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ABSTRACT

This document presents four brief papers that review and synthesize the research on intervention with students who have learning disabilities (LD). The first paper is "Can School-Based Interventions Enhance the Self-Concept of Students with Learning Disabilities?" (Batya Elbaum and Sharon Vaughn). This review finds that school-based interventions of either the skill development or skill enhancement types can lead to beneficial changes in students' self-perceptions and that middle school students appeared most responsive to such interventions. The second paper is "Reading Comprehension Instruction for Students with Learning Disabilities" (Russell Gersten and Scott Baker). Findings indicated the effectiveness of reading comprehension interventions, instruction in self-monitoring techniques, and peer-assisted learning strategies. Continuing difficulties with teaching students to generalize new skills were also found. The third paper, "Teaching Expressive Writing to Students with Learning Disabilities" (Russell Gersten and Scott Baker), found that instructional writing interventions lead to significant improvements in students' writing and that common features of successful instruction included explicit instruction in the phases of writing, teacher demonstration, and teacher and/or peer feedback. The final paper, "Intervention Research for Adolescents with Learning Disabilities" (H. Lee Swanson), reported on a meta-analysis of 58 interventions. It found that direct instruction and strategy instruction were the most effective techniques. (DB)

Keys to Successful Learning:

A National Summit on Research in Learning Disabilities

Two Decades of Research in Learning Disabilities

Reading Comprehension
Expressive Writing
Problem Solving
Self-Concept

National Center for Learning Disabilities

NATIONAL CENTER FOR LEARNING DISABILITIES

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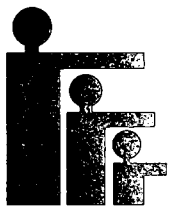

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The purpose of this initiative is to translate research and policy on learning disabilities into high standards for learning and achievement in the classroom, and to take action at the local, state and federal levels to ensure that all students, including those with learning disabilities, are afforded the highest quality education.

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Two Decades of Research in Learning Disabilities

CONTENTS

Can School-Based Interventions Enhance the Self-Concept of Students with Learning Disabilities?

A Research Synthesis

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Executive Summary

Background and Purpose

The desire for a positive evaluation of self affects a person's feelings, actions, and aspirations throughout life. In the course of childhood and adolescence, school experiences play an important role in the development of self-perceptions and can have powerful and long-term effects on a child's self-esteem. Individuals with learning disabilities (LD) are especially vulnerable to low self-concept. Research findings have linked LD with poor self-concept, and it is clear that students with LD often experience academic challenges that can drain self-esteem.

Despite much recent research and speculation on the subject, the factors that affect a child's self-concept are not completely understood. We do know, however, that students' self-concepts are related to their academic achievement. Students with lower levels of academic achievement have lower self-concepts than students with high levels of academic achievement. Students with more positive self-perceptions of their academic ability tend to do better in school than students who consider themselves to be poor learners.

Is it possible to enhance a student's self-concept?

Researchers have studied a variety of classroom interventions designed to improve the self-concepts of students with LD. These interventions can be characterized as following one of two approaches:

- The self-enhancement approach
- The skill development approach

Interventions that adopt a self-enhancement approach are designed to change students' self-perceptions by means of techniques like cognitive therapy. The focus in these interventions is on the elimination of self-defeating thoughts and behaviors that are believed to interfere with academic success.

In contrast, interventions that adopt a skill development approach are based on the assumption that building a child's skill in a particular academic area, such as reading, will improve the student's self-perceptions in that area and will give the student the expectation of future academic success. Although skill development interventions often include some aspects of the self-enhancement approach, such as frequent positive feedback from teachers, the basis of the approach is that improvements in academic performance should boost self-esteem.

Research Method

The authors of the research synthesis conducted thorough literature searches to identify studies of school-based, nonclinical interventions conducted between 1975 and 1997 that included students with LD and used a quantitative measure of self-concept to assess the impact of the intervention. A total of 36 interventions were evaluated in 31 separate studies. A technique known as meta-analysis was used to examine the collective findings of this body of research.

Findings

To what extent can school-based interventions enhance the self-concept of students with LD?

The results of the meta-analysis demonstrated that school-based interventions can lead to beneficial changes in the self-perceptions of students with LD. The investigators note that these findings are particularly significant in light of the fact that the interventions typically lasted less than 12 weeks with sessions held only two to three times per week.

Are certain types of interventions more helpful than others in enhancing self-concept?

An important finding of the meta-analysis was that interventions using both types of approaches - skill development and self-enhancement - succeeded in improving the self-concepts of students with LD. Interventions that used group counseling techniques produced favorable outcomes for students of varying ages. Academic interventions seemed particularly beneficial to middle-school students. A key component of many of the successful academic interventions was an emphasis on students working collaboratively with their classmates and receiving feedback from classmates on their progress. These interventions appear to give students with LD a dual payoff: they do better academically and self-concept is enhanced. Enhancing and highlighting new abilities and academic successes seems essential.

One effective intervention that was included in the synthesis targeted parents of students with LD, rather than the students themselves. In this study, the children of parents who participated in a nine-week parent effectiveness training course showed improvement in their self-concept compared to children whose parents did not receive the training. The outcome of this study suggests that enhancing interactions between parents and their young children may be another route to increasing the self-esteem of students with LD.

How do the duration of the intervention, the area of self-concept assessed, and student age affect the self-concept outcome?

How long an intervention lasted did not appear to be a determining factor in explaining the effectiveness of an intervention. The investigators suggest that the somewhat lower efficacy of interventions that adopted a skill development approach, compared to interventions using a self-enhancement approach, may in part be due to the short duration of most of these interventions. The development of academic skills is a gradual process, and it may take more than the typical duration of these interventions for students - particularly students with disabilities - to make clear gains in an area such as reading.

Interventions that focused on the development of academic skills (only academic interventions were amenable to this particular analysis) were found to have somewhat different outcomes, depending on the aspect of self-concept that was measured. The most positive benefits were observed when self-concept was defined globally (encompassing students' self-perceptions in a variety of areas, including the academic area) or more narrowly in terms of academic self-concept. Students' feelings about other aspects of the self (e.g., perceptions involving relations with peers) were not, overall, significantly impacted by the interventions under study.

Whereas the average effects of self-concept interventions for primary, elementary, and high school students were in the small to moderate range, the effects for middle school students were quite large. Young adolescents appear to be especially vulnerable to threats to their self-esteem; the current research synthesis suggests that they may also be especially responsive to interventions designed to strengthen it.

Recommendations

The challenge for all teachers, especially those who teach students with LD, is to help children develop positive images of themselves as competent learners while at the same time maintaining high academic standards. Teachers must avoid lowering their academic demands and expectations out of a desire to help students attain and maintain high self-esteem. Lowered expectations of academic success can, in the long run, actually subvert the goal of enhancing students' self-esteem.

The findings of the research synthesis do not point to a single, most effective technique for improving students' self-concept. Moreover, since no data were available on long-term outcomes for students who participated in the interventions under study, it is impossible to determine how long the beneficial effects of a single intervention may last. The synthesis does, however, provide some guidelines for future efforts.

One way for teachers to have a positive impact on students' self-concept is to incorporate critical aspects of effective self-concept interventions into ongoing academic instruction. One example is the use of cooperative learning structures in which students with LD collaborate with nondisabled peers on academic tasks and receive frequent feedback on their work from both the teacher and their classmates. Other promising avenues for enhancing students' self-concept are group counseling sessions by a trained facilitator and training programs for parents.

Reading Comprehension Instruction for Students with Learning Disabilities:

A Research Synthesis

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Executive Summary

Background and Purpose

Research conducted in the 1980s and more recently has suggested that children with learning disabilities (LD) have difficulties with reading comprehension that are the result of broadly based language problems and not limited to simple difficulties with word recognition. Since reading comprehension is crucial to school success, it is essential to understand the difficulties children with LD face as they encounter new text and to identify instructional approaches that focus on learning and using the many skills that are needed for successful reading. This research synthesis was conducted to critically review recent contributions to the body of research on reading comprehension in students with LD with the goal of enhancing current classroom practices and identifying avenues for future research. These points serve as background information for the following discussion:

- Successful reading comprehension is correlated with oral reading fluency and vocabulary knowledge. However, interventions that focus on improving fluency or vocabulary do not necessarily increase reading comprehension, especially of long passages.
- Students with LD often show signs of giving up too quickly when faced with a difficult passage. This so-called task persistence, a skill that must be acquired by all readers, is especially important for successful reading of expository text, such as history and science textbooks, newspapers, and voter pamphlets.
- Children with LD, who have a history of academic difficulties, have documented gaps in grade-appropriate knowledge of history, geography, and other subjects. These knowledge gaps interfere with their understanding of material they encounter in new texts and compound their reading comprehension problems.

Findings

An analysis of three recent research reviews brings the following issues and findings to the forefront of reading comprehension research.

What is the role of self-monitoring in reading comprehension?

- So-called active readers learn to monitor how well they understand what they are reading, as they read. When reading difficult material, these students engage in beneficial self-monitoring strategies such as rereading portions of the text and trying to figure out the meaning of unfamiliar words central to understanding it. In contrast, students with LD often fail to realize that they must pay attention to how well they understand a text as they read so that they can go back and reread as necessary. Typically, students with LD must learn several self-monitoring techniques, such as asking themselves questions after reading a passage or summarizing in their own words the material they've read. While reading a story (a narrative text), they might try to predict what will happen next. Learning to make predictions helps reading comprehension.
- The ability to reflect on how well a reading task is progressing is a critical component of reading comprehension. Students who are taught a number of strategies to use as they read, such as asking themselves questions as they read and summarizing what they read, generally experience more improvements in comprehension than students who are taught a single, specific comprehension skill. It is essential for students to

learn "repair strategies" to use when they find themselves not understanding the text they are reading.

D Repeated readings of a passage make it significantly easier for students to recall its important content. Repeated readings of the same passage is an easy strategy to implement in real classroom situations.

D Although students with LD can be taught to use self-monitoring techniques, it is considerably more difficult for these students to generalize these skills, or apply them to other reading situations. Students frequently do not continue the comprehension strategies that they are taught after completion of the study unless they are asked to. It appears that intense, long-term interventions utilizing multiple self-monitoring interventions may be the most effective approach.

D Students with LD process information inactively, and they have difficulty differentiating relevant and irrelevant associations. Possible solutions include techniques that force students to focus attention on the material being read and help them more readily identify the theme of a narrative.

What are the contributions of text structures to reading comprehension?

D Skills in discerning and using text structures (the way reading material is organized) are important to understanding texts. Students with LD have trouble learning about the structures of stories. In addition, they typically recall less about stories they've read and cannot easily identify the important information in stories. The most useful text structure is referred to as story grammar, which is the way narrative texts are organized. That is, there are characters, a setting, problems, solutions to the problems, etc. Students with LD know less about narrative text structure than other students. This lack of knowledge interferes with comprehension. Fortunately, narrative text structure can be taught, and when it is, comprehension improves.

D Expository writing, the kind of texts found in newspapers and history books, for example, presents LD students with even greater challenges. Expository writing typically contains a variety of organizational or text structures that are more difficult to identify. Thus, the tactics that may help when reading stories, such as identifying the main story elements and processing them, are often less effective with expository texts.

D Peer-assisted learning strategies (PALS) improve comprehension and oral reading skills. In addition to having students reread text, PALS also has children work directly on comprehension by summarizing what they've read, identifying the most important information, and predicting what may happen next.

D Although peer-assisted learning has shown strong benefits, additional research is necessary to determine whether peers have the skills to explain to another student how they handle the difficulties they encounter while reading. It's clear that students can help with practice and that practice is essential for internalizing strategies, but it's not clear to what extent proficient readers can actually teach less proficient readers.

Recommendations

Reading comprehension interventions are among the most effective interventions among children with LD. Recommendations for interventions and future initiatives in this crucial area include the following:

D Students with LD need to learn an array of strategies to enhance their understanding of the narrative and expository material they read.

D With regard to expository text, more emphasis should be placed on a fluid approach to self-monitoring skills. Too few studies have looked at ways to improve comprehension of expository text. New areas of research are emphasizing that comprehension of expository text should focus on helping students use an array of strategies flexibly rather than having them adhere rigidly to text structure approach, as they might while reading a narrative text or story.

D It appears that more successful interventions teach kids multiple strategies with the goal of having them internalize the strategies. Limited evidence suggests that internalization occurs with more intense interventions-usually longer and more frequent instructional times.

D Socially mediated instruction, of which peer-assisted learning strategies (PALS) is one example, seems to hold considerable promise. In these situations, students learn to process verbally with a peer or group of peers what they've read verbally. After reading a passage, for example, students or a student and a teacher discuss the content of the passage, ask each other questions about it, and in narrative texts, predict what may happen next.

D Frequent, ongoing discussions about the meaning of the text, in which the teacher models the array of strategies and tools that good readers use to make sense of text, is a promising approach to reading comprehension instruction.

D Finding ways to help students generalize their newly acquired reading comprehension skills is essential. It's important to learn how these skills can be transferred to other academic areas and what needs to be done to make sure that students either continue using the specific strategies they've learned after the instructional intervention ends or internalize the essential parts of the strategy so that improvements in reading comprehension continue.

D To date, student learning occurs on measures aligned to the focus of the intervention. So, if students learn to make predictions, for example, they tend to do quite well on tasks that ask them to make predictions. These types of closely aligned measures are called experimenter developed measures. When measures are not closely aligned to the specific focus of the intervention, as is typically the case with standardized measures, the learning outcomes are less impressive. One goal of reading comprehension research is to develop intervention approaches that have a larger impact on standardized measures, which suggest a more generalized or broad-based effect of the intervention.

Teaching Expressive Writing to Students with Learning Disabilities:

A Research Synthesis

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With Lana Edwards, University of Oregon

Executive Summary

Background and Purpose

Personal and expository writing are powerful means of expression and, during the last 15 years, researchers in the field of special education have made great strides in opening this creative vista to students with learning disabilities. This progress has come as special education researchers have developed new methods for teaching an array of writing techniques to children with learning disabilities.

To find better ways to teach writing to children with learning disabilities, researchers have looked to proficient writers as models. How is it that proficient writers actually plan, organize, and carry out the difficult and typically introspective task of expressive writing?

This report synthesizes recent findings of research on expressive writing. Included in this research report, or meta-analysis, were 11 expressive writing group studies that enrolled a total of 436 children in grades three to nine. The express purpose of each of the studies reviewed was to teach students to be better writers.

Findings

Overall, the investigators had clear evidence that the instructional writing interventions used in the 11 studies led to significant improvements in the quality of students' writing. The strategies that the various investigators used improved the expressive skills of students with learning disabilities, and the effects of these interventions were quite large.

What are the common features of a successful strategy for teaching expressive writing?

- Most of the successful interventions follow a basic framework of three phases: Planning, Writing, and Revision. Students are given explicit strategies and instructions about how to conduct each phase.
- The critical phases in the writing process are taught explicitly. As part of this instruction, students may be given think sheets or mnemonics (a strategy for remembering critical writing steps). In the most effective interventions, teachers demonstrate and model how to use these items.
- Teachers demonstrated how to write particular types of expressive text. Different types of writing require different organization and context. Persuasive writing is organized differently and has a different structure than narrative writing. Students are taught to write within these different styles. Teachers provided explicit examples.
- Teachers and/or peers provided frequent feedback about the quality of the work, missing elements, and strengths of the written product. In one approach, a community of writers is fostered within the classroom. Lots of discussion about writing occurs, ideas are shared, and feedback is provided. Teachers try to reach all students in these writing communities, but peers have also been used successfully in these groups.

Recommendations

Based on the findings of the meta-analysis, the researchers make several recommendations for the future

Efforts must be made to incorporate the three critical components of expressive writing instruction into the general and special education classrooms. They are:

- Teaching the critical steps of the writing process

explicitly, possibly using a think sheet or mnemonic card, and having teachers demonstrate each of these three important steps: planning, writing, and revision.

- Explicit teaching of how to write different types of expressive text. The more explicit the examples, the more effectively students learn these writing conventions.
- Providing feedback about the quality of work, missing pieces, and the strength of their work. Feedback from a teacher or peer helps students develop writing style.

Increasing evidence also suggests the importance of teaching skills such as spelling and punctuation in conjunction with skills such as organization, text structure, and revision techniques. Children with learning disabilities have problems with both types of skills, and teaching them in tandem seems to be beneficial. According to one theory, the less a child has to concentrate on the mechanics of writing, the more time and effort can be spent on more complex tasks such as planning, composing, and revising.

Several other research issues will be highlighted in years to come. One potentially interesting and important area is the question of whether dictation should be used as a possible bridge to better writing. For some students, especially those who have difficulties with spelling and punctuation, dictation to an adult may produce higher-quality content. It is hoped that successful dictation would eventually lead to better independent writing.

Do improvements in writing skills transfer to other academic subjects? Researchers are calling increasingly for strategies in special education that encourage students to think about what they are writing in ways that generalize, or transfer, these skills.

Intervention Research for Adolescents with Learning Disabilities:

A Meta-Analysis of Outcomes Related to High-Order Processing

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Executive Summary

Background and Purpose

As children go through adolescence, striking changes occur in their problem-solving abilities. As a result, adolescents are generally more efficient and sophisticated learners than younger children, and they are able to more easily cope with advanced topics in difficult academic areas.

Adolescents with learning disabilities (LD), however, have difficulties in problem solving, also called high-order processing. The problems begin in elementary school, when a child with LD experiences difficulties with tasks such as word recognition, spelling, and computation. These difficulties become generalized as the child ages, and adolescents with LD typically have difficulties with skills of high-order processing.

The search for effective methods of improving problem-solving skills in adolescents with LD has become an important focus of research in recent years, especially as it has become clearer that deficits in problem-solving skills are superimposed on lower-order processing problems in areas such as spelling and computation.

The purpose of this report was to synthesize and summarize the research on interventions conducted between 1963 and 1997. Fifty-eight intervention studies were analyzed according to the age and intelligence of the adolescents, the characteristics of the intervention (e.g. number of instructional interventions, components of instruction) and the methods used by the original investigators. It was hoped that this synthesis of the research literature would help identify instructional models for adolescents that predict success in improving problem-solving skills.

It was clear from earlier research that not all interventions work equally well in this population of students, and two instructional methods seemed superior to others: direct instruction and strategy instruction. It was considered important to distinguish the points of commonality and distinction of these two approaches and identify the components of instructional models that predict the best outcome for adolescents with LD.

For purposes of this study, direct instruction was categorized as those that employed the following techniques:

- Breaking down a task into small steps
- Administering probes
- Supplying repeated feedback
- Providing students with diagrammatic or pictorial presentations
- Allowing independent practice and individually paced instruction
- Breaking instruction down into simpler phrases
- Instructing in a small group
- Teacher modeling of skills
- Providing set materials at a rapid pace
- Providing instruction for individual children
- Having the teacher ask skill-related questions
- Having the teacher provide new materials

Studies included in this synthesis that were categorized as strategy instruction had the following components:

- Elaborate explanations
- Teacher modeling of processes
- Reminders to use certain strategies
- Step-by-step prompts
- Teacher-student dialogue

- Teacher asks process-oriented questions
- Teacher provides only necessary assistance

Findings

Three main questions were posed as the core of this review of the literature on problem solving in adolescent learners:

Do studies that use direct and/or strategy instruction produce better effects on problem-solving skills than those that do not?

- In contrast to other methods, interventions were more effective when studies included derivatives of cognitive and/or direct instruction.
- Effective instruction can be either a bottom-up or a top-down approach, as long as certain components are included in the intervention.
- No statistical advantages of the direct instruction or strategy instruction were apparent.
- A clear orientation to task, drill-repetition-practice, sequencing, teacher modeling, and systematic probing may supersede effects related to distinctive qualities of either the strategy or direct instruction methods.

Is the magnitude of the beneficial effect related to certain components of the intervention?

- Regardless of the overall model of instruction, only a few specific instructional components increased treatment effectiveness.
- The following components predicted the magnitude of treatment outcomes: sequencing (eg, breaking down the task), step-by-step prompts; drill-repetition-practice; directed questioning and responses; individualization combined with small group instruction; segmentation (breaking down a targeted skill into smaller units and then synthesizing the parts into a whole); technology (e.g., computer use); and small interactive group instruction.
- The drill-repetition-practice-review component was an important variable in predicting effectiveness.

Do studies that vary in their definition of LD yield different results?

- Studies that allowed for cut-off scores (reporting standardized IQ scores at 85 and above and reading scores below the 25th percentile) yielded more effective treatments than other studies.
- Studies that produced the highest treatment outcomes enrolled students whose intelligence scores (84 to 91) and reading scores (84 to 91) were in the same low range.
- Less effective interventions were reported in studies in which discrepancies existed between intelligence scores and reading scores.
- Studies that included students with LD who have aptitude profiles similar to generally poor achievers or slow learners (low IQ and low reading) generally showed more results of the intervention than did studies that included learners with IQ/reading discrepancies.

Recommendations

Researchers

Six methodologic variables have a clear influence on treatment outcomes. These variables must be controlled for, however, before one can generalize about treatment outcomes. In short, studies of high internal validity yield smaller effect sizes, and perhaps more realistic outcomes, than studies with low internal validity. Investigators in this field should remember that methodology and sample description matter when interpreting treatment effects.

When interpreting treatment outcomes, an agreed upon taxonomy of dependent measures reflecting high-order skills should be in place. Unfortunately, several of the studies we included in this meta-analysis stated that they had focused on high-order skills but, in fact, the investigators did not include or utilize dependent measures that directly assessed high-order processing. It makes no sense to teach high-order processing and assess students on low-order skills like fact recall. Intervention research needs to identify high-order skills that operate independently and influence and/or interact with low-order processing.

We need studies that empirically validate components of instruction that are the common core of effective procedures. Once those procedures are identified, it will be possible to systematically test advances in instructional models for adolescents with LD.

Practitioners

Consumers should be cautioned against studies with low internal validity, as described above, because they inflate treatment outcomes. In addition, it is important to include the following components when designing material and instruction for adolescents with LD: breaking down the task into smaller steps, using step-by-step prompts, drill-repetition-practice, individual and small group instruction, focusing on isolated processing components and then synthesizing components, and using computer-mediated instruction.

Although it may be difficult to distinguish low achievers from students with LD by using discrepancy scores, responsiveness to instruction may help make the distinction. In general, students with low reading and low IQ scores are more responsive to treatment than adolescents with clear discrepancies in reading and IQ scores.

Very few studies have targeted high-order processing in adolescents with LD. It cannot be assumed that mastery of low-order skills, such as word recognition, computation, spelling, and grammar, will correct high-order processing difficulties.

Funding Agencies

Direct funding is needed for further study of high-order processing and learning disabilities. Most funding to date has focused on low-order processing such as word recognition skills.

National Center for Learning Disabilities

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A National Summit on Research in Learning Disabilities

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