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U.S. Department of Education Study Finds that Good Teaching can be Enhanced with New Technology

Analysis of Controlled Studies Shows Online Learning Enhances Classroom Instruction

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Providing further evidence of the tremendous opportunity to use technology to improve teaching and learning, the U.S. Department of Education today released an analysis of controlled studies comparing online and face-to-face instruction.

A systematic search of the research literature from 1996 through July 2008 identified over 1,000 empirical studies of online learning. Of these, 46 met the high bar for quality that was required for the studies to be included in the analysis. The meta analysis showed that "blended" instruction – combining elements of online and face-to-face instruction – had a larger advantage relative to purely face to face instruction or instruction conducted wholly online. The analysis also showed that the instruction conducted wholly on line was more effective in improving student achievement than the purely face to face instruction. In addition, the report noted that the blended conditions often included additional learning time and instructional elements not received by students in control conditions.

"This new report reinforces that effective teachers need to incorporate digital content into everyday classes and consider open-source learning management systems, which have proven cost effective in school districts and colleges nationwide," said U.S. Secretary of Education Arne Duncan. "We must take advantage of this historic opportunity to use American Recovery and Reinvestment Act funds to bring broadband access and online learning to more communities.

"To avoid being caught short when stimulus money runs out, school officials should use the short-term federal funding to make immediate upgrades to technology to enhance classroom instruction and to improve the tracking of student data," Duncan added. "Technology presents a huge opportunity that can be leveraged in rural communities and inner-city urban settings, particularly in subjects where there is a shortage of highly qualified teachers. At the same time, good teachers can utilize new technology to accelerate learning and provide extended learning opportunities for students."

Few rigorous research studies have been published on the effectiveness of online learning for K-12 students. The systematic search found just five experimental or controlled quasi-experimental studies comparing the learning effects of online versus face-to-face instruction for K-12 students. For this reason, caution is required in generalizing the study's findings to the K-12 population because the results are for the most part based on studies in other settings, such as in medical, career, military training, and higher education.

"Studies of earlier generations of distance and online learning courses have concluded that they are usually as effective as classroom-based instruction," said Marshall "Mike" Smith, a Senior Counselor to the secretary. "The studies of more recent online instruction included in this meta-analysis found that, on average, online learning, at the post-secondary level, is not just as good as but more effective than conventional face-to-face instruction."

The study was conducted by the Center for Technology and Learning, SRI International under contract to the U.S. Department of Education's Office of Policy and Program Studies Service, which commissioned the study.

The full report can be found at <http://www.ed.gov/about/offices/list/opepd/ppss/reports.html#edtech>.

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