

The Acceptability of Online Courses as Criteria for Admission to Medical School

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ABSTRACT

A national survey of medical school admissions administrators was used to assess the acceptability of applicants' qualifications that included degrees earned partly online, partly in a community college, or in a traditional program. A questionnaire was sent from The Florida State University in 2007 to admissions administrators in the 125 accredited allopathic medical schools in the United States. In each of three situations, the respondents were asked to select one of two hypothetical applicants to invite for an interview. The applicants with their coursework taken in a traditional-residential setting were overwhelmingly preferred over the applicant holding the degree earned partly online. 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.

INTRODUCTION

In 2005, more than 3.2 million students had taken a class online. Currently, online institutions that are eligible for federal aid enroll about 2.4% of the 17 million college students enrolled in a degree program.¹ Nearly half of these students prefer to take all of their classes online.² In the coming years, for-profit online institutions are expected to maintain their strong growth rate by adding new degree programs. These institutions are offering an increasing number of degree programs in high-demand professions such as

education and nursing, where enrollments should be particularly strong.³ Traditional-residential institutions are moving to offer new programs as well to compete with virtual institutions. For example, a 2004 report by the Sloan Consortium indicated that 56% of universities considered online education as part of their long-term enrollment strategy, and 32% of public and private universities offered a health profession major online.⁴

A quick search of Petersons.com reveals that a number of online institutions already offer undergraduate programs in biological and biomedical sciences. Significant efforts have been undertaken by online institutions to offer medical school programs for distance education students. In 2004, a consortium of universities led by Scotland's University of Dundee established the International Virtual Medical School—an online medical school.⁵ That institution allows students to study for a medical degree in a variety of nontraditional settings combined with field experiences from local clinics. In 2003, DeVry Inc., one of the largest publicly held higher education companies in North America, bought Ross University School of Medicine, located in the Dominican Republic.⁶ However, while there is a growing need for qualified healthcare professionals, the North Central Association of College and Schools Higher Learning Commission recently voiced concern regarding the growth of online professional degrees in the health sciences, with a particular need to evaluate their rigor, substance, and content.⁷

Medical School Application Criteria

Few disciplines have application requirements that exceed the demanding process of qualifying for admission to a medical program. Many factors are considered for each applicant, including academic history, grade point average (GPA), standardized examinations such as the MCAT, candidate statements, recommendations, community work, and structured interviews. Important considerations in the admission process include which tools should be used to gather information, what qualities are valued by the institution, and how the various sources of information should be combined in the final decision.⁸

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Key Words: Graduate school admissions, online degrees, acceptability

The most important tools used in evaluating applicants are interviews, GPA, and standardized test scores. Interviews play a primary role in the overall ranking of medical school applicants,⁹ providing a means for admissions committees to assess communication skills and ethical decision-making of applicants. While interviews are widely recognized as a valued part of the screening process, the literature seems inconclusive on their reliability. However, some research has shown a correlation between admission decisions and noncognitive measures (personal essays, reference letters, and interviews), internship rankings, and exit examinations.¹⁰ Other studies suggest that interviews offer limited returns for the effort¹¹ or that noncognitive evaluation procedures, such as interviews, produce highly variable results.¹²

The ideal prospective medical school applicant, then, has a near-perfect record on paper, positive interpersonal qualities, and values that represent a good fit for the program. While online for-profit institutions develop new programs leading to a degree in the health professions, the contribution that these courses make in the medical professions is unproven. Prospective medical students are under pressure to strike a balance between academic achievement and extramural activities in order distinguish their record of scholarship and desirable noncognitive characteristics in a competitive, “prize to be won, high-stress process to get into the best schools.”¹³

The Acceptability of Online Degrees

The strong demand for online education is supported by research that favorably compares learning outcomes of online and residential programs. Such research studies have identified interpersonal, methodological, and achievement measures that demonstrate student satisfaction, achievement, and educational outcomes that are on par with residential programs.¹⁴ Some online students have migrated back to the classroom so that they could be with “live” people,¹⁵ but those who adapt to online instruction appear to show no significant difference in test score achievement¹⁶ or retention.¹⁴ In terms of student satisfaction, successful online students tend to indicate that they are “equally or more satisfied” with their courses when compared to those in “traditional” instructional settings.^{17,18} At the same time, many studies focusing on this issue have been criticized because online courses often have higher dropout rates¹⁹ and variations in success with online courses have been attributed to student age, learning style, and motivation.^{20,21}

A more recent area of research has sought to establish the credibility of online degrees from the

perspective of a “gatekeeper” evaluating qualifications in a hiring or admissions situation. Recently, the concept of “acceptability” (by gatekeepers) has been studied using credits earned online as a credential when applying to a university graduate program,²² when applying for a job in a business hiring situation with a bachelor’s degree earned wholly or partially online,²³ when seeking employment in a university faculty position,²⁴ and when seeking employment in the health professions.²⁵ In each of these surveys of gatekeeper respondents, the results indicated clearly that credits online were far less likely to be accepted as a qualification compared to credits earned in a traditional-residential setting.

The focus of the present research is not to make comparative evaluations between residential and nonresidential programs. Its goal is to continue a line of research regarding the acceptability by those gatekeepers who make entry decisions concerning candidates whose degrees have been partially online as compared to a degree earned in residence. Therefore, the present research was carried out to gather information on the acceptability of degrees that have been earned partially online, in a competitive application process. More specifically, the purpose of this study was to assess the acceptability of online course work that is part of a prospective medical school student’s scholastic record. The present study, then, was designed to assess whether applicants with online course work would have an equal chance of being selected for an interview by medical school administrators compared to their counterparts with a traditional-residential degree and no online course work.

METHOD

The study was conducted at The Florida State University with approval from the university IRB. Those who participated in the study were medical school administrators who have an active involvement in the process of evaluating applications. The questionnaire offered a choice to the administrators in order to gauge the acceptability of online degrees in the medical school admissions process. The administrators were asked to judge whether the academic, professional, and service records of an applicant are of sufficient weight to merit an on-campus, personal interview.

Names and addresses for the medical school admissions questionnaire were gathered from the Group on Student Affairs Membership Directory of the Association of American Medical Colleges (dated 4/18/2006). This directory contains membership information from the 125 accredited, allopathic medical schools in the United States, including a contact

Table 1. Job Applicant Descriptions for Each Hiring Situation**Situation One:**

Applicant A has the necessary degree. The degree was awarded by a college or university where 100 percent of the applicant's courses were completed via traditional-residential classroom and lab instruction.

Applicant B has the necessary degree. The degree was awarded by a college or university, where 50 percent of the applicant's courses were completed via traditional-residential classroom and lab instruction and the other 50 percent of the applicant's courses were taken online over the Internet.

Situation Two:

Applicant A has the necessary degree. The degree was awarded by a college or university where 100 percent of the applicant's courses were completed via traditional-residential classroom and lab instruction.

Applicant B has the necessary degree. The degree transcript shows the first two years of coursework were successfully completed at a community college. This degree was awarded where 100 percent of the applicant's courses were completed via traditional-residential classroom and lab instruction.

Situation Three:

Applicant A has the necessary degree. The degree was awarded by a college or university, where 50 percent of the applicant's courses were completed via traditional-residential classroom and lab instruction and the other 50 percent of the applicant's courses were taken online over the Internet.

Applicant B has the necessary degree. The degree transcript shows the first two years of coursework were successfully completed at a community college. This degree was awarded where 100 percent of the applicant's courses were completed via traditional-residential classroom and lab instruction.

name and address for each of the institutions. After the names and contact information were confirmed as current, each of the contacts was sent a questionnaire with an explanatory cover letter and a postage-paid return envelope.

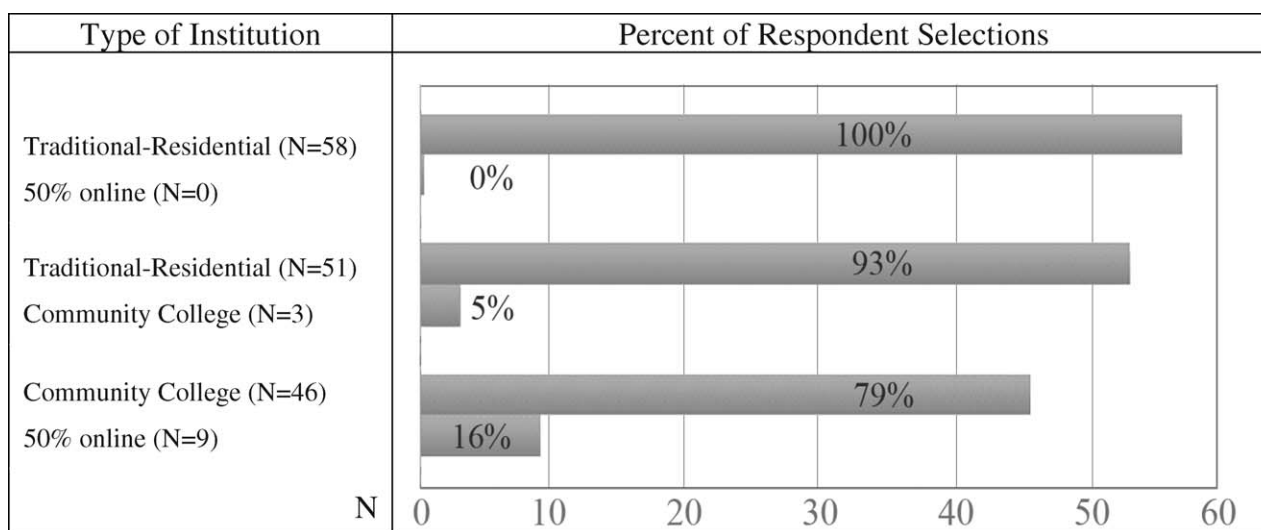
The questionnaire described 3 situations. In each, the instructions asked the administrator to select and recommend one of two potential applicants to complete an interview with the medical program offered by their institution. In each situation, the 2 applicants were described as having: (1) the same quality and quantity of medically related volunteer experience, excellent academics, good recommendations, and favorable personal qualities; (2) an earned degree from an accredited institution in an appropriate field to qualify for enrollment, and that; (3) (after prescreening the applications) none of the applicants stands out as the clear choice for the interview slot. Essentially, then, the 3 situations presented to the gatekeeper were constructed so that each candidate was equal in their qualifications except for the type of institution they had attended to earn their degree.

In the 3 situations, 1 of the 2 applicants was described as having an earned bachelor's degree from a traditional-residential institution, in which all of the courses were taken in labs and classrooms on-campus (situation 1); in the second situation, the comparative applicant had a degree from in a traditional-residential institution, but their first 2 years of classes were taken at an accredited community college (situation 2); and a third applicant had a

degree from a traditional-residential institution in which 50% of the courses were taken online (situation 3). The credentials of the 3 applicants are outlined in Table 1.

Each administrator received the questionnaire with the 3 situations described above and was asked to select the more desirable candidate in each situation. In addition, the questionnaire included a number of questions asking the administrators to explain why they made their choices in the situations. In this section of the questionnaire, several questions were posed with checkbox options to agree, disagree, or indicate their indecision on the relevance of online courses in their institution. Following each of these questions, a space was left blank, inviting respondents to write in comments that could clarify their checkbox selections. Additional blank space was left at the end of the questionnaire for respondents to write in concluding comments. These various written comments supporting the checkbox answers were compiled and analyzed for themes.

Finally, a number of questions were included to capture background information which was used to examine whether any relationship existed between the perceived acceptability of online courses and demographic factors. For example, the researchers captured information such as the gatekeeper's experience with online courses, his or her age, and whether the respondents perceived online courses an effective means of delivering core content in a premedical curriculum.



Percentage of respondents who indicated they would be most likely to recommend interviewing the target medical school applicant by situation.

RESULTS

Whereas 125 questionnaires were sent at the start of the research, 6 were returned unopened due to bad addresses or undeliverable service and were discarded, leaving a total of 119 questionnaires that were successfully delivered. A total of 58 completed questionnaires were received from the mailings (a 49% rate of return). The list obtained from the Group on Student Affairs Membership Directory of the Association of American Medical Colleges consisted of 58% (n = 73) public institutions and 42% (n = 52) private nonprofit medical schools. The responses came from a similar distribution of public and private institutions, with 62% (n = 36) public institutions and 38% (n = 22) private institutions participating.

The demographic information revealed that 88% (n = 51) of the respondents were older than 45 with 57% (n = 33) of the respondents listing themselves in a 55+ age group. While more than one third of the respondents (38%, n = 22) indicated that they had taken a course online in the past, only 7% (n = 4) indicated that they believed courses offered by accredited, recognized online institutions (such as the University of Phoenix) were equivalent to those taught in traditional-residential programs. It is interesting to note that while 20% (n = 12) of the respondents indicated that their institution offers indicated “core” biology, chemistry, and/or physics courses online, half of that number (n = 6) indicated that such courses could be taught effectively over the Internet. Of the admissions officers working in institutions that offer such coursework online, 5 had taken an online course, and 2 agreed that such courses could be taught effectively over the Internet.

The Figure shows which candidates the administrators would be most likely to invite for an on-campus admission interview for each of the 3 situations posed. Clearly, this group of gatekeepers indicated that a traditional-residential degree is more acceptable than either of the other patterns of educational credentials described. For example, all of the gatekeeper respondents selected the applicant with a traditional-residential degree instead of the applicant with 50% of coursework taken online. In situation 2, only 3 respondents elected to interview a candidate with 2 years of community college experience included in their 4-year degree—that is to say 93% (n = 51) of the respondents favored a student with a traditional-residential degree. While these findings suggest that attending a community college is far less acceptable than a traditional-residential degree from a 4-year institution, the administrators overwhelmingly selected (n = 46) the applicant who had attended the community college over one with 50% online and 50% traditional-residential coursework (n = 9).

As noted, the interview decision situations described were followed with several checkbox questions and space for respondents to write comments to allow them to clarify their reasons for making their selections. There seemed to be some uncertainty as to whether courses commonly taught in the core curriculum of a premedical program could be taught online. For example, 17% (n = 10) of the respondents seemed to be expressing uncertainty that courses such as biology, chemistry, and physics could be effectively taught online [73% (n = 42) said outright that they could not]. Table 2 is a summary of the checkbox answers.

Table 2. Summary of Responses to Qualifying Statements

Statement	Agree	Disagree	Undecided
The type of educational institution (online university, traditional-residential university, community college) from which the applicant obtained his or her degree would be of no importance as selection criterion for our medical program.	0%	97% (n = 56)	3% (n = 2)
The mix of online vs. traditional-residential courses taken by the applicant to complete the degree would be of little importance in our organization.	2% (n = 1)	95% (n = 55)	3% (n = 2)
Biology, chemistry, and physics can be taught effectively over the Internet to students enrolled in online courses.	10% (n = 6)	73% (n = 42)	17% (n = 10)

A chi-square analysis revealed that in each table, at least one of the distribution cells had a percentage of less than 5% of the total responses. Because of the nature of the distribution, an analysis for correlation between the candidate selections and other factors (ie, number of candidates selected, age, and experience with online courses) was not possible. While the distributions are too small to show statistical significance, it is interesting to note that all of the respondents who had taken an online course indicated they would rather select a candidate with 2 years of coursework in a community college than select an applicant who has taken 50% of his or her courses online (see Table 3).

A similar distribution pattern was noted when examining the distribution of responses when compared to whether the respondents believed that critical courses such as biology, chemistry, and physics could be taught online (see Table 4).

The write-in comments were compiled from each of the three questions listed in Table 2 and from the closing page of the questionnaire where the respondents were presented with an option of writing more extensive closing comments. About half of the respondents (n = 29) provided such written com-

ments for a total of 1690 words. A content analysis was used to examine these comments for keyword frequencies, common phrases, and related keywords. The data from this analysis allowed the researchers to create categories and identify recurrent themes that appeared throughout the comments. The themes that emerged from the data were focused on three areas: (1) concerns about quality and rigor, (2) hands-on laboratory experience, and (3) interpersonal interaction with faculty and other students in classroom and laboratory settings for premedical or medical school curriculum.

Generally, then, the comments reflected doubt about the quality of online degrees. For example, the perception that the quality and rigor of online courses are substandard to traditional-residential programs was a common theme in the respondents' comments. While community colleges were not selected as often as traditional-residential programs, some of the respondents indicated that they believed some community college programs were excellent. The respondents repeatedly expressed doubts about the value of online courses, suggesting that while community college coursework was not as desirable as courses taken in a 4-year traditional-residential

Table 3. Distributions of Candidate Selection by Hiring Situation and Whether Respondent Has Taken Any Coursework Online

Hiring Situation 3: Likely to Recommend*	Have Taken an Online Course		
	NO	YES	Total
Applicant A: Degree completed with 50% online and 50% traditional-residential coursework	33.3% (n = 9)	0%	16.7% (n = 9)
Applicant B: Degree completed with traditional-residential coursework, 2 years completed in a community college program.	66.7% (n = 18)	100% (n = 27)	83.3% (n = 45)
Totals	50% (n = 27)	50% (n = 27)	100% (n = 54)

*Note: Category totals differ from raw totals because several respondents did not indicate their choice or did not select an applicant.

Table 4. Distributions of Candidate Selection by Hiring Situation and Whether Critical Courses Can Be Taught Online

Hiring Situation 3: Likely to Recommend*	Critical Courses Can Be Taught Online		
	NO	YES	Total
Applicant A: Degree completed with 50% online and 50% traditional-residential coursework	22.5% (n = 9)	0%	22.5% (n = 9)
Applicant B: Degree completed with traditional-residential coursework, 2 years completed in a community college program.	77.5% (n = 31)	100% (n = 5)	75% (n = 36)
Totals	74.1% (n = 40)	9.3% (n = 5)	100% (n = 45)

*Note: Category totals differ from raw totals because several respondents did not indicate their choice or did not select an applicant.

program, it was still better than online coursework. The reasons for the limited acceptability of online coursework seemed to fall into two distinct categories—interpersonal interaction and working on projects in a laboratory setting.

The perception that online courses could never meet the same standards as laboratory work in residence was clear throughout the comments. The reasons seemed to center on the peripheral learning in these settings—cooperation, teamwork, and interaction—rather than the mechanics of running experiments and collecting data. The theme that was most common was that lab work plays an important role in reinforcing lecture information, and that the interaction that students had with each other is essential. Thus, most respondents felt that traditional lab experiences provide opportunities to engage in cooperative teamwork and for professors to observe students in settings that require skills related to this activity.

There were some positive aspects to the comments. A few of the more extensive explanations noted that distance learning was still unproven, and that with the exception of lab courses, their perception of the quality of these courses could change in the future. In other words, some of the respondents seemed to voice a willingness to keep an open mind.

LIMITATIONS

The present study has several limitations. Allopathic institutions were selected as a sample stratum. This approach has the advantage of providing a more definitive analysis for the population under consideration. While the sample (N = 58) appears to be small, the margin of error is relative to the percentage of the population sampled. In other words, nearly 50% of the total population was sampled. This means that the margin of error is relatively small (.06%) after it is corrected for a finite population. Further, the margin of error would be most important for questions that were

evenly split (yes or no), which was not the case in the present study.

The most important consideration is that the present study is not conclusive. In order to understand how gatekeepers react to online degrees, more studies would need to be repeated with the same audience over time. Follow-up studies, then, are essential to creating a deeper understanding of how gatekeepers perceive applicants whose degree studies include online coursework.

CONCLUSION

The questions faced today in evaluating whether online courses advance higher education are complex. While the results of the present research are not final or conclusive, they should be considered carefully by students who hope to be accepted in the future into a medical program. Moreover, these findings are very consistent with data collected in other acceptability studies that were designed to examine whether online courses and degrees are considered “equal” by gatekeepers in a variety of hiring situations. In each of those studies (previously cited) the evidence suggests that gatekeepers seem to share a similar negative perception of online courses and degrees, regardless of age, previous experience with online courses, or whether their institution offers online courses. In addition, the results suggest that personal experience with online coursework does not positively influence how gatekeepers perceive applicants who present online coursework as part of their application credentials.

In a time when medical schools are emphasizing the need for curricula that focus on patient-physician relationships, online coursework seems to go against the tide. The social contacts necessary for building clinical skills, such as effective communication, understanding interpersonal dynamics, and management skills, appear to be very limited to these gatekeepers—if available at all—through an online

course. The qualitative comments suggest that this lack of social context runs counter to the belief that knowledge requires more than a transfer of information from expert to novice. Face-to-face contact, mentoring, and supervised field experiences all play a role to help students develop higher order cognitive skills.²⁶ While in the future computer-based education may be an important supplement to medical training, currently students learn important skills best in real world contexts, including discussions and interaction with other students.²⁷

While many research studies have been conducted that show online distance learning as being “equal” to traditional-residential coursework, their focus has been on such measures as test scores. The clearly different issue of acceptability raises serious questions about the practical value of online coursework.

Obviously, the present study is limited and much more research on the issue needs to be done. However, if such coursework is not perceived as having the same merits and prestige as traditional-residential coursework, it is possible that an unintended outcome is the emergence of a new social stratification in our society. In other words, students who hold a degree earned in a traditional residential setting will be perceived as having experienced something more substantial during their studies. In turn, millions of graduates from online degree programs would find their ability to compete for employment compromised or their application to continue their education in a residential setting passed over. Of equal concern is the suggestion that this new growth of professional health degrees is an infringement on traditional education that will serve to lower standards and erode the quality of higher education in the United States.⁷

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