Electronic Performance Support System Tools (EPSS) to Enhance Success in School for Secondary Students with Mild Disabilities: Implementation and Outcomes

Overview of the Session

The purpose of this session is to describe and demonstrate two components of an electronic performance support system (EPSS) designed to increase independence of secondary students with mild disabilities in inclusive environments. The software and web support environment will be demonstrated along with student outcome results gathered from a randomized, delayed intervention study in special and general education classrooms. Teacher recommendations will be discussed based on interview results from teachers and students.

The Problem: Needs of Students with Disabilities in General Education Environments

According to Gersten (1998) the paradigm shift from a remedial model of programming to teaching knowledge and skills to improve access to the core curriculum requires a new focus on strategy instruction to enable students to organize, contextualize, and retain information. There is general agreement that strategies must be taught through explicit instruction using direct teaching methods, modeling, and practice opportunities in authentic or anchored situations (Gersten, 1998) and independent development and implementation of strategies in transfer contexts (Butler, 1995) with appropriate scaffolding (Anderson-Inman & Knox-Quinn, 1999). Self-regulation plays an important role in strategic performance, and research demonstrates positive effects on new learning as well as mastery and generalization (Reid, 1996). Appropriately designed and selected assistive technologies may provide supports for students with learning and behavior problems to acquire and practice the self-management, self-regulation, and self-advocacy skills that hinder them obtaining optimal benefit from the general education curriculum.

The Solution: Electronic Performance Support Software (EPSS)

Computer-based training and support mechanisms are an innovative approach for helping children gain control over their behavior and learning (Miller, Fitzgerald, Koury, Mitchem, & Hollingsead, 2007). Recent federally-funded projects where students with learning disabilities utilize the computer as a study tool (electronic studying, electronic note-taking, learning study strategies) have concluded that technology tools provide bridges to support students in learning (not remediation) and that the technology works because it provides direct instruction as well as scaffolding to support learning.

The *StrategyTools*™ software and supports include research-based strategies and provides easy-to-use template tools that can be personalized by students, teachers, and parents for independent use in school or home settings (Koury & Fitzgerald, 2004). The research-base for each tool is presented in *StrategyTools Resources*™—the teacher support informationbase that accompanies the *StrategyTools*™ software. *StrategyTools*™ contains 39 tools organized into 6 categories of support. Figure 1 provides a screen shot from the Commitment Card in StrategyTools™ that can assist a student in setting personal goals and monitoring the results across time periods defined by the students.

Figure 1. The Commitment Card in *StrategyTools*

Rationale for Systems Design

The conceptual framework for *StrategyTools*™ is based on the innovative use of an EPSS to assist secondary students with disabilities by providing assistive technology for increasing self-regulation, learning strategies, and transition planning skills. The primary components of the research-based framework are illustrated in Figure 2. The model includes four of the five interventions ranked in a recent meta-analyses as highly effective for remediating disabilities—direct instruction (in *Strategies Coach*™); cognitive-behavior modification, comprehension instruction, and mnemonic training (in *StrategyTool*™*s*); and computer-assisted instruction ranked in the "may be effective range" (Lloyd, Forness, & Kavale, 1998).

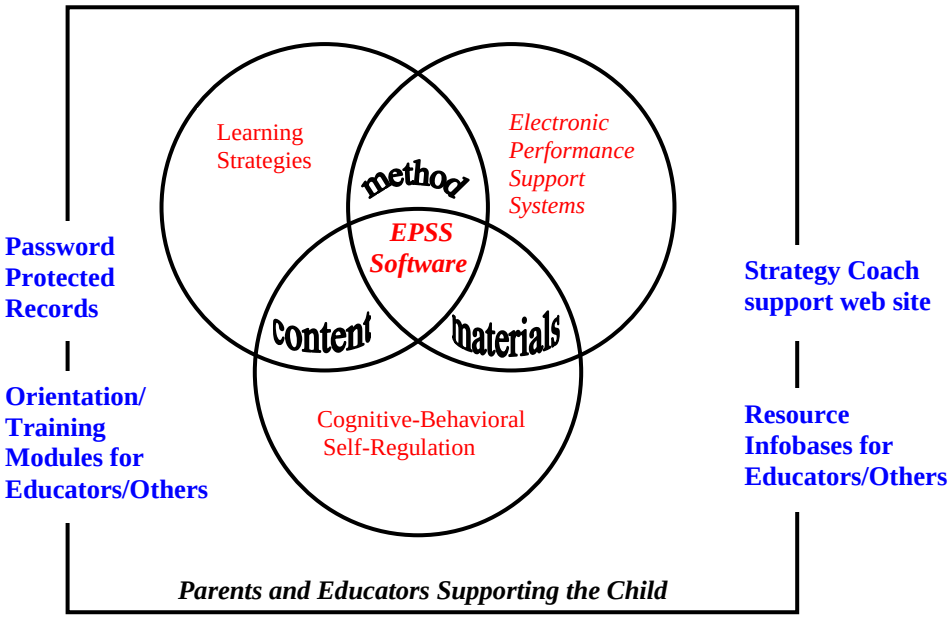

Fig. 2 Conceptual Framework for the *KidTools Support System*

From field testing we know that students with disabilities will need supports and that StrategyTools™ and the Strategy Coach™ web site should not be viewed as stand-alone tools and support. Most students will need some orientation to the tools and initial guidance in using and transferring tools independently. StrategyTools Resources™ supports teachers and parents in providing this assistance to students.

Current Research with StrategyTools™ in Secondary Schools

Results are currently being analyzed from a USDOE-funded project that provided for testing of the StrategyTools™ software with students with mild disabilities in high schools in four school districts. Research questions focus on feasibility, effectiveness, and acceptability of tool usage. Classrooms were randomly assigned to intervention or delayed-intervention groups, thus students provide their own control group. Available data include: (1) quantitative measures taken at four data points using test scores, behavior rating scales, goal attainment scales, and grades; (2) objective documentation of behavior outcomes using behavioral observation coding and goal attainment scales, (3) tracking of tool usage by artifact review, and computer usage records; (4) implementation fidelity using procedural checklists, and (5) qualitative measures of student and teacher satisfaction and feasibility using questionnaires, interviews and an online discussion board. Results will be presented in the proposed presentation.

Educational Importance

It is clear, based on limited empirical findings and descriptions of emerging uses of technology for children and youth mild disabilities in general education classrooms, that assistive technology for these disabilities is a highly specialized field that is still in its infancy. Many writers have described the potential of technology-use with these populations, but research and development interest appears to be thin, fragmented, and not focused on therapeutic uses of technology. Most of the work in the area has been directed towards academic/content learning or behavioral control rather than meeting the unique needs that define the population (Fitzgerald, 2005).

Recognizing the limited development and empirical base of support for technology applications in mild disabilities, attention must be given to designing and developing specialized applications to address their unique needs. These EPSS products demonstrate the first step in development efforts for the application of assistive technology for students with mild disabilities, and the emerging research results will provide guidance to teachers in effective implementation of EPSS approaches for students and improving their social, behavioral, academic, and transition outcomes.

Research Results and References will be provided in the proceedings paper.

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