Colleagues

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E-Learning: Improving Teacher Access to Effective Professional Development

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E-Learning

Improving Teacher Access to Effective Professional Development

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To improve the educational outcomes of students with disabilities, the most powerful interventions are required (Cook, Landrum, Tankersley, & Kauffman, 2003). Fortunately, in recent decades, the number of research-validated interventions for students with disabilities has increased dramatically as a result of the ingenuity and productivity of the special education research and development (R&D) community (Mostert & Crockett, 1999-2000). Despite this achievement, the R&D community has not been successful in translating this research into classroom practice on a broad scale (Cook, et al., 2003).

One major barrier blocking the successful translation of this research on powerful interventions into practice has been teachers' limited *access* to effective professional development (Carnine, 1995).

Without question, members of the R&D community want to improve the educational outcomes of students with disabilities. To do so, inventing effective interventions is required, but it is not sufficient. The community must also use its ingenuity and productivity to invent professional development programs that are highly effective and easily *accessible*.

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What is e-Learning?

One technology that has the power to provide such professional development programs is e-learning. E-learning programs allow for interactive, multimedia communications. They combine text, audio, graphics, and video into an interactive software program that can be widely and quickly distributed electronically (Wentling, et al., 2000).

In a line of collaborative research, funded by the National Institutes of Health, faculty from the Colleges of Education at Grand

Valley State University and the University of Kansas have engineered e-learning programs and studied their impact on teacher understanding and application of instructional practices for students with disabilities.

In particular, e-learning programs have been developed on *Content Enhancement Routines* and *Strategic Tutoring*. Content Enhancement Routines are research-validated interventions used to teach content-area information to academically diverse groups of learners (Deshler, Ellis, & Lenz, 1996). To date, four e-learning programs have been engineered to prepare teachers to understand and use the Concept Mastery Routine, the Concept Comparison Routine, the Concept Anchoring Routine, and the Question Exploration Routine. Strategic Tutoring is an instructional approach that teachers use while engaging in tutoring sessions with students (Hock, Deshler, & Schumaker, 2000). Through this approach, the teacher and student create and apply learning strategies for completing academic tasks like learning vocabulary words or editing compositions. Two e-learning programs have been engineered. The first program called Basic Strategic Tutoring teaches users foundational skills in the tutoring process. The second program called Advanced Strategic Tutoring teaches users to conduct more difficult aspects of tutoring.

Each of these e-learning programs was designed to utilize known principles of effective professional development. Specifically, each program, fully describes an intervention, provides video models of teachers using the intervention with students, and quizzes teachers to check their understanding of the intervention. In the studies, teachers indicated they appreciated the variety of video models each program contained. For example, the e-learning program for the Concept Comparison Routine contains video of upper-elementary, middle, and high-school teachers teaching concepts from science, social studies, and math. This variety allowed most teachers to view the routine being applied with students and/or content they likely taught. Also, each e-learning program integrates activities for teachers to practice the intervention and receive feedback. Specifically, the e-learning programs on the Content Enhancement Routines allow teachers to prepare lesson plans, and the program scaffolds their construction of the plans and provides them positive and corrective feedback. The e-learning programs on Strategic Tutoring have teachers audio tape themselves conducting tutoring sessions on multiple occasions. Using an evaluation tool from the e-learning program, teachers listen to the audio tapes and self-evaluate their application. Research has shown that this repeated self-evaluation is very effective in improving teacher implementation of a new intervention.

> *"Specifically, the e-learning programs on the Content Enhancement Routines allow teachers to prepare lesson plans, and the program scaffolds their construction of the plans and provides them positive and corrective feedback."*

Line of e-Learning Research

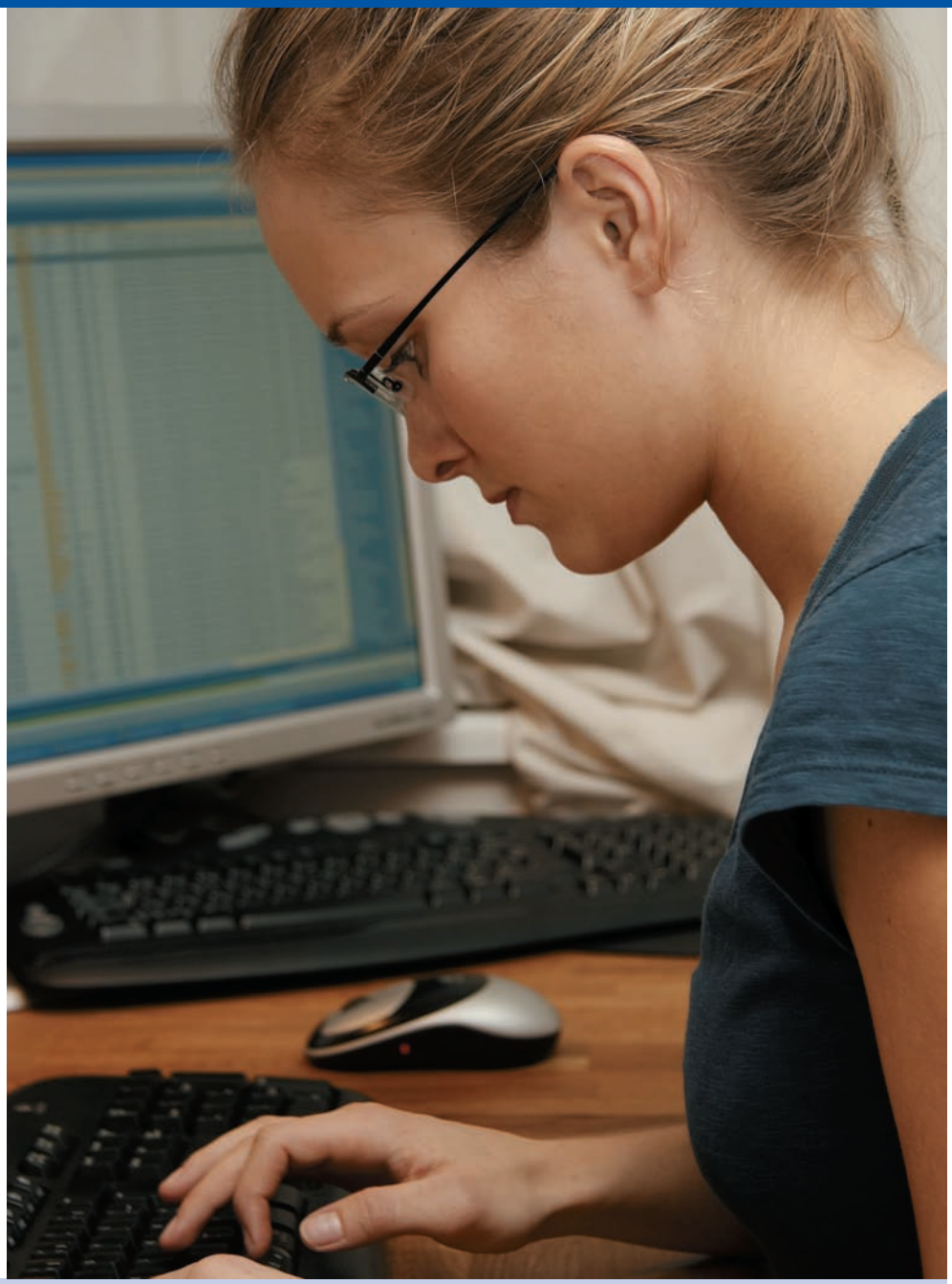
To date, six controlled studies have been conducted on these e-learning programs. Each study has sought to answer important questions about their impact on teachers and students. Firstly, each study measured teacher *satisfaction* with an e-learning program. To measure satisfaction, teachers were surveyed after completing an e-learning program and asked to rate how enjoyable, engaging, and understandable they found the program. Overall, results indicated that teachers rate these programs very favorably. Secondly, each study has measured teacher *understanding* of a specific intervention (e.g., Concept Mastery Routine, Concept Anchoring Routine, or Strategic Tutoring). To measure understanding, teachers were asked to complete tests both before and after training about an intervention. For each study, results indicated that teachers knew significantly more about an intervention after training then they knew before. Moreover, teachers in the experimental groups of these studies knew as much or more about the interventions than teachers in the control groups who received high-quality, live, training. Thirdly, each study has measured teacher *application* of an intervention with students. Clearly, measuring teacher satisfaction and understanding is important; however, to determine the impact of a professional development program, measuring teacher implementation of an intervention is essential. To do so, in these studies, teachers were observed delivering instruction to students both before and after training. For example, in the studies on Strategic Tutoring, trained observers watched and coded the behaviors of participating teachers during tutoring sessions both prior to training and again after training. Results showed that teachers who completed e-learning programs could apply these interventions at a high level. Finally, each study measured *student learning* as a result of teacher implementation of an intervention. Measuring student learning is the true test of a professional development program. After all, the purpose of teacher professional development is to improve the educational performance of students. To measure student learning, students were tested both before and after their teachers received training. For example, in each of the studies on Content Enhancement Routines, student understanding of concepts were tested before and after their teachers received training. For each of these studies, students knew significantly more about concepts after their teachers completed training than before.

Overall, these results suggest that e-learning programs can effectively improve teacher understanding and application of instructional interventions. Also, these results show that teachers who complete these programs can apply the interventions well enough to improve student learning. Moreover, when compared to high-quality, live, professional development programs, e-learning programs are at-least as effective. These results clearly demonstrate that e-learning can improve teacher classroom practice, and they show that e-learning does have the power to increase teacher *access* to

powerful interventions.

e-Learning Limitations

Despite these results, there are issues of concern regarding e-learning programs. One issue of concern is that any publisher can call a software or on-line program "e-learning." Simply because something is called e-learning does not mean that it is effective. The power of any e-learning program is in the quality of its contents and its integration of known principles of effective teacher development. For these reasons, these authors believe that an e-learning program can only be called *effective* if controlled studies have been conducted measuring its impact teacher understanding of the intervention, teacher application of the intervention, and student learning as a result of teacher implementation. This fact underscores a second issue of concern—cost. Effective e-learning programs are very expensive to develop. For example, the research and development costs of the e-learning programs described above are nearly 1.5 million dollars. These costs are largely attributable to personnel and the time required for the research and development process. For each e-learning program developed, software programmers, videographers, audiographers, and intervention authors were employed to develop the program. To study the impact of each program, researchers and numerous research assistants were also employed to collect, analyze and summarize data. Initially, a pilot study on each e-learning program was conducted. Based on these findings, revisions were made to each program, and then it received a full field test. After the field test, final revisions to the program are made, and it is finally made available to the public. For each program, this process takes at least a full year.



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