Students at the Center

JOBS FOR THE FUTURE

DEEPER LEARNING RESEARCH SERIES

DEEPER LEARNING FOR STUDENTS WITH DISABILITIES

By Sharon Vaughn, Louis Danielson, Rebecca Zumeta, and Lynn Holdheide

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EDITORS' INTRODUCTION TO THE DEEPER LEARNING RESEARCH SERIES

In 2010, Jobs for the Future—with support from the Nellie Mae Education Foundation—launched the Students at the Center initiative, an effort to identify, synthesize, and share research findings on effective approaches to teaching and learning at the high school level.

The initiative began by commissioning a series of white papers on key topics in secondary schooling, such as student motivation and engagement, cognitive development, classroom assessment, educational technology, and mathematics and literacy instruction.

Together, these reports—collected in the edited volume *Anytime, Anywhere: Student-Centered Learning for Schools and Teachers*, published by Harvard Education Press in 2013—make a compelling case for what we call "student-centered" practices in the nation's high schools. Ours is not a prescriptive agenda; we don't claim that all classrooms must conform to a particular educational model. But we do argue, and the evidence strongly suggests, that most, if not all, students benefit when given ample opportunities to

- Participate in ambitious and rigorous instruction tailored to their individual needs and interests
- Advance to the next level, course, or grade based on demonstrations of their skills and content knowledge
- Learn outside of the school and the typical school day
- Take an active role in defining their own educational pathways

Students at the Center will continue to gather the latest research and synthesize key findings related to student engagement and agency, competency education, and other critical topics. Also, we have developed—and have made available at www.studentsatthecenter.org—a wealth of free, high-quality tools and resources designed to help educators implement student-centered practices in their classrooms, schools, and districts.

Further, and thanks to the generous support of The William and Flora Hewlett Foundation, Students at the Center has expanded its portfolio to include an additional and complementary strand of work.

The present paper is part of our new series of commissioned reports—the Deeper Learning Research Series—which aim not only to describe best practices in the nation's high schools but also to provoke much-needed debate about those schools' purposes and priorities.

In education circles, it is fast becoming commonplace to argue that in 21st century America, each and every student must aim for "college, career, and civic readiness." However, and as David Conley described in the first paper in this series, a large and growing body of empirical research shows that we are only just beginning to understand what "readiness" really means. Students' command of academic skills and content certainly matters, but so too does their ability to communicate effectively, to work well in teams, to solve complex problems, to persist in the face of challenges, and to monitor and direct their own learning—in short, the various kinds of knowledge and skills that have been grouped together under the banner of "deeper learning."

What does all of this mean for the future of secondary education? If "readiness" requires such ambitious and multi-dimensional kinds of teaching and learning, then what will it take to help students become genuinely prepared for life after high school, and what are the implications for policy and practice?

We are delighted to share this installment in the Deeper Learning Research Series, and we look forward to the conversations that all of these papers will provoke.

To download the papers, executive summaries, and additional resources, please visit the project website: www.studentsatthecenter.org.

Rafael Heller, Rebecca E. Wolfe, Adria Steinberg

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Jobs for the Future works with our partners to design and drive the adoption of education and career pathways leading from college readiness to career advancement for those struggling to succeed in today's economy. We work to achieve the promise of education and economic mobility in America for everyone, ensuring that all low-income, underprepared young people and workers have the skills and credentials needed to succeed in our economy. Our innovative, scalable approaches and models catalyze change in education and workforce delivery systems.

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Students at the Center
JOBS FOR THE FUTURE

Students at the Center—a Jobs for the Future initiative—synthesizes and adapts for practice current research on key components of student-centered approaches to learning that lead to deeper learning outcomes. Our goal is to strengthen the ability of practitioners and policymakers to engage each student in acquiring the skills, knowledge, and expertise needed for success in college, career, and civic life. This project is supported generously by funds from the Nellie Mae Education Foundation and The William and Flora Hewlett Foundation.

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INTRODUCTION

Currently, more than six million students with disabilities (comprising 13 percent of the total student population) attend elementary and secondary schools across the United States (National Center for Education Statistics 2013). The majority of them—close to four million—spend most of the school day in general education classes and most are capable of meeting the goals described by advocates of deeper learning. However, policy discussions about deeper learning have yet to focus serious attention on the kinds of support these students require to become truly prepared for college, careers, and civic life.

One complicating factor is that this population is enormously varied. For example, students with identified learning disabilities (more than 2 million) differ in important ways from those with speech and language impairments (1.5 million), autism (417,000), intellectual disabilities (over 400,000), emotional disturbances (nearly 400,000), or visual, hearing, and other impairments.

How can general education teachers provide opportunities for deeper learning to such a wide range of students? While we are mindful of the many ways in which individuals and groups of students can differ from one another, we also find strong support in the research literature for several core instructional practices that are feasible to implement in every classroom and that facilitate learning for students with many kinds of needs.

Further, we argue that the field of special education has important insights and expertise to share with the deeper learning movement in general.

As defined by The William and Flora Hewlett Foundation, deeper learning includes not just mastery of high-level academic content but also the development of capacities such as thinking critically, solving complex problems, working collaboratively, communicating effectively, and learning how to learn (Hewlett Foundation 2013). These are, it should be noted, learning goals that special education teachers and researchers have long prioritized. Indeed, a number of instructional strategies that are now considered mainstream were originally developed for students with disabilities. Supporters of deeper learning would no doubt endorse these strategies, such as the teaching of peer-mediated learning activities, self-regulation, and problem solving (Fuchs et al. 2008; Harris, Graham, & Mason 2006). And among special education's recommended practices are several that would likely prove just as beneficial to the wider student population, such as modifications to pacing, direct and systematic instruction paired with explicit practice, strategies to support motivation and attention, and increased instructional time, among others (Fuchs et al. 2008; Gersten et al. 2008; Vaughn et al. 2012).

In the following pages, we review previous efforts to promote better educational outcomes for students with disabilities. We also describe research-based instructional strategies that can support them and other struggling learners and the kinds of policies and local resources needed to ensure that all young people have meaningful opportunities to learn deeply and become truly prepared to succeed in college, careers, and civic life.

We hope that at the conclusion of this paper, readers will understand that when schools make use of readily available teaching strategies and supports, even students who face quite serious challenges (related to severe dyslexia, for example, or autism or severe physical challenges) can develop the full range of knowledge and skills associated with deeper learning. Finally, we hope also that readers will have increased confidence that all students stand to benefit from instructional practices known to be effective for students with disabilities.

ACCESS, EQUITY, AND OUTCOMES

Enacted in 1975, Public Law 94-142, the Education for All Handicapped Children's Act—later known as the Individuals with Disabilities Education Act (IDEA)—was meant to ensure that all children with disabilities have access to a free and appropriate public education and that their rights, and those of their parents, are adequately protected. Before the Act was passed, most public schools provided few if any services for students with disabilities, and many of these students dropped out of school as soon as they were legally permitted to do so.

P.L. 94-142's most important provisions are still in effect today. These include the requirements that students with disabilities be educated to the maximum extent possible with their non-disabled peers (often referred to as least restrictive environment) and that they be given an individualized educational program (IEP). Also required are due process provisions designed to ensure that students and their parents are kept fully informed about their IEP status and services and are given ample opportunities to participate in and/or challenge relevant decisions by their schools.

In theory, these due process provisions add up to a guarantee that all students identified with disabilities are eligible for an IEP and will receive appropriate supports. Schools are required to assess each child's specific needs and spell out their individual learning goals in writing in order to provide clear guidance to their parents and teachers as to appropriate instruction and classroom accommodations (e.g., giving students more time to take a test, permitting them to use a computer to take notes in class, and so on).

In reality, though, the results have been mixed. Around 1990, findings began to emerge from a Congressionally mandated study (the National Longitudinal Transition Study) that focused on the high school and post-school experiences of youth with disabilities. The data revealed a pattern of high dropout and course-failure rates and low rates of post-school employment and college enrollment (Wagner et al. 2005). In turn, many policymakers, researchers, and other stakeholders began to wonder whether the law might have erred by placing too much emphasis on monitoring schools' procedural compliance (e.g., documenting that students and parents were able to participate in the IEP conference) and doing too little to ensure that students were actually learning, passing their classes, and reaching other desired goals.

However, while the transition study was illuminating, there existed no reliable, ongoing sources of data as of the early 1990s that would enable states or the U.S. Department of Education to know precisely how well students with disabilities were doing in any given school or district, or whether their results were improving over time.

That changed dramatically over the subsequent years. First, in the mid-1990s the National Assessment of Educational Progress (NAEP) began to require that students with disabilities be included in its regular assessments. Second, the 1997 reauthorization of IDEA specified that students with disabilities must be included in state assessments and that the data must be reported publicly. And finally, the 2001 No Child Left Behind Act (NCLB) required that states, districts, and schools be held accountable for the performance of students with disabilities.

All together, these policy initiatives provided a forceful response to the earlier concern that IDEA had been too narrowly focused on procedural compliance. From this point on, the monitoring of schools' adherence to the law was to be combined with efforts to use both NAEP and state assessment data to monitor the actual performance of students with disabilities and to push schools to get better results. Among many in the field, these steps led to optimism that students with disabilities would begin to make real progress in their academic performance, both in K-12 education and beyond.

The Current Status of Students with Disabilities

According to the most recent NAEP (NCES 2013), 38-45 percent of students without disabilities performed at the proficient level or above in reading and mathematics in fourth and eighth grade, while a mere 8-17 percent of students with disabilities did so (excluding those students whose IEPs indicated that they would be unable to access the NAEP materials and participate in the assessment). In short, despite the policy reforms of the past two decades, and despite an improved knowledge base in the field of special education, achievement results for students with disabilities have remained virtually unchanged (Vaughn & Wanzek 2014).

Due to continuing concerns about poor outcomes for these students, the U.S. Department of Education's Office of Special Education Programs recently announced a new approach to state monitoring—Results Driven Accountability—requiring states to submit Systemic Improvement Plans (beginning in 2015) that detail precise steps they will take to improve the results of students with disabilities.

This could open the door for educators to implement proven practices for providing deeper learning opportunities for these students. As with NCLB, however, the challenge will be for states to show that they have the will, resources, and especially the *capacity* to do so.

On that score, many advocates have pointed out that for all of the recent efforts to improve services for students with disabilities, perhaps the most important piece of the puzzle—educators' capacity to provide those services—has not been adequately addressed. Not only must schools comply with IDEA, they argue, and not only must states monitor student progress and create incentives for schools to provide better services, but serious investments must also be devoted to professional development and organizational change. Unless teachers actually know how to provide effective instruction to students with disabilities, and unless schools create the conditions under which such instruction can take place, it is unlikely that compliance, monitoring, or incentivizing will impact student outcomes.

Toward Better Outcomes: Problems and Priorities

What are some of the challenges that will have to be overcome in order to ensure that students with disabilities have real opportunities to learn deeply?

For one thing, some educators and policymakers might not accept the premise that deeper learning goals are feasible for all students. Indeed, they might point to the fact that NAEP scores have remained low, even after two decades of legislation and reform, as evidence that large numbers of students with disabilities are simply not capable of meeting core academic standards.

We would argue, however, that a lack of improvement on NAEP scores does not provide a compelling reason to doubt these students' innate potential. If anything, those scores should be taken as an indication that many, if not most, students with disabilities continue to be held to low expectations and denied access to high-quality instruction and interventions. As recent findings suggest, when they are taught using well-established, effective instructional practices, students with disabilities do tend to make significant gains in their academic performance, particularly with respect to problem solving and knowledge application in content areas (i.e., key aspects of deeper learning) (Fuchs et al. 2015; Swanson et al. 2015).

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Another challenge is that most schools are not, and never have been, organized to deliver the intensity of services that many of these students require. But here, too, lessons can be learned from schools that do achieve good results for students with disabilities. Perhaps most important, they tend to be relatively flexible in their daily schedules, allowing teachers to devote extra time to students when it seems important to do so. Further, such schools also tend to implement multi-tiered systems of support, meaning that they carefully monitor student performance in order to identify those who are struggling and might need more intensive intervention and instruction (NCII 2013a).

A third challenge is that few educators receive the kinds of preparation, professional learning, and support needed to promote effective instruction to students with disabilities, much less to help them learn deeply. For example, observational studies in elementary and secondary settings reveal that students with disabilities are frequently taught using methods that have no basis in research, are often excluded from participating in classroom learning activities (McIntosh et al. 1994), and are often given assignments that are so far beyond their reach that they become discouraged (Jones & Brownell 2014). By contrast, effective special educators provide instruction that is explicit, systematic, and often features considerable scaffolding and modeling from the teacher, designed to ensure that students gain a strong foundation in the given content and skills before they are expected to proceed on their own, without scaffolding.

A complicating factor is that while such explicit instruction is well-supported by empirical evidence, existing teacher evaluation systems may not value it, resulting in poor performance reviews for teachers who are actually quite skilled. Imagine, for example, that a teacher modifies a class writing assignment for a few students who struggle to process and organize written text—say, by requiring them to use a specific paragraph structure. This could be a wise and effective instructional strategy. However, a classroom observer might conclude that the teacher has singled out those students unfairly and denied them the chance to express themselves freely.

Teacher evaluation practices are very much in flux, at present, but whatever direction they take, it should be a priority for school leaders to ensure that those charged with observing and rating teachers are able to recognize when instruction has been tailored, appropriately, to meet the needs that many students with disabilities have for relatively explicit guidance.

Another challenge is that current accountability requirements can easily run counter to best practices in special education. One of NCLB's goals was to increase the percentage of the students in each subgroup (including students with disabilities) who score at the proficient level or better on state assessments. Yet many students with disabilities attend schools where this subgroup is too small to count toward Adequate Yearly Progress. Among the rest, many tend to score far below proficient on standardized tests, such that school leaders see it as futile to try to raise their scores to that threshold (Harr-Robins et al. 2012).

Finally, an additional problem with existing state tests is that they are designed to show only whether students are functioning at or close to grade level, which means that they include few items meant to assess lower-level knowledge and skills. For many students with disabilities, then, the tests show only what they *cannot* do. As to precisely what they do know, or exactly which content gives them trouble, state assessments provide very little information, leaving educators unsure how to adjust their instruction (Conley 2014).

Effective special educators provide instruction that is explicit, systematic, and often features considerable scaffolding and modeling from the teacher.

» Quite a lot has been learned in recent years about effective teaching for students with disabilities, and, perhaps just as important, the evidence strongly suggests that when teachers implement these practices, all students benefit, typical learners included.

We believe that many of the challenges described in this section—lingering prejudices against students with disabilities, insufficient organizational flexibility, lack of attention to special needs when preparing and evaluating teachers, and poorly designed student assessment systems—can be resolved with research-based instruction.

Quite a lot has been learned in recent years about effective teaching for students with disabilities, and, perhaps just as important, the evidence strongly suggests that when teachers implement these practices, all students benefit, typical learners included.

EFFECTIVE INSTRUCTION FOR STUDENTS WITH DISABILITIES

To teachers, parents, or anybody else who interacts regularly with individuals identified as "students with disabilities," it is hard to ignore just how varied these students are in their skills, talents, interests, likes, dislikes, and on and on. The diversity that characterizes this population is truly extraordinary. How, then, can teachers provide instruction that meets everyone's learning needs?

A suggestion often given to both general and special educators is to *differentiate instruction for each learner*. However, while that is an appealing slogan, trying to implement it in practice—actually providing differentiated support to dozens of students at a time—would be enough to physically and psychologically exhaust even the most capable and motivated of teachers. Further, some students enrolled in general education classes exhibit learning challenges that are serious and persistent enough that they require additional time and attention, which they cannot receive if their teachers are stretched too thin already.

We argue, instead, for an approach that may be both more realistic and more effective: The professional repertoire of every classroom teacher can and should include a number of specific instructional approaches—designed for students with disabilities but often effective for students of all kinds—that will allow them to respond to most learning needs, while leaving them time to provide more intensive support as appropriate. (We outline these approaches below, and they are described at length in guides and resources offered by the National Center on Intensive Intervention; see Vaughn et al. 2009, and www.intensiveintervention.org)

Teaching Core Concepts in the Content Areas

Deeper learning was described by the National Research Council panel as "the process through which an individual becomes capable of taking what was learned in one situation and applying it to new situations (i.e., transfer)" (NRC 2012, p. 4).

In part, this suggests just how critical foundation skills in reading, writing, and mathematics are, since they transfer to every other part of the curriculum, allowing students to gain access to the more advanced content to be found in various academic domains. Thus for many students with disabilities, who may struggle with basic reading comprehension and arithmetic even into the secondary grades, the call for deeper learning implies a redoubling of efforts to teach those skills.

By no means, however, does this mean that students with disabilities should be limited to the study of foundation skills alone (Gersten et al. 2009). Like all other students, they should have every opportunity to engage cooperatively with others, to learn to persist at challenging

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tasks, to communicate effectively in many contexts, and to experience other aspects of deeper learning, including the study of advanced content and skills in the academic subject areas.

What must content-area teachers understand in order to ensure access to these kinds of deeper learning for all students? Most important, students with disabilities may need more time to learn and practice new skills, they may need to be given somewhat different tasks and assignments (e.g., the option to provide oral rather than written summaries, or to answer fewer problems on quizzes and tests), and they may need particular kinds of instruction.

For example, Vaughn and colleagues have developed a set of instructional practices that are specifically designed to help students with disabilities learn academic content in social studies and other secondary level subject areas (Vaughn et al. 2013; Vaughn et al. 2014). These include (a) guiding students in creating a **comprehension canopy** (identifying the field's big ideas and key concepts and, over time, explicitly connecting them to specific examples and cases), (b) **defining essential words**, meant to assist students in learning and using the academic vocabulary of the discipline, and (c) **team-based learning**, in which students work independently at first, to demonstrate comprehension, and then with team members to build, correct, and extend learning about content-area issues (Wanzek et al. 2014).

What does this look like in a classroom that enrolls a mix of "typical" students and students with disabilities? When introducing a unit, say on the Revolutionary War, the teacher will begin by posing a concrete but high-level question meant to frame classroom discussions (creating a comprehension canopy). For example:

> The colonists almost lost the war. General George Washington put it best when he said that American victory was "little short of a miracle." The British had the most powerful army in the world; it was made of professional soldiers who were disciplined and well trained. The Colonial Army was mostly made up of farmers and part-time soldiers. They were poorly paid, and few had formal training. How, then, did the colonists win the Revolutionary War?

Over the course of the unit, the teacher will return to this overarching question many times, asking students to refine and elaborate on it in increasingly sophisticated ways, both on their own and through group discussions and projects. Further, the teacher will make it a priority to identify and define key words that are critical to understanding the given content and which will likely appear in future readings and discussions.

Such practices may not seem so remarkable—content-area teachers often ask framing questions, highlight new words, and assign group work. However, research evidence strongly suggests that for many students with disabilities, it is critically important that the teacher provides such supports *deliberately, explicitly, and systematically*. According to randomized control group studies—so-called gold-standard research—when teachers make conscientious efforts to apply these practices, students with disabilities (and many without disabilities) see significant improvements in their content knowledge and academic vocabulary, outpacing the gains made by students in matched classes studying the same content (Swanson et al. 2015).

In short, subject-area instruction can be organized in ways that allow students to access meaningful content, grasp key concepts and vocabulary, and participate fully in high-level discussions and projects, even though they may struggle to

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read and comprehend the given material on their own. And while such scaffolding is especially helpful to students with disabilities, it tends to benefit all learners.

Further, it requires no extraordinary effort or extensive professional development for general education teachers to provide such support. Rather, as described below, the chief requirement is that they become aware of and are willing to make some accommodations for students who need more time, practice, and explicit guidance as they process new content and ideas.

Supporting Cognitive Processing

Recent research[1] into cognitive processing has done much to tease out precisely what is meant by the goal of "learning how to learn," which has been described as a key part of deeper learning. Specifically, studies have zeroed in on the roles that executive functioning and self-regulation—both of which can be successfully promoted by instruction—play in learning.

Many students with (and some without) disabilities struggle with one or more aspects of cognitive processing, including challenges with memory, attention, and the generation, selection, monitoring, and implementation of learning strategies. These executive functioning and self-regulatory mechanisms are, in effect, the "control processes" that manage goal direction for learning, and they overlap with other cognitive and behavioral processes, such as short-term memory, processing speed, and nonverbal reasoning.

For example, many students with short-term memory difficulties struggle with reading comprehension, particularly when asked by teachers to read and respond to texts immediately (Cain & Oakhill 2006; Cain et al. 2004; Pike et al. 2010). If it is hard to recall critical information from the sentences one has just read, as is often the case for such students, then it is doubly difficult to describe the main idea of the given paragraph, or multiple paragraphs (Swanson & O'Connor 2009; Swanson et al. 2009).

As recently as forty years ago, the prevailing view in the field was that such students had neurological damage that required treatment *before* they could begin to access and comprehend academic texts (Mann 1979). Thus, problems related to visual, auditory, and motor processing were assessed and treated in isolation, without being integrated with other learning goals.

However, this approach had limited value for students (Mann 1979), and newer evidence—drawing from far stronger theoretical frameworks and a robust empirical base (e.g., Pintrich 1995; Zimmerman 1989)—suggests that it is a mistake to provide isolated treatments for processing disorders (e.g., training children in auditory processing alone, divorced from any particular academic context; Lyon 1985; Mann 1979). Rather, current research on executive functions and self-regulation supports the use of systematic and explicit instructional routines that are integrated with the teaching of specific academic content and skills.

Consider, for example, language-processing difficulties that interfere with students' efforts to solve mathematical word problems. Rather than trying to teach those students how to process language more efficiently in general, it is far more effective to teach them concrete strategies *that help them solve specific math problems*—such as showing them that certain everyday words can be expressed in mathematical terms, or showing them how they can restate an algebraic problem in their own words, or showing them how they can break a problem down into a functional

[1] A growing research base associates executive functions with learning in reading (Booth, Boyle, & Kelly 2010; Cutting et al. 2009; Locascio et al. 2010; Souvignier & Mokhlesgerami 2006; Swanson & Howell 2001; Was & Woltz 2007), mathematics (Bull et al. 2008; Bull & Scerif 2001; Cirino 2011; Cirino et al. 2007; Cirino et al. 2002; Fuchs et al. 2010; Geary 2004; van der Sluis et al. 2007), and writing (Altemeier et al. 2008; Hooper et al. 2006; Hooper et al. 2002; Santangelo et al. 2007). Research also suggests that executive functions influence general academic outcomes (Barnett et al. 2008; Blair 2002; Blair & Razza 2007; Diamond et al. 2007).

sequence of steps (Fuchs et al. 2009)—and which they can then apply to new math problems.

Another practice that has been shown to be particularly effective for students with cognitive processing difficulties is to teach them to define specific learning goals and monitor their own progress over time, such as by keeping track of the number of word problems they are able to answer correctly or the number of math assignments they have completed.

Similarly, researchers have found that students can be taught to monitor their own comprehension while reading academic texts, becoming aware of any "breakdowns" in their understanding as soon as they occur. For example, teachers can instruct them to use "self talk" as they make their way through a history text or literary narrative (e.g., asking themselves, "What's happening here, in this chapter? How does this relate to what I know? What's confusing to me?") Often, it is helpful for teachers to model this strategy for students, giving them an out-loud demonstration of how they would talk themselves through the given text (see Figure 1). Likewise, teachers can assign students to underline important passages or to use tools such as mnemonic devices or graphic organizers, which have been found to be effective in helping students with disabilities to remember and understand what they are learning (Boyle 2010; Kim et al. 2004).

Overall, students who struggle with cognitive processing tend to trail behind their peers in measures of academic learning and motivation (Dembo & Eaton 2000; Krouse & Krouse 1981). When taught to use such self-regulatory practices, however, they often see significant improvements in school performance and self-efficacy (Zimmerman 1989; Zimmerman & Bandura 1994; Zimmerman et al. 1996; Zimmerman & Risemberg 1997).

Finally, researchers have found that students' capacity to self-regulate is also closely linked to their beliefs about

Figure 1. Thinking Out Loud: Modeling "Self-Talk"

For students who struggle to process and comprehend complex texts, it is often helpful to practice "self talk" while reading—pausing to ask themselves questions meant to check their own understanding and to remind themselves to use specific comprehension strategies.

A simple but highly effective instructional practice (one that all teachers should have in their repertoires) is to model this sort of self-talk out loud, showing students exactly how they can use it to improve their comprehension. For example, while looking over a text with a student, the teacher might say things like:

> With a difficult book like this, the first thing I do is to look for key words that the author uses. There are several here that confuse me—like "colonial" and "regiment"—so I am going to read the text around them to see if that gives me any clues as to what those words mean. And if that doesn't work, then I'll check the dictionary.
>
> Now that I know what these key words mean, I'm looking at the title, headings, and questions provided in the text to see if they tell me what this chapter is going to be about, and whether it relates to things I already know.
>
> After finishing this paragraph, I'm going to pause and make sure I understand everything. And if something seems confusing, then I'm going to go back and read it again, and then I'll try to restate it using my own words.
>
> And now that I've read this page, I'll stop and look over our questions for class discussion, to see if this part of the text can help me answer them.

In short, the teacher demonstrates a number of very specific things students can do to monitor and improve their comprehension while reading. Not every reader needs this kind of support—many students pick up these sorts of strategies on their own, without being coached. But for those who struggle to organize and process information, such explicit modeling can be extremely helpful.

» Students who struggle with cognitive processing often attribute their lack of academic success to stable, internal causes that they cannot change, while they attribute success to unpredictable factors, such as luck.

the causes of their academic failures and successes ("attribution" is the term most often used in the field of special education, though it has been described as "academic mindset" in discussions of deeper learning). Students who struggle with cognitive processing often attribute their lack of academic success to stable, internal causes that they cannot change, while they attribute success to unpredictable factors, such as luck. However, when provided with instruction designed to improve their self-regulation (e.g., when taught to use self-talk while reading academic texts, or to paraphrase complex ideas, or to use rereading as a way to "repair" their own misunderstandings), these students often come to recognize that their concrete actions can, in fact, have positive effects on their learning and performance (Berkeley et al. 2011; Borkowski et al. 1988; Carr & Borkowski 1989; Chan 1996; Miranda et al. 1997).

Intensifying Instruction

Regular classroom teachers, in addition to using instructional practices that support cognitive processing and helping students with disabilities access core academic content, should be prepared to provide more intensive support to students who need it.

This is not to suggest that all teachers should become experts in special education, or that they should devote a large portion of their time to helping just a small number of their students. But it is to argue that for some students, the strategies described above may not be enough, and they will require additional kinds of support.

EXPLICIT, SYSTEMATIC, AND RESPONSIVE INSTRUCTION

As described above, in the section on content-area instruction, a relatively low-cost way to intensify instruction is for educators to adopt a strongly teacher-centered approach at times, combining direct instruction with efforts to coach students in the use of research-based learning strategies. For many students with learning disabilities, significant gains have been associated with teaching that is explicit, systematic, and gives them ample opportunities to practice and receive targeted feedback on their skills (Swanson et al. 1999).

Explicit instruction refers to the overt teaching of the steps or processes necessary to accomplish a task or learn a given skill (Fuchs et al. 2003), and it often involves teacher modeling and demonstrations that illustrate precisely what students are expected to do. While this sort of highly directive approach may not be effective, or even appropriate, for all learners, research strongly suggests that for many students who struggle to plan, organize, and monitor their own learning, it often leads to improved mastery of both foundation skills and higher-level concepts (Baker et al. 2002; Biancarosa & Snow 2004; Gersten et al. 2009; Swanson 2000; Vaughn et al. 2000).

Systematic instruction refers to how effective teachers organize instruction into manageable pieces of learning and how they integrate these pieces into an overall learning goal. (For example, a teacher might break down a complex math problem into a number of smaller steps or processes and then bring them back together to solve the whole.) Further, it refers to teachers' efforts to introduce progressively more challenging tasks over time, to give students the scaffolding they need to complete those tasks successfully, and then to pull away that support gradually, as students become more accomplished and independent.

Also, in addition to providing explicit and systematic instruction, teachers can intensify the support they provide by giving students frequent opportunities to practice new skills and receive feedback on what they can do to improve. (For example, this could mean asking some students to

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get started on a class project early and to schedule a few brief check-ins in advance of the official due date to go over their work and suggest revisions.) According to an exhaustive review and synthesis of research in this area, teachers' feedback tends to have a significant influence on student outcomes, particularly when it is timely, relates clearly to students' goals, provides specific information as to how they can complete tasks more effectively, and allows teachers to monitor their progress closely (Hattie & Timperley 2007; Vaughn et al. 2000).

Finally, teachers should keep in mind that these students may already be discouraged—given that they were not helped by earlier, less-intensive kinds of support—and a fresh dose of discouragement could make it even harder for them to benefit from a new approach. Thus, teachers should consider modifying their classroom tasks and assignments in ways that will allow these students to experience some success. For example, they can make it a priority to give extremely clear instructions for each assignment, provide examples of the kind of work that will count as high quality, and provide graphics or other concrete illustrations of the concept to be learned.

TIME AND CLASS SIZE

The teaching practices described above do not necessarily require major new outlays of time or money. However, it would be misleading to suggest that there are no costs associated with providing more intensive supports to students with disabilities. Time, in particular, tends to be a precious commodity in schools, and choosing to spend more of it with particular students often means spending less on others.

Whatever local educators decide, they should keep in mind that scheduling decisions tend to be particularly important to students with disabilities. Increasing instructional time has been shown to be one of the most effective ways to help such students learn advanced content and skills (Torgesen 2000), giving them a chance to master cognitively complex tasks—such as reading high-level material and connecting ideas across texts—that they simply could not process over the course of a 45-minute lesson.

Intensifying instruction in this way could mean providing a given intervention every day, or even twice a day, say, morning and afternoon, rather than three times a week, for example (Wanzek & Vaughn 2008). Or, depending on students' capacities for attention, it could mean providing them instruction in longer stretches, or increasing the duration of the intervention (e.g., from fifteen weeks to thirty weeks). To be sure, that extra time does have to come from somewhere—never an easy decision—but for this student population, it does tend to be time well spent.

More expensive but equally important to consider is the option of reducing teacher-student ratios. Small group size can be a powerful factor in improving outcomes for students with disabilities (Elbaum et al. 1999), since it gives teachers far more leeway to provide the kinds of responsive instruction—including frequent opportunities for practice and feedback—that research shows to be effective for students who require intensive support.

» Increasing instructional time has been shown to be one of the most effective ways to help such students learn advanced content and skills

» Over forty years of research suggests that if students have several and persistent learning needs, and if they show little or no improvement despite teachers' efforts to intensify instruction, they can probably benefit from what is referred to as clinical or experimental teaching, or "data-based individualization."

Differentiating When Appropriate: Data-Based Individualization

As we noted above, it would be impractical for general education teachers to provide truly differentiated instruction to every student. However, at some times, and for some students with disabilities, such instruction is absolutely critical.

Over forty years of research suggests that if students have several and persistent learning needs, and if they show little or no improvement despite teachers' efforts to intensify instruction, they can probably benefit from what is referred to as clinical or experimental teaching, or "data-based individualization" (DBI), a term that highlights the role that systematic assessment plays in the process (NCII, 2013b; Deno & Mirkin, 1977; Fuchs et al., 1984).

DBI is typically implemented within a multi-tiered system of support (such as Response to Intervention), which is to say that schools tend to offer it only after they have tried to help the given student in other ways. If regular core instruction (known as Tier 1) was not successful, and if the student did not benefit from a secondary (Tier 2) intervention—assuming it was a proven approach, implemented with fidelity—then the DBI process kicks in.

First, the teacher tries increasing the intensity of the instruction (e.g., spending more time with the student). Next, the teacher monitors the student's progress to determine whether intensifying the instruction had an impact. Third, the school uses diagnostic assessments to identify the student's specific skill deficits and develop a hypothesis about effective ways to modify instruction. Fourth, the teacher implements an adapted program (which may include some of the teaching strategies described in the preceding sections). And finally, the teacher continues to monitor and collect data on the student's progress, to see whether the approach is working or should be modified further.

This careful integration of assessment and intervention can meet the needs of individual students that have not been helped by the kinds of supports described earlier. But how expensive is it to provide such services? Typically, schools train and rely upon their regular classroom teachers to provide effective Tier 2 interventions, monitor student progress, and, when students continue to struggle, perform diagnostic assessments to pinpoint their needs. In turn, when the DBI process reveals a need for more intensive interventions, students usually are referred to special education teachers, reading specialists, and other specialized staff and/or instructional aids. In short, DBI can be quite labor intensive, and most schools would be hard-pressed to offer it to more than a very small percentage of their students at a time. As is true of other means of intensifying instruction, however, research suggests that when implemented well, it is associated with improved outcomes for students.

Figure 2. Assistive Technologies for Students with Disabilities

The scope of this paper does not include discussion of new technology-based approaches to special education. It is important to acknowledge, though, that such technologies—from cochlear implants to text-to-speech software to large-print word processors—have been enormously beneficial already, and there is great optimism in the field about the development of new resources for students with disabilities.

For background on the research in this area, emerging tools, and principles of effective technology-based instruction, a great place to begin is: www.cast.org.

And for a related discussion of how practices developed for students with disabilities in fact benefit all learners and can be enhanced by technology, please see Students at the Center's 2012 report: Curricular Opportunities in the Digital Age.

CONSIDERATIONS FOR INTEGRATING DEEPER LEARNING

The practices described above have been shown to promote effective instruction for students with significant learning problems and disabilities in general education classrooms. When practiced thoughtfully and consistently, they can help these students to gain access to deeper learning. They can also be expensive—such as when schools choose to reduce class sizes or offer additional, specialized services—but in many cases they are not, requiring only that classroom teachers learn how and when to implement a number of specific, proven instructional practices.

With these considerations in mind, we offer a number of overarching recommendations for local educators and policymakers at the local and state levels:

- Make it known to educational leaders, teachers, parents, and other community members that empirical research strongly suggests that students with disabilities and other struggling learners can—when given appropriate instructional strategies and tiered levels of instructional and behavioral support—succeed in learning deeply and meeting rigorous achievement standards.
- Make sure that *all* students—including those with disabilities—have access to high-quality instruction in the core content areas.
- Make sure that general education teachers' professional standards, licensure requirements, and job descriptions assign them clear responsibility to provide effective instruction to students with disabilities.
- Ensure that teachers' pre- and in-service programs equip them to provide the kinds of intensive, evidence-based interventions that can help students with disabilities to access deeper learning.
- Ensure that state policies require schools to provide tiered levels of instructional and behavioral supports.
- Ensure that state policies create incentives for all teachers to share responsibility for providing effective instruction and supports to students with disabilities.
- Ensure that state and local educator evaluation systems reward—or at least do not penalize—teachers who use appropriate, evidence-based instructional strategies when working with students who have disabilities.
- Ensure that states implement college and career readiness assessments that address the full range of deeper learning competencies and include accommodations that enable students with disabilities to show what they know and can do.

We are confident that if states and districts integrate these recommendations with the practices described above, all students will benefit as a result. Deeper learning can and should be the goal for *every* young person.

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