

## Online Learning Research

### Meta-analysis of Research Studies

The United States Department of Education sponsored a meta-analysis that looked at over 1000 research studies of online learning. Most of the studies, however, did not address K-12 learners, and the authors caution readers about generalizing from higher education settings. Nevertheless, after filtering out those studies with questionable methodology, they came to several conclusions:

- Generally, students in online learning settings performed better than students in face-to-face environments, although students in blended, or hybrid, settings performed even better.
- When students in online environments spent more time on task than their counterparts in face-to-face classrooms, they had greater benefit.
- Most of the differences between different online learning experiences made no difference in student learning.
- Online learning appears to be effective across different contents and types of learners.
- Online courses were more effective when they also employed a variety of materials and instructional strategies, such as small groups and simulations.
- The incorporation of video and online quizzes did not have any effect on learning.
- Online activities that allow students to control interactions with media and reflect on their own learning had a positive impact.

U.S. Department of Education, Office of Planning, Evaluation, and Policy Development, (2009). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. Washington, D.C. Retrieved from <http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>

### At-risk Learners

Researchers studied the impact of online courses on at-risk students, or students who were likely to fail. Survey responses received from 22 virtual programs show that online learning is becoming an increasingly popular option for students who have failed courses. 46% of the programs stated that over half of their students would be considered at-risk.

Several themes emerged that affected the success of online programs with at-risk students:

- Support: Students are connected to a team of supportive adults including not only the online instructor, but also other adults, such as parents and academic coaches.
- Individualization: Virtual schools use technology to individualize coursework and provide remedial instruction, especially in math and reading.
- At-risk students enrolled in online courses respond positively to effective instructional strategies, such as:
  - Mastery learning
  - Assessment geared toward development of understanding
  - Ongoing feedback

Archambault, L. & Diamond, D. (2010). *Research committee issues brief: An exploration of at-risk learners and online education*. Retrieved from [www.inacol.org/research/docs/INACOL\\_CreditRecovery.pdf](http://www.inacol.org/research/docs/INACOL_CreditRecovery.pdf)

## **Online Learning Research Initiative**

Teams of researchers conducted eight studies to answer important questions about online learning. A synthesis of the studies revealed the following findings:

### *Student Academic Performance*

Many complex factors, such as teaching approaches, parental involvement, and student socio-economic status, have an impact on the academic achievement of students in online environments. Studies on student learning show mixed results on the effectiveness of online e-learning. "Some" studies show no difference between online and face-to-face learning, while "many" studies showed a distinct advantage to online learners, particularly when staff development helps teachers understand how to effectively integrate technology into their instruction.

### *Characteristics of Successful Online Students*

In addition to the qualities that make students successful in face-to-face classes, such as self-direction and an internal locus of control, successful online students are likely to be risk-takers. One study recommends preparation and orientation sessions to ensure student success.

### *Qualities of Effective Online Courses*

As one might expect, effective online courses have qualified teachers, implement student-centered instructional strategies, and meet the needs of diverse learners. Researchers also suggest that to ensure that online courses meet rigorous academic standards and promote sustainability, online content should be flexible and capable of being reshaped and repurposed for different environments and student needs.

### *Professional Development for Online Teaching and Learning*

All the studies agreed that staff development is an important component of successful online e-learning. The following topics are identified as important for improving teaching:

- Technology training on how to use course features and other materials and equipment
- Lab activities
- Training in test development
- Use of learning management systems

Smith, R.; Clark, T. & Blomeyer, R. L. (2005). *A synthesis of new research on K-12 online learning*. Naperville, IL: Learning Point Associates. Retrieved from <http://www.ncrel.org/tech/synthesis/synthesis.pdf>