

# Best Practices In Online Tutoring

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## Introduction

Online tutoring is an emerging practice in higher education. Faculty and administrators considering adoption of online tutoring look to the research to evaluate new educational practices. Unfortunately, the research about online tutoring lags the practice. To help fill that gap, this study, commissioned by Tutor.com, and prepared by an external evaluator, analyzes 350 sessions of tutorial dialog between human tutors and higher education students as well as student comments about online tutoring sessions. The purpose of the study was to determine if online tutors rely on research-based pedagogical practices associated with gains in learning outcomes. The analysis revealed that the practices of online tutors closely parallel the research-based best practices of face-to-face tutors.

## Background Information

### Trends Driving Growth in Online Tutoring

As higher education institutions face the challenge to educate a rising tide of increasingly diverse students, there is an upward trend to deliver online educational services.<sup>1</sup> In the US, from 2000 to 2012, undergraduate enrollment in colleges and universities increased by 41 percent from 15 to 21 million students, the highest 12-year increase since the 1970s.<sup>2</sup> And enrollment of post-secondary students is expected to continue to hit record highs through 2021.<sup>3</sup> Students, are increasingly older,<sup>4</sup> employed,<sup>5</sup> less prepared for the rigors of academia,<sup>6</sup> and require tutoring and remediation assistance. In Fall 2012, over 42 percent of all students in degree-granting institutions were 25 years or older.<sup>7</sup> And, the growth rate of students over 25 years old outpaces that of the traditional college student age 18-24 – a trend expected to continue.<sup>8</sup> Students continue to balance work and school, with 41 percent of full-time and 76 percent of part-time undergraduates (ages 18-24) holding a job.<sup>9</sup> In tandem with burgeoning enrollments, a greater proportion of students enter college underprepared in basic skills such as English and Mathematics. Of the high school graduating class of 2013, nearly 31 percent of all 2013 ACT-tested high school graduates met none of the ACT College Readiness Benchmarks, meaning they were not prepared academically for first-year courses in English Composition, College Algebra, Biology, and social sciences. Accordingly, over one-third of first-year undergraduate students reported enrolling in remedial or developmental courses. Increasing enrollments of students juggling school, work, and home obligations in need of convenient individualized teaching assistance is driving the adoption of online educational services that depart from traditional face-to-face instructional support.

### The Unique Benefits of One-to-One Online Tutoring

The phrase online tutoring refers to a variety of forms, technologies, and practices and may also be called web-tutoring or e-tutoring. Online tutoring may be simply an asynchronous communication between a student and teacher via an e-mail or text exchange, or a synchronous exchange via video chat, audio chat, or text chat augmented with white board technologies. Online tutoring can also refer to pre-published computer-based tutorials or adaptive software systems (also called intelligent tutoring systems) without the human component. This study examined the Tutor.com tutoring sessions and the student comments that are facilitated by a proprietary online platform. The student and a human tutor are connected via synchronous text messages and an interactive whiteboard. When a student logs on to the web-based tutoring service, he or she is matched with an appropriately trained tutor in a private, virtual, online space.

#### 24/7 anytime, anywhere individualized one-to-one instruction

While face-to-face tutoring is an effective practice, for students who hold a job or manage a family, the logistics of scheduling and meeting at a designated time and place may be a barrier to use. Many students struggle with their assignments late at night and on the weekends or whenever they can work it in their busy schedules.

<sup>1</sup> In this report, the results from the post-session survey conducted by Tutor.com (a convenience sample) are reported with descriptive statistics. The investigator also performed a qualitative review of open-ended comments. The survey sample size was 149,490 with 54,940 multiple-choice survey responses (representing a 37 percent response rate) and 16,192 open-ended responses.

... “it’s great especially for me being a mom and having a part time job. ... I’m getting help and not having to find a babysitter while I go meet with a tutor.” – Statistics student

“Before I discovered this service I was constantly struggling with my algebra homework, and I wasn’t able to get any help in a timely manner. I was falling behind and now I am able to catch up with confidence! I’m not just getting the answers I need I’m actually learning how to do it.” – Algebra student

### A logical companion to online learning

For the growing number of distance learners, campus learning assistance centers may not be a logical solution. Over 33 percent of all higher education students take at least one online course (7.1 million), with that number expected to double in the next five years.<sup>13</sup> Also predicted is the growth of student-directed or self-paced learning for courses in online learning.<sup>14</sup>

“I find this service very helpful since I am in an online course. I do not have much interaction with the instructor.”  
– Statistics student

“Taking classes online is hard enough and trying to figure solutions out on your own can be unbearable!”  
– Chemistry student

### On demand efficiency

The efficiency of a tutoring solution without signing up for office hours, showing up at a pre-determined place at a specific time, may promote greater help seeking frequency. For example, students who are stuck on a math problem and can’t move ahead, students who seek reassurance on a worked problem, or who need a boost to get started on an assignment, can log on with an online tutor and quickly and efficiently get assistance and move on to assignment completion.

“I was checking for understanding while reading my stats text. I wasn’t able to get the same answer the textbook provided. My tutor... worked with me to uncover my error. I didn’t want to move forward without understanding a key concept needed to complete my assignments for the week.” – Statistics student

“Before I started using tutor.com I would have spent unnecessary hours on homework rewriting equations because I did not know where I was messing up. Now I try it a few times, and if I am still confused I sign on here and get help. It saves me so much time.” – Chemistry student

The ability to efficiently seek help to complete assignments has the potential to reduce a student’s decision to drop a course. For some students, the spiral of falling behind with assignments, doing poorly on a test, and eventually dropping out of a course or a program may be halted with greater and more efficient access to tutors.

“My first few weeks of the course left me wanting to drop it and change my plans. After finding out that [my University] offered this service, my view of the course has changed. I get excellent, helpful tutoring when I need it on the subjects that I struggle with!” – Accounting student

### The human touch

While there are many supplemental computer-based tutorials like Khan Academy or those provided by educational publishers, students are not always able to diagnose the gaps in their knowledge in order to apply an online interactive exercise or print tutorial to their assignment. The ability to work with a professional human tutor and apply what is learned in the session to their assignment improves student engagement and confidence. Human tutors are also more adept at encouraging, motivating, and empathizing with a struggling student than even the most sophisticated computer-based intelligent tutoring systems.

*“I learned things from my tutor that I didn't understand ... in the book. It makes a world of difference when somebody can show you the way. I felt like I was stumbling in the dark. And I was beginning to worry that I would have to take this course again.” – Economics student*

*“There is much anxiety and stress as I learn to use the computer, navigate the blackboard, re-learn basic English skills, and try to continue to maintain a home life. The tutor was very encouraging, informative, and eager to assist.”  
– English student*

### Studies show students are more likely to seek help online

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 a study to explore the effect that a learning environment has on help-seeking behaviors of college students, Kitsantas and Chow 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>15</sup>

*“I am so glad I swallowed my pride and reached out to tutor.com for help. My tutor was kind, supportive and most of all helped remove the roadblock I had so that I can move forward with my research paper. I can't express the relief and excitement I feel after this one session!” – English student*

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 discovered “that students who feel threatened by help-seeking reported they would be more likely to avoid doing so.”<sup>16</sup> Often, a student needing the most assistance feels the most threat and is least likely to seek help like a tutoring service.<sup>17</sup> For many of these students, without the convenience and efficiency, they would not seek help. For low performing students, meeting face-to-face with a tutor may pose the threat of embarrassment, while the virtual tutoring environment allows a “cloak of anonymity.”<sup>18</sup> Many factors may contribute to low participation in face-to-face tutoring services for which web-based tutoring offers solutions.

## Current State of Research in Online Tutoring

Though the efficacy of face-to-face tutoring is supported by numerous studies,<sup>19 20 21 22 23</sup> in the emerging field of online tutoring, there are few research studies examining the practice.<sup>24</sup> Although online tutoring is an emerging educational trend with academic research lagging the practice, two studies set in higher education contexts reported significantly higher learning gains, better attitudes about help seeking and more frequent help seeking by students.<sup>25 26</sup> Despite this dearth of studies, the adoption of online tutoring by public, private, and non-profit institutions continues to expand.<sup>27 28</sup> As online tutoring enters the mainstream, one-to-one individualized virtual tutoring is being delivered at scale. For example, Tutor.com delivered nearly 1.4 million online sessions in 2013. To help fill the research gap in this emerging field, this qualitative study was conducted to examine the practices of online tutors to answer the following question: Do online tutors draw from research-based pedagogic practices associated with gains in learning outcomes?

## Study Methodology, Setting, Population, and Sample

For this study, the Tutor.com 2013 higher education recorded tutoring sessions, transcripts, and student surveys provided the study population. To select the session transcripts, this study incorporated a mixed-methods approach combining a quantitative random sampling technique used to select cases for qualitative analysis of transcripts and recorded tutoring sessions. Interviews of company personnel and a document review of quality assurance procedures and documents were also performed. A stratified purposive sample of cases from the 2013 higher education tutoring sessions was selected from each of these subject areas: Business, English, Math, and Science (Table 1). The 350 randomly selected sessions were coded for types and variations of tutoring practices.

*Table 1. Subjects and Topics of Cases Reviewed*

<b>English Composition – Writing Process</b>
<b>Math</b>
<ul style="list-style-type: none"> <li>• Algebra II</li> <li>• Mid-Level Mathematics (Remedial Algebra)</li> <li>• College Statistics</li> </ul>
<b>Science</b>
<ul style="list-style-type: none"> <li>• Biology</li> <li>• Chemistry</li> <li>• Earth Science</li> <li>• Organic Chemistry</li> <li>• Physics</li> </ul>

Tutor.com has a quality assurance system that begins with vetting, testing, and performing background checks on potential new tutors, followed by an onboarding and mentoring process to orient tutors to teaching expectations and standards, as well as a continuous improvement monitoring system of sessions. Tutor.com rates tutors by a complex algorithm measuring a variety of factors. With an emphasis on effective tutoring practices and customer experience, Tutor.com has developed an extensive network of tutors available 24/7 with expertise in 40 subject areas. To evaluate the practices of this network of tutors, 350 cases were randomly sampled from the higher education market tutoring sessions delivered in 2013. The post-session student survey and comments were also reviewed to triangulate the findings. Although Tutor.com evaluates all tutors and continuously monitors their performance, this study serves as an external independent evaluation to determine whether the tutors use research-based pedagogical practices associated with gains in learning outcomes.

## Findings from Post-Session Surveys

From the 2013 post-session surveys, Tutor.com earns high marks from higher education students.

*Table 2. Responses to survey questions*

Survey Question	Yes (percent)	No (percent)
Is this service helping you complete your homework? ( <i>n</i> = 18,455)	96	4
Is this service helping you improve your grades? ( <i>n</i> = 17,970)	96	4
Is this service helping you be more confident about your schoolwork? ( <i>n</i> =18,075)	97	3

Note: The response rate was approximately 12 percent on these survey questions.

Table 3. Student ratings of Tutor.com for higher education learning sessions

My learning session was:	Excellent	Very Good	Good	Fair	Poor
Percent	79.8%	10.8%	4.6%	2.0%	2.8%
Number of responses	43,855	5,937	2,505	1,110	1,533

Note: The response rate was approximately 37 percent on this survey question.

### Findings From the Review of Recorded Tutoring Transcripts

Successful tutors, whether online or face-to-face attend to four categories of learning: 1) cognitive support by providing content and disciplinary expertise, 2) socio-affective support by encouraging the learner, 3) motivational support, and 4) meta-cognitive support by helping students develop learning strategies and study skills.<sup>29</sup> Using these four aspects of learning as a framework, the Tutor.com sessions were reviewed and the observed tutors' interactions with students were coded into categories that align with practices supported by research-based studies.

Students arrive in a tutoring session with a broad range of knowledge, preparedness, learning preferences, and beliefs about their ability to complete the assignment. In assignment completion tutoring, students present most commonly with one of three scenarios: 1) the student began an assignment but reached an impasse and needs help to proceed, 2) the student completed an assignment and engages a tutor to review their progress for accuracy or suggestions for improvement, and sometimes 3) the student has not started the assignment and seeks to work on it collaboratively.

In the sessions reviewed, the tutors were commonly observed to engage in the following research-based best practices in tutoring. Students also commented on their appreciation and effectiveness of these practices.

#### Cognitive Support Practices

##### Pre-assessment of assignment, student's prior knowledge and skill level

Quickly orienting the session, the tutors queried the students about the assignment and their request for assistance to fully understand the task. Once the task was clear, the tutors assessed what the student already knew. By activating the student's prior knowledge, the tutor connects what the student already knows with new learning. "To counteract building on misconceptions, tutors must make the student's "thinking visible" and find ways to re-conceptualize faulty conceptions."<sup>30</sup>

*"I appreciated how [the tutor] used questions to prompt my thinking and then "listened" to my ideas. He gave me time to think...His patience allowed me to see logical connections"... – English student*

##### Active learning through guided inquiry, guided coaching, or scaffolding

To guide or coach a student through a learning process is the gold standard in effective tutoring. A student may enter a session hoping that the tutor will just give them the answer. Effective tutoring sessions require tutors to seize the brief window of opportunity to help a student learn how to do an assignment, understand a concept or process, or simply how to learn. The tutors observed, routinely, lead the students through a series of prompts or leading questions, stimulating the learner's prior knowledge and guiding them through the process. The tutors assessed what the student already knew and worked just at the edge of their understanding by scaffolding the learning. Scaffolding refers to actions by a tutor to support a student to build their own knowledge and involves a dialogue between tutor and student. Scaffolding helps students to regulate their learning, interpret, and connect new information with prior knowledge.<sup>31</sup>

*“The tutor took “the time to explain what things mean and allowed me to be a active participant until I had some understand of what was going on.” – Algebra II student*

*“The thing I appreciated the most was that he guided me along the lines that I needed to be led without doing the work for me. It’s that, ‘teach a man to fish’ theory that was wonderful and helpful.” – English student*

*“The tutor helped me understand how to come up with the right answers without flat out giving them to me.” – Accounting student*

### Worked at the student’s level of knowledge

Tutors often assessed the student’s grasp of the necessary vocabulary, a process, equation, or background knowledge through asking questions to establish a baseline of knowledge. Once established, the tutor could communicate at the appropriate level. Tutors were observed to often switch approaches once they assessed the student’s level of knowledge. For students who lacked foundational concepts, especially in math related subjects, tutors often shifted gears and moved back to laying a sound foundation before attempting to teach the assignment.

*The tutor “made sure I understood everything perfectly before moving on.” – Physics student*

*The tutor “took the time to help me, and made sure that I understood ... each problem, but he didn’t stop there he wanted to make sure I understood the principle so I could do a problem similar in the future, but without any assistance.” – Accounting student*

### Encouraged a student explanation of concept or problem

The tutors were often observed prompting the students to explain the concept or process before they answered a question posed by the student. While tutors often must offer an instructional explanation, it is more effective if first a student is encouraged to generate their own explanation of a process or concept. Student explanation forces students to make their knowledge explicit (visible thinking) to the tutor and themselves.<sup>32</sup> Through this process, the student may detect his/her own error and become alerted to a misconception to be corrected. While it may be the goal of many tutors to guide the student away from errors, it is better to allow the error to tease out the misconception.

*“I liked that this tutor helped me to reason through the process for each problem. I felt like I obtained a better understanding of the concepts when I began to think through the problem for myself.” – Economics student*

*The tutor “helped me learn for myself from my mistakes and provided helpful information that will forever be useful.” – Essay Writing student*

### Provided student-centered instructional explanations

While it is optimal to use guided inquiry and prompt student explanations to fully engage a student, tutors often must rely on instructional explanations. Instructional explanations are effective, according to Wittwer and Renkl, if they are adapted to learner’s knowledge, focus on concepts and principles, and do not replace the learner’s construction of knowledge.<sup>33</sup> Active learning is student-centered, so instructional explanations, though delivered by the tutor, must consider and involve the student to be effective. The tutors observed were mindful of these best practices in instructional explanations and sought to involve each student in the process of discovering the answer or solution to a problem.

*The tutor “explained complicated differential problems to me in a way that made so much sense I appreciate the tutors taking the time to explain ideas behind the math.” – Calculus student*



*The tutor “broke it all down to easily understandable phrases.” – Algebra II student*

*The tutor “explained them in a manner so that I could understand why we do things the way we do them to get to the solution. Having him put a reason behind the purpose made it all so clear to me.” – Algebra II student*

### Socio-Affective Support Practices

One of the key challenges for an online tutor is the lack of paralinguistic clues or non-verbal elements of speech, such as intonation, a sigh, loudness, pitch, etc. and kinesics, the interpretation of body language. The face-to-face tutor can detect boredom, confusion, or if the student is following an explanation. The online tutor must “check in” to determine understanding more frequently than a face-to-face tutor. Additionally, the tutor must closely craft his/her response and prompts since online text messages, like e-mail, run the risk of not fully or correctly expressing the tone of the “speaker.” The tutors observed carefully established a friendly rapport, chose encouraging words, and monitored progress and how the student was feeling about the session. In the sessions reviewed, care was taken with students to establish a professional connection, reassure the student when they did not know how to proceed or produced a wrong answer, and to motivate the student to continue. Student comments revealed that before the session many students lack confidence and at times were embarrassed and “feel stupid” to ask questions. However, students only reveal those feelings in contrast with reporting the relief when the tutor put them at ease, was patient, and made them feel comfortable with the learning exchange.

*The tutor “breaks things down where I can understand in a way that does not make me feel stupid...”  
– Accounting student*

*The tutor “gave suggestions that were so on point. He knew and understood what my intents were. It was like I was really in the room with him.” – English student*

*The tutor “kept me engaged, learning and was most especially patient with me. I can’t thank him enough for helping me not only understand everything with humor but with sincere understanding of my struggle.” – Accounting student*

*“I was a little afraid with the whole online tutor thing. I am a little old school and with that, the belief that person to person contact is important especially when trying to learn or understand something like math but I am absolutely addicted to online tutor[ing] from now on :-)” – Algebra II student*

### Motivational Support Practices

Tutors can help a student increase their academic motivation in a variety of ways. Boosting a student’s self-efficacy is one of the primary means of motivating a student to continue learning. Self-efficacy is a student’s belief that they are able to complete a task, an assignment, or understand a concept. By the tutor guiding a student to complete an assignment or understand a concept, the student can gain self-efficacy. The student’s belief that they can achieve academically is a means to increasing academic motivation and retention in a course or program.<sup>34</sup>

*“I would have quit out of frustration long ago, just like I did ... in High School without your help.” – Algebra II student*

*“I would not have made it thus far without this program. It has given strength and the courage that has been needed to continue with my head up and not down with shame.” – English student*

*... “working with[ the tutor], I did not feel dumb for getting answers wrong. In fact I learned a lot from the mistakes I had made for years.” – Algebra II student*

Some students express doubt in their ability to understand the assignment, especially in mathematical concepts and processes. The tutors observed reacted with reassurance when students expressed doubt or embarrassment. When they queried students, tutors often followed with a qualifying statements like: “It’s okay if you didn’t know. I’ll walk you through it. We can work on



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