group differences. In addition, the relative importance of specific features of the online program versus the campus-based program, such as the curriculum and fieldwork activities could not be determined. Future research could build upon this foundation by analyzing individual responses and conducting additional statistical analyses to further explore the significance of specific characteristics, both of the programs and of their teacher candidates.

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Appendix A. Online Program Curriculum Overview

Domain	Term One Brief Summary	Term Two Brief Summary	Term Three Brief Summary	Term Four Brief Summary
Subject Matter	State frameworks and academic content standards; English/language arts, mathematics, science, social science; English learners; physical education; students with special needs	Content specific pedagogies: English/language arts, mathematics, science, social science; English learners	Content specific pedagogies: English/language arts, mathematics, science, social science, visual and performing arts, physical education and health	Growth in integrated instruction: English/language arts, mathematics, science, social science, visual and performing arts, physical education and health instruction
Assessment	Basic principles of assessment	Assessment specific to subject matter, monitoring students during instruction.	Literacy assessment; case study; record keeping; standardized testing; mathematics assessment	Multiple assessment strategies;
Engaging and Supporting	Knowledge of students and community; English learners; developmentally appropriate practices	Child development English learners; learners with special needs; educational applications of technology	Learning theory; child development; accommodations for learners with special needs; learning theory, motivation, self-concepts; cooperative learning	Adapting instruction for students with special needs; instructional resources
Planning	Lesson planning: Planning based on student needs, aligning the standards, objectives, activities and assessment; instructional strategies, models of instruction	Sequencing of instruction and unit planning; models of instruction; subject matter planning; integration of technology	Long-range planning; expanded classroom management plan; electronic record keeping; cooperative learning; multiple assessment measures; instructional technology	Community-based integrated unit for social science;; instructional resources; differentiated instruction
Environments	Classroom management; use of instructional time; introduction to models of discipline; parent communication; community context	Adaptations and accommodations; introduction to cooperative learning; materials management	Modification of classroom management plan; adaptations and modifications appropriate for students with special needs applied to all areas of the curriculum; models of discipline	Supporting all students; managing technology; adaptations and modifications
Developing as a Professional	Technology; attitudes towards schooling; legal and ethical responsibilities; student study teams and reflections on lesson implementation and Teaching Performance Expectations	History of schooling; professional development plan; reflections on lesson implementation and Teaching Performance Expectations	Privacy, safety and bias related to technology; reflections on lesson implementation and Teaching Performance Expectations; Student Study Team process	Professional development plan; reflections on lesson implementation and Teaching Performance Expectations; RICA review; presentation of evidence in professional portfolio
Assessment of Candidates	Academic and performance outcome documentation	Academic and performance outcome documentation; CalTPA Task 1 (developmentally appropriate content pedagogy)	Academic and performance outcome documentation; CalTPA Task 2 (lesson design based on knowledge of students)	Academic and performance outcome documentation; showcase portfolio addressing Teaching Performance Expectations organized by CSTP; CalTPA Task 3 (appropriate standards-based assessment with a lesson); CalTPA Task 4 (design, implement, videotape and analyze a differentiated, standards based lesson); RICA

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