The Acceptability of Online Degrees: Principals and Hiring Practices in Secondary Schools

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Abstract

A national survey of high school principals ($N = 683$) was used to assess the acceptability of job applicant qualifications that included degrees earned either online, partly online, or in a traditional-residential teacher-training program. The applicants with coursework taken in a traditional-residential setting were overwhelmingly preferred over applicants holding a degree earned partly or wholly online. Chi-square analyses were used to examine the relationships among applicant selection and respondents' demographic characteristics, their explanations for applicant selection, and background information. Results indicated that applicant selection significantly differed by gender, school type (public vs. private), opinions on hiring criteria, and experience with online classes. Further analysis indicated that online courses were perceived as not presenting sufficient opportunity for students to develop important social skills through interaction with other students and mentors.

Background

As colleges and universities enroll an increasing number of students in online degree programs, a key question is whether hiring managers will view degrees earned online as being equal to those earned in traditional-residential programs. Although some studies clearly demonstrated the equivalence of online and traditional test scores, student satisfaction, and learning outcomes (Bernard et al., 2004), other research has raised doubts about the perceived quality of online learning. Inconclusive research has not deterred public and private institutions from expanding their online programs to serve professions where the demand is greatest.

Although finding accredited online programs that lead to a degree in education has not been difficult, online degree programs that lead to a professional teaching certificate are a more recent trend. For example, privately held institutions such as Drexel University and Western Governor's University have online programs that lead to a teaching certificate, as do a number of public institutions in many of the United States. A steady demand for certified teachers, efforts to improve the quality of teaching, and new legislation have led to a sharp increase in such offerings. As the number of distance education programs leading to teacher certification increase, the question of whether employers will accept this new generation of teachers is a vitally important issue for the teaching profession.

The focus of the current research, then, is to investigate whether distance learning and traditional degrees hold equal weight in hiring decisions for entry-level teaching positions. Specifically, a national survey of high school principals was conducted to evaluate whether online degrees are perceived to have the same prestige as those earned by attending classes on campus. The current research is not directly concerned with why students chose to enroll, whether educational outcomes are equivalent, or with the merits of distance learning. The purpose of the current research is to understand the perceived marketplace value attached to college degrees earned online and the factors influencing the acceptability of such degrees in hiring situations specific to the teaching profession.

Teacher Certification

The teaching profession is among the top five largest occupations in the United States. Numerous studies have been conducted and millions of dollars have been spent to attract and retain good teachers. Yet, 3 million teaching vacancies are expected through 2018 (Carnevale, Smith, & Strohl, 2010, p. 48). Factors such as budget shortfalls, difficulties establishing teacher retention programs, and the potential consequences for failing to contribute to test-taking performance (Turque, 2010) all contribute to the high turnover rate and continuous need for new teachers.

Alternative programs that lead to a teaching certificate add to the complex culture of teaching and teacher education. Such programs are intended to allow individuals who have completed a bachelor's degree to earn a teaching certificate by gaining acceptable qualifications in lieu of a traditional university teacher education program. For example, many states have provisions that allow noncertified, long-term substitute teachers to apply for a teaching certificate after working in a full-time teaching position for a number of consecutive days, provided they hold a bachelor's degree from an accredited institution and have the support of their administrators. Principals are more likely to favor personal strengths, professional skill, and experience (Rutledge, Harris, Thompson, & Ingle, 2008), so there may be some advantages to rising through the ranks in alternative programs.

Principals and Hiring Practices

Some researchers have argued that too much attention has been paid to the supply-side aspect of the teaching profession, and therefore, the important role of the principal has been overlooked (Harris et al., 2010). Principals are involved in every aspect of the administration of a school. They oversee facilities management, administer finances, assure the welfare of the students, manage public relations, and mentor teachers (Trail, 2000). Although human resource management is among a principal's more important administrative responsibilities, no decision in that capacity is more important than hiring the best teachers (Bolz, 2009, Peterson, 2002; Sweeney, 1983).

Interestingly, in hiring situations principals tend to value applicants' personal qualities more than their professional characteristics. In a comprehensive study of school administrator hiring practices, Harris et al. (2010) developed a list of characteristics that principals most often prefer in teacher applicants. They found that principals ranked strong communication skills, enthusiasm, and classroom management skills highest.

Mason and Schroeder (2010) noted that professional characteristics such as proper certification, letters of reference, and transcripts are important and that principals use interviews to gauge personal attributes. Principals, then, tend to deem interviews, references, evaluations, and letters of recommendation as more effective means of learning about their applicants than coursework or strong academic credentials (Rutledge et al., 2008).

A more recent issue principals must consider when selecting applicants has been the emergence of online teacher education programs that lead to a professional certificate. A number of institutions—public and private—are in the process of developing their own online programs that lead to a public school teaching certificate. For example, America's Best Graduate Schools (*U.S. News & World Report*; http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools) listed seven online doctoral degree programs in education and numerous certificate programs at the master's level when the current study was conducted in 2007. These programs are recognized by a number of states, whereby a professional teaching certificate is granted to applicants who complete the required courses (i.e., methods, curriculum, and philosophy), preparatory fieldwork, and apprentice teaching.

In the context of a high-demand field with a chronic shortage of qualified applicants, online programs play—or have the potential to play—a variety of important roles. For example, in school districts that suffer from a lack of qualified applicants, there has been considerable interest in developing an online curriculum that will lead to a teaching certificate (Basinger, 2000b; Eastman & Swift, 2001). Distance learning also appears to be ideal for professional development activities because of all of the well-known convenience factors. Difficulties have existed in developing online teacher training degree programs that lead to a degree with a professional public school teaching certification, yet clearly, online institutions recognize the future opportunity in such efforts (Blumenstyk, 2003).

The Acceptability of Online Education

A considerable number of research papers have been published to assess the quality of online learning, but the results are mixed. Some research is funded by institutions with an interest in distance learning, and some research is problematic because of the methods used to collect data. For example, the findings from publications that focus on the comparison of two groups of students (i.e., online and traditional) have been noted as being misleading, and their conclusions have raised more questions than they have answered (Phipps & Merisotis, 1999). Few studies have examined the question of acceptability by working directly with hiring decision-makers, or gatekeepers.

A series of studies was conducted to examine the issue of acceptability of online courses and degrees by asking gatekeepers to choose between candidates whose qualifications differed only in terms of whether they earned their credits completely in residence, partially online, or wholly online (Adams, 2008a,b; Adams, 2009; Adams & DeFleur, 2005, 2006; Adams, DeFleur, & Heald, 2007; DeFleur & Adams, 2004; Padilla-Rodríguez & Adams, 2011).

Five of the research studies were similar in design; each presented hiring managers with two hiring situations. In both hiring situations respondents were asked to choose between an applicant with college degree credits earned in a traditional, face-to-face program and a second applicant. The alternative applicants in these studies held degrees that qualified them for the job equally, but their coursework had been completed either half online (and half in a face-to-face setting) or completely online. The hiring managers, then, were asked to select one of two applicants in each situation. In the first situation, an average of 96% of gatekeepers preferred applicants with credits that were earned completely in residence as compared to those whose credits were earned completely online. In the second situation, an average of 70% preferred applicants with credits earned completely in residence as compared to those who had earned one half their credits online (Adams, 2009).

The issue of whether online coursework is accepted as equivalent to traditional methods raises questions about the process of higher education and whether—in spite of the benefits that new technologies may offer—some aspects of higher education are indeed better as they currently exist. For example, a number of studies suggest that teachers who earn a degree online or complete a significant amount of online coursework during their academic studies are not judged as having qualifications equal to those who earn their degrees in a traditional setting (Flowers & Baltzar, 2006; Huss, 2007a,b).

Specifically, Huss (2007a) examined the question of acceptability of online degrees as perceived by elementary ($N = 101$), middle ($N = 75$), and high school ($N = 150$) principals. He found that 59% would be *very concerned* if a candidate who obtained a degree wholly or almost wholly online sought employment at their school (39% would be *somewhat concerned* and 2% *not at all concerned*). The vast majority (95%) thought that the online degree did not carry as much credibility as a traditional degree. Furthermore, 99% of those surveyed indicated that if given a choice between two top candidates whose only difference was obtaining their degree online or at an onsite, traditional college or university, they would choose the candidate from the traditional college or university.

The purpose of the current research is to examine the acceptability of online degrees in the teaching profession. High school principals were asked to evaluate, in their role as a hiring managers, the acceptability of online coursework as part of an applicant's professional credentials in a hiring situation. Again, this study's intent is not to compare educational outcomes or offer more evidence regarding the educational merits of distance learning. The current research focused on the question of whether a teaching certificate, earned by completing all or part of the required coursework in an online program, would affect the employability of an applicant.

Method

A national survey that included hiring situations was sent to high school principals throughout the United States in order to assess perceived credibility of an online teaching degree versus a traditional teaching degree.

Sample

The researchers gathered names of high school principals by visiting the department of education website for each of the 50 United States. High school principals were targeted because they typically make final decisions in hiring situations. While identifying contact information for potential public, private, and alternative school participants was relatively easy, each state formatted their lists differently. In order to meet inclusion

requirements for the current study, the list had to include an email address for the high school, the name of the school, and the name of the principal. Prospective participants were contacted and sent instructions via email. Many email transmissions were returned because they were rejected by antispam software or the email addresses were incorrect. A total of 6,306 email transmissions were sent. The request for participation was sent to the complete list of email addresses on three different occasions.

A total of 1,852 email transmissions were verified as received.Of those, 341 viewed more than one page of the survey without participating; 700 potential respondents clicked the email link and closed the survey without navigating past the first page, and 98 requested to be unsubscribed from the contact list. When the surveys were tallied, 713 respondents completed the questionnaire, resulting in a response rate of 38.5%.

Of the 713 respondents who completed the survey, 69.6% ($n = 496$) were men and 30.4% ($n = 217$) were women. A number of questionnaires were discarded because they were incomplete, leaving 686 principals ($n = 481$, 70.1% , men; $n = 205$, 29.9%, women) in the final sample. The respondents were asked to select an age range that represents the group to which they belong. A majority of the respondents (73.5%) indicated that they were 45 years or older. Less than three fourths of the respondents (71.3%) had been in their positions more than 5 years. Other important characteristics of the respondents included that 70.7% ($n = 485$) were employed in public schools. Many of the participating schools were situated in rural ($n = 286$, 42.0%) and suburban ($n = 256$, 37.6%) areas. Only 20.4% ($n = 139$) of respondents worked in urban schools.
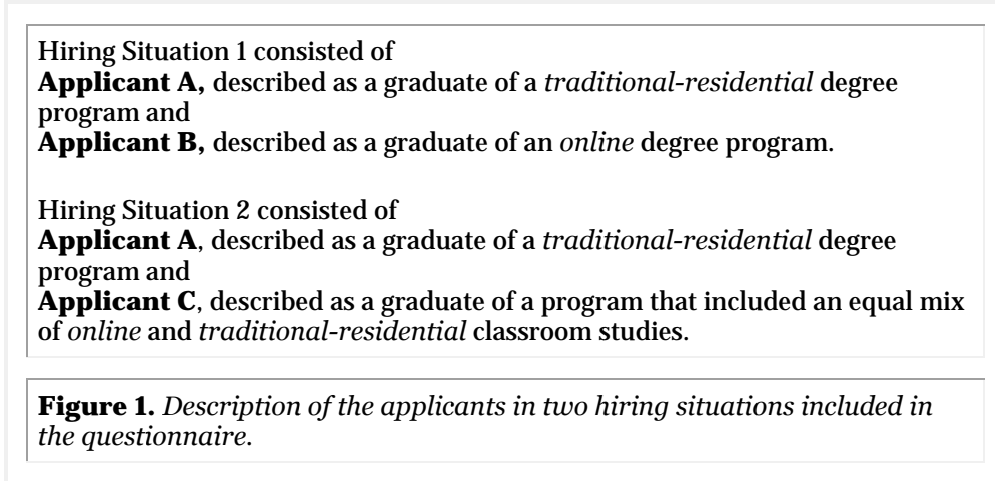
Survey

The questionnaire was designed to assess how employers view the academic accomplishments of teaching position applicants. Respondents were asked to select the most qualified applicant in two hiring situations. Forced-choice questions and open-ended responses were used to clarify applicant choices. Demographics were used to assess whether any connection existed between audience characteristics and applicant choices. Finally, respondents had the opportunity to write additional comments regarding their thoughts about online degrees and courses.

The focus of the questionnaire was to assess how hiring managers respond to a situation where applicants have earned their teaching certificate by attending classes in a traditional manner, partially online, or completely online. Three types of applicants, then, were presented in two different hiring situations (traditional education vs. wholly online education and traditional education vs. partial online education; Figure 1), and respondents were instructed to pick the more desirable applicant in each situation.

Applicant qualifications were identical *except* for the academic environment in which their degrees were earned. Both hiring situations described the applicants as having the same prior work experience, a successful student teaching experience, good letters of recommendation, and positive results from personal interviews.

Respondent characteristics such as age and number of years in administration were tested for correlation with the applicant selections made by the principals. Written comments were analyzed using a combination of textual analysis to quantify the appearance of keywords and constant comparison method to develop thematic categories. The comments provided valuable insights as to the nature of the perceived quality of online coursework and the perceived capabilities of the applicants who earned their teaching degree using some combination of online coursework.

Hiring Situation 1 consisted of
Applicant A, described as a graduate of a *traditional-residential* degree program and
Applicant B, described as a graduate of an *online* degree program.

Hiring Situation 2 consisted of
Applicant A, described as a graduate of a *traditional-residential* degree program and
Applicant C, described as a graduate of a program that included an equal mix of *online* and *traditional-residential* classroom studies.

Figure 1. *Description of the applicants in two hiring situations included in the questionnaire.*

Results

In both hiring situations, the applicant with a traditional degree was found to be the overwhelming choice. In Situation 1 (traditional Applicant A vs. online-only Applicant B), 637 respondents (93.3%) indicated that they would recommend hiring the applicant with a traditional degree. In hiring Situation 2, 69.5% of respondents ($n = 477$) selected Applicant A over Applicant C. Finally, a mere 6.7% ($n = 46$) of the respondents preferred the applicant whose degree had been earned completely online (Figure 1).
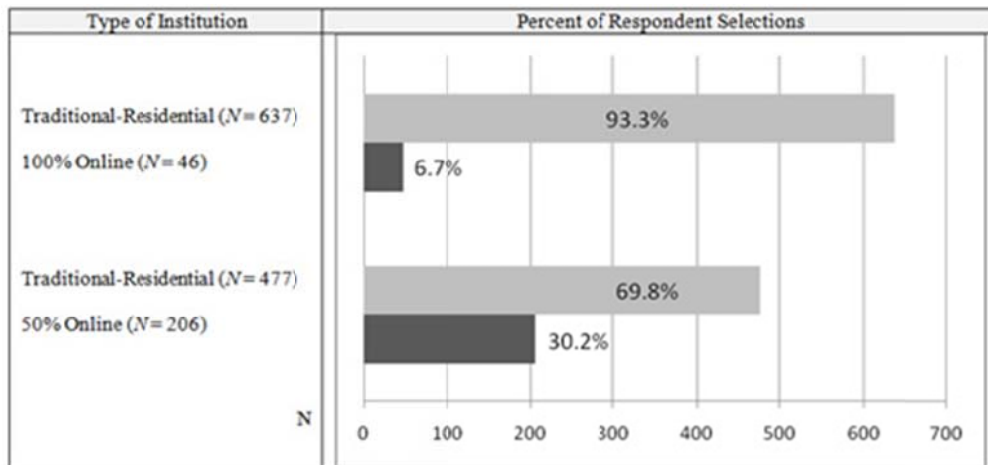

Figure 2. *Percentage of respondents who indicated they would be most likely to recommend hiring the target applicant.*

As noted, forced-choice questions and space for written comments were used to clarify applicant selections. The principals were asked whether they agreed, disagreed, or were undecided about such issues as the importance of the type of institution where a degree is earned, whether core education classes can be effectively taught online, and the importance of teaching experiences and recommendations. Table 1 summarizes the checkbox responses to these issues.

Table 1
Summary of Responses to Qualifying Statements

Statement	Agree	Disagree	Undecided
The type of educational institution (*online university, residential university*) from which the applicant obtained his or her degree would be of no importance.	14% (n = 95)	75% (n = 516)	11% (n = 75)
Core teacher education classes (i.e., methods, curriculum, and educational philosophy) can be effectively taught over the Internet to students enrolled in online courses.	35% (n = 240)	48% (n = 328)	17% (n = 118)
It is not important how many credits are earned over the Internet in online courses, a successful student teaching experience and good recommendations are more important in our hiring decisions.	51% (n = 353)	34% (n = 231)	15% (n = 101)

Chi-Square Analyses

Chi square tests were used to assess whether certain respondent characteristics had any relationship to applicant selection. Results indicated that applicant selection differed significantly based on certain respondent characteristics. For example, male principals were significantly different from female principals in their applicant selection in both Situation 1, $X^2 = 4.577$, $df = 1$, $p = .032$, and Situation 2, $X^2 = 6.946$, $df = 1$, $p = .008$, with female principals more likely to choose an applicant with a degree earned in a non-traditional setting.

Principals' responses differed significantly by school type (i.e., public vs. private) in both Situation 1, $X^2 = 15.617$, $df = 1$, $p < .001$, and Situation 2, $X^2 = 5.121$, $df = 1$, $p = .024$. Interestingly, principals who work in private schools were more likely to recommend Applicant C than were their public school counterparts. One of the more interesting findings made in this section of analysis is that neither the respondents' age nor the number of years they had worked as principals were significantly associated with applicant selection in either hiring situation. Similar findings have been made in other research studies (Adams et al., 2007), which appear to discount the notion that younger administrators find online degrees more acceptable in hiring situations than do their older, more seasoned counterparts.

Following the applicant selections, principals were asked a series of questions regarding their opinion on different aspects of online coursework. The forced-choice questions were significantly associated with the hiring situations in all analyses. For instance, in both hiring situations respondents who indicated that the type of educational institution where applicants obtained their degree was not important were nevertheless more likely to recommend Applicant A over Applicant B (Table 2) in Situation 1, $X^2 = 69.676$, $df = 2$, $p < .001$, and Applicant A over Applicant C in Situation 2, $X^2 = 48.622$, $df = 2$, $p < .001$.

A similar comparison was made with checkbox answers to other questions. For example, principals who believed core teacher education classes (i.e., methods, curriculum, and educational philosophy) can be effectively taught over the Internet to students enrolled in online courses were more likely to recommend Applicant B or C than Applicant A.

Table 2
Chi Square Analysis of Applicant Selection by Whether Respondent Agreed With No
Importance of Educational Institution

Applicant Degree Characteristics	No Importance of Educational Institution		
	Agree	Disagree	Undecided
Hiring Situation 1: Likely to Recommend [a]			
Applicant A: Degree completed with all traditional coursework	73.1%	96.3%	97.3%
Applicant B: Degree completed with all online coursework	26.9%	3.7%	2.7%
Hiring Situation 2: Likely to Recommend [b]			
Applicant A: Degree completed with all traditional coursework	42.1%>	76.2%	58.7%
Applicant C: Degree completed with 50% online and 50% traditional coursework	57.9%	23.8%	41.3%
[a] $n = 683$, $X^2 = 69.676$, $df = 2$, $p = .001$ [b] $n = 686$, $X^2 = 48.622$, $df = 2$, $p = .001$ *Note.* Category totals differ from raw totals because several respondents did not indicate their choice or did not select an applicant.			

Finally, respondents who believed that a successful student teaching experience and good recommendations are more important than the number of credit hours earned online were more likely to recommend Applicant B over Applicant A in Situation 1, $X^2 = 9.179$, $df = 2$, $p = .010$, and Applicant C over Applicant A in Situation 2, $X^2 = 30.679$, $df = 2$, $p < .001$, (Table 3).

Table 3
Chi Square Analysis of Applicant Selection by Whether Respondent Agreed With
Importance of Experience and Recommendations

Applicant Degree Characteristics	Importance of Experience and Recommendations		
	Agree	Disagree	Undecided
Hiring Situation 1: Likely to Recommend[a]			
Applicant A: Degree completed with all traditional coursework	90.6%	97.0%	94.1%
Applicant B: Degree completed with all online coursework	9.4%	3.0%	5.9%
Hiring Situation 2: Likely to Recommend[b]			
Applicant A: Degree completed with all traditional coursework	60.1%	80.1%	78.2%
Applicant C: Degree completed with 50% online and 50% traditional coursework	39.9%	19.9%	21.8%
[a] $n = 682$, $X^2 = 9.179$, $df = 2$, $p = .05$ [b] $n = 685$, $X^2 = 30.679$, $df = 2$, $p = .001$ *Note.* Category totals differ from raw totals because several respondents did not indicate their choice or did not select an applicant.			

Chi-square analyses were also conducted to test whether applicant selections differed based on background information of the principals related to their past experience with online classes. Results for these tests indicated that applicant selections differed significantly when considering whether the respondent had prior experience with online courses in Situation 1, $X^2 = 10.850$, $df = 1$, $p < .001$, and Situation 2, $X^2 = 33.710$, $df = 1$, $p < .001$ (Table 4). Although the principals overwhelmingly preferred Applicant A to Applicants B or C, those who had experience taking online classes for credit were more likely to recommend the alternative applicant than those who had not.

Table 4
Chi Square Analysis of Applicant Selection by Whether Respondent Took Online Classes for Credit

Applicant Degree Characteristics	Took Online Classes for Credit	
	Yes	No
Hiring Situation 1: Likely to Recommend[a]		
Applicant A: Degree completed with all traditional coursework	89.9%	96.3%
Applicant B: Degree completed with all online coursework	10.1%	3.7%
Hiring Situation 2: Likely to Recommend[b]		
Applicant A: Degree completed with all traditional coursework	59.1%	79.5%
Applicant C: Degree completed with 50% online and 50% traditional coursework	40.9%	20.5%
[a] $n = 679$, $X^2 = 10.850$, $df = 1$, $p = .001$ [b] $n = 682$, $X^2 = 33.710$, $df = 1$, $p = .001$ *Note.* Category totals differ from raw totals because several respondents did not indicate their choice or did not select an applicant		

Interestingly, we found no significant difference in applicant selections between principals who work in a school that currently offers online classes for credit. Those principals who work with school systems that *plan to offer* online classes for credit, however were more likely to recommend the Applicant B or C than were those whose schools did not plan to offer online classes: Situation 1, $X^2 = 6.125$, $df = 1$, $p = .013$, and Situation 2, $X^2 = 4.737$, $df = 1$, $p = .030$ (Table 5).

Qualitative Results

Respondents were asked to provide written comments to explain why certain choices were made in the hiring situations. The comments totaled 33,457 words, which were written by 67% ($n = 457$) of the participants. The comments were listed by keyword frequency to indicate issues of importance. Each of the keywords were then organized into recurring thematic categories using a constant comparative method (Gay, 1992).

Table 5
Chi Square Analysis of Applicant Selection by Whether Respondent's School Plans to Offer Classes for Credit

Applicant Degree Characteristics	Plan to Offer Online Classes for Credit	
	Yes	No
Hiring Situation 1: Likely to Recommend[a]		
Applicant A: Degree completed with all traditional coursework	92.0%	97.9%
Applicant B: Degree completed with all online coursework	8.0%	2.1%
Hiring Situation 2: Likely to Recommend[b]		
Applicant A: Degree completed with all traditional coursework	67.3%	76.8%
Applicant C: Degree completed with 50% online and 50% traditional coursework	32.7%	23.2%
[a] $n = 677$, $X^2 = 6.125$, $df = 1$, $p = .05$ [b] $n = 680$, $X^2 = 4.737$, $df = 1$, $p = .05$ *Note.* Category totals differ from raw totals because several respondents did not indicate their choice or did not select an applicant.		

The thematic categories revealed that respondents most frequently expressed concern for the perceived quality of online courses. Specifically, the overall tone of the comments expressed doubt as to whether courses that do not include face-to-face contact with professors, fellow students, and mentors are appropriate for a profession that relies so heavily on social skills. In this context, respondents used keywords such as *experience*, *face-to-face learning,* and *interaction* to describe the important differences between online and residential coursework. One respondent summarized the predominant tone of this category as follows:

> From my experience, I have observed that most of the students who take on-line courses do so because they feel it is easier academically. They often find that the tuition fees are less and time frame is shorter. I strongly feel that students who take on-line courses are missing out in classroom dialogue and interaction with other students and professor, even though students are able to communicate among each other electronically. These "graduates" are going to teach our students in a traditional classroom?

The statements generally fell into several categories that offer some insight into the specific nature of the limited acceptability of online degrees. For example, the keywords suggest a perception that a lack of face-to-face interaction is inherent in online learning and that important experiences are "missing" that cannot be compensated for by any existing online teaching methods.

> I've had both types of courses and found the internet course to be of lesser quality. The schooling profession is all about people and relationships. People who are physically present and in need of our personal face to face communication. I think the traditional setting is better preparation for what we do every day.

Class discussions, group activities, debates; these are necessary for educational growth.

Roughly half of the respondents indicated that online philosophy, curriculum, or history courses are acceptable, but methods courses could not—and should not—be taught online. The theme of such comments centered on the importance of personal relationships.

> Too much of what you know or need to pick up you can only get from a live teacher, in a live classroom, with live peers. Experience and sharing are too valuable to give up. Reading and analyzing questions by yourself on a computer is a lonely, less meaningful way to learn. Thus, making it less likely to remember or put to use. There are little or no absolutes in teaching and administration, they making the only way learned of studies [sic] out of date, out of place or just a small piece of the puzzle. Whereas the approaches, views, experiences shared and exposed in the traditional class could make you a more well rounded, marketable and give you staying power which should be high on your list.

Comments that were written at the end of the questionnaire were more extensive and appeared to represent a more balanced view of online learning. Positive comments focused on experience with technology. For this subgroup of comments, a mix of residential and online coursework was thought to be advantageous for the candidates and for their students.

> I believe that a teaching candidate needs to have a broad base experience. I believe that most teaching candidates would need to have a good mixture of classroom taught courses as well as online learning experiences. The future of education is moving towards more online learning and a candidate who has that type of experience would be valuable to a school building's learning environment.

Discussion

The findings from the current study underscore the perceived value that high school principals—in their role as hiring managers—associate with traditional residential coursework. Overwhelmingly, evidence supports the claim that the quality of preservice training increases new teacher retention and improves teaching effectiveness (Berry, Daughtrey, & Wieder, 2010). At the same time, the results of the current study appear to indicate that online coursework creates uncertainty about the quality of preparation. The question of quality appears to stem from uncertainty over whether online coursework improves the development of psychosocial factors such as attitudes, values, moral development, and mastery (as suggested by Farber, 1998).

The reactions of the principals toward online programs leading to a teaching certificate are parallel to the reactions of those in other professions, including health, business and university teaching (Adams, 2008b, 2009; Adams & DeFleur, 2005, 2006; Adams, DeFleur, & Heald, 2007). The master-apprentice method used in teacher training sets the profession apart from methods used to prepare students in other disciplines. Teaching is a craft built upon social skills learned through experience, reflection, and observation—all of which are learned by working closely with master teachers and university mentors. Teacher education research indicates that the quality and intensity of mentoring influences the preparation and commitment of teachers entering the profession and the durability of teachers as they proceed with their careers (Brouwer & Korthagen, 2005; Rots et al., 2007; Stokking, Leenders, De Jong, & Van Tartwijk, 2003). With so little research that examines how these systems affect teaching training, questions remain as to whether online learning augments these aspects of teacher preparation.

Implications and Future Research

Whether online degree programs that award teaching certificates offer a genuine improvement to the teaching profession is a serious question that has long-lasting and far-reaching implications. Future research, then, might focus on a more detailed examination of teacher training programs, including

1. Defining a proper balance of online and face-to-face activities within each course as appropriate to the intended outcomes.
2. Experimenting more with new methods. Perhaps teaching models that employ technology in a more precise manner will change the perception that face-to-face communication is essential to assure student learning.
3. Determining how to use distance education technologies to improve specific problems related to teacher training, retention, and job satisfaction.

One criticism of the current research has been that transcripts do not reveal the manner in which college credits are earned. Applicants who earned all of their credits online in a distance education program administrated by a traditional institution would not be easily identified by reviewing transcripts and letters of recommendation. However, evaluating documentation is only one piece of the hiring process. During an interview applicants are likely to be asked where they performed their student teaching, to describe their relationship with supervising professors, and perhaps to provide some background on their class work. In other words, administrators can easily learn whether an applicant's certificate was earned online or face to face during the course of an interview.

This point raises an interesting contradiction in practice. If hundreds of studies indicate that online learning is superior or equal to learning in a traditional manner, it may be to an applicant's advantage to clearly mark a transcript that credits had been earned online.

Although a single reason for this phenomenon is difficult to pinpoint, the existing evidence points to a bias for traditional face-to-face educational practices. This bias may result from cultural preferences that are specific to particular professional fields, resistance to change, or perhaps that online education is not yet recognized as a viable alternative for traditional practices.

Over the past 25 years the methods and the tools that define online learning have matured, and millions of people have earned a higher education by completing coursework online. In reviewing the literature it was not apparent that online methods present any advantage over traditional-residential programs other than convenience. The results of the current research, then, raise several critical questions for teacher education researchers to address in the future. For example, should online methods supplant or support traditional methods? What impacts do online programs have on the professional capabilities and duration of teachers in the field?

Many questions remain to be explored that will better define how online programs will benefit the quality of teaching or improve the transition from apprentice to teaching professional. There may yet be many advantages to online learning or ways to use these new resources to better support teachers.

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