

## Online Tutoring: A New Retention and Remediation Solution for Colleges



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## CHALLENGES FACING HIGHER EDUCATION INSTITUTIONS AND STUDENTS

Retention and graduation of an increasingly underprepared student population is an intractable problem for colleges and universities. Equal access and opportunity for all students are core foundational principles in higher education<sup>1</sup> that present a challenge for administrators and educators. Reflected in the principle of increased access is the steady increase in undergraduate enrollments and students lacking college readiness. From 2000 to 2009, undergraduate enrollment in degree-granting postsecondary institutions increased by 34 percent.<sup>2</sup> Accompanying increased enrollments is a proportionate increase in students who lack college preparation in basic skills such as English and mathematics.<sup>3</sup> Of the high school graduating class of 2011 who took the ACT, one-third of the test takers in English and half of the test takers in math did not meet the college readiness standards. Only one quarter met all four college readiness benchmarks set by ACT that include English, math, social science and biology.<sup>4</sup> This paper explores the instructional challenges facing college educators and their students and the research on one of the emerging instructional responses, web-based tutoring.

Predicted by the large number of students failing to meet minimum college readiness benchmarks is the high demand for college developmental classes in reading, writing, and math. In 2009, according to a U.S. Department of Education study, over one-third of first-year undergraduate students reported enrolling in remedial or developmental courses.<sup>5</sup> However, according to Adelman's research, the actual enrollment in remedial courses is significantly higher than students report, with nearly 60 percent enrolling in remedial classes in 2-year colleges.<sup>6</sup> Although minorities, students with a low socio-economic status (SES), and those attending urban schools are over-represented by those who lack college readiness, the problem is not limited to traditionally "at risk" groups. High SES, rural, and suburban students also enroll in developmental classes in large numbers.<sup>7</sup> A comparison of SES status and its relationship to lack of college readiness shows that 52 percent of low SES students and 24 percent of high SES students need remediation. When comparing type of high school attended, 40 percent of students from rural high schools, 38 percent from suburban high schools, and 52 percent from urban high schools lacked college readiness.<sup>8</sup> And older first year under-

graduates, ages 24 and up, are more likely to enroll in remediation than more traditional students, accounting for nearly 78 percent of all students who reported taking a developmental course.<sup>9</sup>

**Table 1.**  
*Percent of students enrolled in one or more remediation courses by type of institution*

4-year institution	25%
Community college	61%
Other sub-baccalaureate	48%

*Source: U. S. Department of Education, Principal Indicators of Student Academic Histories in Postsecondary Education, 1972-2000, p. 90*

**Table 2.**  
*Remedial class participation by ethnicity  
Graduating high school class in 1992;  
data collected in 2000*

White	36%
African-American	62%
Latino	64%
Asian	38%

*Source: U. S. Department of Education, Principal Indicators of Student Academic Histories in Postsecondary Education, 1972-2000, p. 93*



To meet the needs of the incoming underprepared students, colleges proactively identify at-risk students through scores on their ACT, SAT, or another placement test. After determining which students qualify for remedial assistance, institutions may mandate or offer developmental courses to be taken on a voluntary basis. Developmental courses generally do not earn college credit, thus lengthening the time to degree. In addition to developmental courses in reading, writing, and math, other types of supplemental assistance are offered through learning assistance centers which provide a variety of services including academic tutoring, assessment, counseling, computer-aided instruction, and seminars in learning skills.<sup>10</sup> Learning assistance centers may act as a supplement or alternative to developmental education.



Despite the effort and the \$1.4 billion<sup>11</sup> annual expense of developmental assistance, students who take remedial courses are still less likely to graduate.<sup>12</sup> Overall, 57 percent of students seeking a bachelor degree at 4-year institutions graduate within 6 years. At 2-year institutions, the percentage of students who fail to complete a certificate or degree in 150 percent of the normal time was 73 percent.<sup>13</sup> In addition to the direct expense born by institutions and taxpayers, there is a long-term expense accruing to students who fail to earn a degree in the form of higher unemployment<sup>14</sup> and lower expected wages.<sup>15</sup> For example, young adults ages 25–34 with a bachelor's degree earn 50 percent more than young adult high school completers.<sup>16</sup>

A constellation of factors contributes to the challenges faced by colleges to prepare and graduate a higher percentage of incoming students for the demands of the workforce. In tandem with open access is the high number of students entering college underprepared. Changing demographics toward a more diverse population require differentiated responses. The concept of the traditional residential college student, ages 18-24, exclusively attending face-to-face classes on campus, is fading as over 40 percent of all undergraduates are 25 years or older<sup>17</sup> and 30 percent take at least one course online.<sup>18</sup> Nor do the majority of undergraduates attend college as an exclusive occupation with 33 percent of undergraduates holding a part-time job and 45 percent holding a full-time job.<sup>19</sup>

To retain, educate, and graduate this diverse population of students, higher education institutions have developed various supplemental support systems including developmental classes, seminars in reading, writing and study skills, mentor programs and a host of tutoring support services. To meet the individual needs of students, a common and effective method is the ancient tradition of one-to-one tutoring.

### TUTORING - A TOOL OF ANCIENT CIVILIZATIONS AND CONTEMPORARY SOCIETY

Since ancient Greek and Roman civilizations flourished, individual tutoring has been a revered practice. Children of wealthy and powerful parents throughout history benefitted from the personal attention of private tutors. What many societies consider common knowledge, that tutoring is an effective teaching method, is supported by contemporary research. The efficacy of one-to-one tutoring is well documented in a number of seminal studies in the k-12 education environment. Benjamin Bloom, a distinguished American educational psychologist, reviewed the research measuring the effects of one-to-one tutoring and discovered that tutored students achieved academic results two standard deviations over those who were not tutored (famously referred to as the 2 sigma problem).<sup>20</sup> Cohen and Kulik supported Bloom's findings of the efficacy of tutoring in a comparative meta-analysis of 65 studies of tutoring in various subject areas. In 86 percent of

the studies, tutored students achieved higher scores than those in the control group.<sup>21</sup> In a 2009 meta-analysis of over 86 tutoring programs, a research group found that students in volunteer tutoring programs demonstrated improved educational outcomes as compared to the students who were not tutored.<sup>22</sup>

In higher education, there are fewer large-scale research studies on the effectiveness of tutoring than in the k-12 sector, perhaps due to the difficulty in designing a study where the students often self-select tutoring which may create a sample bias or perhaps due to the inability of the researcher to isolate the factors causing the improvement in learning outcomes.<sup>23</sup> However, there are pockets of research demonstrating the efficacy of tutoring. For example, in a recent study examining the effects of students receiving tutoring in college math, Halcrow demonstrated a positive correlation between time spent in tutoring and the student's course grade.<sup>24</sup> Cooper studied student use of drop-in on-demand tutoring centers and found that students who regularly used the service had higher rates of persistence and a slight increase in their GPA. Maxwell,<sup>25</sup> in a literature review, and Reinheimer,<sup>26</sup> in a causal-comparative study of students with undeclared majors, both report that tutoring college students increases retention of "at risk" and underprepared students. Topping studied peer-tutoring and concluded when a tutoring program is carefully designed and implemented results can "yield significant gains in academic achievement in the targeted curriculum area."<sup>27</sup>



## LEVERAGING PROFESSIONAL TUTORS

While a tutor may be a caring parent or friend, a classmate, or a well-meaning volunteer, it is the "highly trained tutors," according to Edward Gordon, who "have consistently produced better tutoring results."<sup>28</sup> "The tutor's professional education, degrees, special credentials, prior professional experience, and specialized training as a tutor make a major difference in ensuring that a student achieves better long-term gains."<sup>29</sup> College tutoring assistance takes many forms including face-to-face and computer-mediated modes. Face-to-face modes include peer-tutoring, small group tutoring, and one-to-one tutoring by content experts while computer-mediated modes include peer-tutoring, computer adaptive tutoring, and one-to-one online asynchronous or synchronous tutoring. In both the face-to-face and virtual environments, the tutor must attend to four aspects of learning: cognitive support by providing content and disciplinary expertise, socio-affective support by encouraging the learner, motivational support, and meta-cognitive support by helping students develop learning strategies and skills.<sup>30</sup> In an observational study of highly effective, or expert tutors, Lepper, Drake, and O'Donnell-Johnson summarize the key characteristics and actions of successful tutors. These key ingredients include a tutor who is intelligent, nurturing, uses the Socratic method, progressively paces the lesson, uses an indirect approach to correcting a student, fosters reflection, and provides encouragement.<sup>31</sup> Expert tutors focus not only on the cognitive development of the student but also their affective and motivational needs.

## INDIVIDUALIZED LIVE TUTORING IN A VIRTUAL ENVIRONMENT

Founded on the best practices of centuries of face-to-face, one-to-one tutoring, an emerging trend in assistive educational instruction is web-based tutoring. The virtual tutoring environment has many affordances. While face-to-face tutoring is an effective practice, for students who hold a job, the logistics of scheduling and meeting at a designated time and place may be a barrier to use. For distance learners, campus learning assistance centers may not be a logical solution. For low performing students, meeting face-to-face with a tutor may pose the threat of embarrassment. To address these barriers to in-person tutoring, individualized web-based tutoring or e-tutoring services have emerged to give students

instant access to on-demand help. Typically, a student logs on to a web-based tutoring service and is matched with an appropriately trained tutor in a private, virtual, online space.



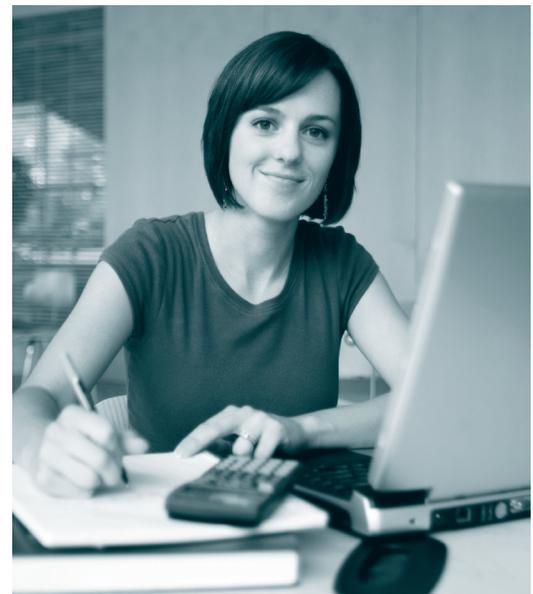
As higher education institutions seek solutions to remediate students who lack college-readiness and need individualized instructional support, the question often posed is “Can e-tutoring deliver the same or better results as a face-to-face session? In this emerging educational technology field, although there is a dearth of research studies measuring the efficacy of online tutoring, the available studies indicate that e-learning and e-tutoring can produce equal, and in some cases, better results than conventional delivery systems.

### RESULTS FROM RESEARCH STUDIES ABOUT E-LEARNING AND ONLINE TUTORING

In the past 10 years, online learning has experienced a rapid growth rate of, on average, 18 percent per year in online enrollments.<sup>32</sup> Online learning may be simply a syllabus and a few resources resident on a course website to accompany a face-to-face course, a fully online course with all instruction online and no face-to-face sessions, or lay somewhere in between and considered *blended learning*. With growth of online teaching and learning increasing each year, an understanding of the efficacy of online learning is essential. In the most recent comprehensive study commissioned by the U.S. Department of Education evaluating over 1,000 research studies on the effectiveness of online educational instruc-

tion, the researchers concluded that on average, “students in online learning conditions performed modestly better than those receiving face-to-face instruction.”<sup>33</sup> The study further determined that blended instruction has a larger positive effect than online learning alone. The positive effects of online and blended learning are not considered to be a result of the mode of delivery, using the Internet. Rather, the researchers postulate that use of a mixed mode of face-to-face and online resources increases time on task and improves the pedagogical strategies.

In two research studies specifically focusing on the efficacy of online tutoring in higher education settings, it was determined that students not only achieved improved content knowledge but many also preferred virtual tutoring over face-to-face interactions due to a variety of reasons. In the first study, Kersaint, in 2011, investigated several measures of student success including achievement, attitude, and retention specifically measuring online tutoring of college algebra students. Her study reported that students using the online tutoring service had significantly higher gains than the group not using the service. Her study also demonstrated that the e-users had better attitudes about help seeking than the control group not offered the online tutoring service.<sup>34</sup> In addition to ease of access and availability of trained tutors, Kersaint found that an advantage of e-tutoring was that as compared to face-to-face tutoring, online tutoring gave the student a cloak of anonymity.<sup>35</sup>



Although many colleges offer a plethora of remediation and instructional support options, many students do not take advantage of the services. Besides the logistical difficulties of arranging a face-to-face meeting, there are other factors that may deter students from seeking help. In the second study, by Kitsantas and Chow, to explore the effect that a learning environment has on help-seeking behaviors of college students, they discovered that: 1) students prefer to seek help electronically from their teachers rather than meet in person; 2) students whose classes have a web component seek help more often than students in a traditional class with no web resource; and 3) students report that they feel less threatened to seek help using an electronic system.<sup>36</sup> Given that help-seeking is positively correlated with student achievement, increasing student participation in tutoring is a distinct advantage of a web-based learning environment.

In a study conducted by Karabenick and Knapp assessing college student's help-seeking characteristics in large face-to-face college classes, the researchers confirmed "that students who feel threatened by help-seeking reported they would

be more likely to avoid doing so."<sup>37</sup> Often, a student needing the most assistance feels the most threat and is least likely to seek help like a tutoring service.<sup>38</sup>

Many factors may contribute to low participation in tutoring services for which web-based tutoring offers solutions. The anonymity of using a web-based tutoring service may reduce the threat of face-to-face communication for such students and encourage them to seek help outside the classroom.

With such a large percentage of entering college students lacking basic skills in reading, math and writing, new and effective methods of providing additional instructional assistance to a diverse population of learners is essential. While more research is needed to further investigate the efficacy of e-tutoring and the best practices associated with providing personal one-to-one assistance via the web, early indications show a positive response and positive results. Combined with evidence-based methods of one-to-one tutoring, web-based online tutoring offers the additional affordances of an on-demand supply of professional tutors, anonymity, and an interactive channel for today's diverse college students.

*This white paper was commissioned by Tutor.com, a web-based tutoring service that extends the learning day by offering students 24/7, on-demand, one-to-one tutoring. Tutors go beyond assignment assistance with a strategic tutoring methodology designed to help students gain academic skills and a deep understanding of concepts.*

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