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The Taxonomy of Intervention Intensity

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Special education, which is the most intensive level of intervention within a school building, is implemented for students with disabilities by special educators or related personnel. At the same time, many schools incorporate responsiveness-to-intervention (RTI) systems (i.e., multi-tiered systems of support) that provide Tier 2 interventions to students who are at risk for disabilities. Over time, consensus has emerged about the optimal structure and form of Tier 2 intervention: a program that is supplemental, evidence based, well articulated (with a clear implementation manual that includes all materials), and delivered in small groups by a trained interventionist (D. Fuchs, Fuchs, & Compton, 2012; L. S. Fuchs & Vaughn, 2012; O'Connor & Fuchs, 2013).

The purpose of such a Tier 2 program is to provide time-limited support of moderate intensity to create a stronger foundation of academic skill among at-risk learners. The goal is to enable these students to achieve a level of academic performance that permits them to profit from and succeed in the general education classroom. Over the past 2 decades, the field has developed and validated many such Tier 2 programs that strengthen end-of-intervention outcomes for the majority of at-risk students, when schools implement the program's content and structure in the standard way (as described in the program's validation studies and in the manual).

Yet, over these 20 years, evidence has also converged that not all students respond to such standard, evidence-based Tier 2 intervention programs, even when those interventions are delivered with fidelity. Research suggests that 5% to 10% of the general population of students require the intensive intervention afforded by special education (O'Connor & Fuchs, 2013). So, it is unfortunate that schools often have difficulty identifying how to further intensify intervention (beyond available Tier 2 validated programs) for students who respond inadequately to such programs. This lack of clarity limits the capacity of schools to analyze intervention options, and it dilutes the effectiveness of intensive intervention.

In this article, we describe the Taxonomy of Intervention Intensity, which articulates seven principles for evaluating and building intervention intensity based upon research. The Taxonomy's seven dimensions of intensity are strength, dosage, alignment, attention to transfer, comprehensiveness, behavioral support, and individualization (see Table 1). In explaining the Taxonomy, we present a case study illustrating how the Taxonomy can be used to systematize the process by which special educators and related personnel (a) set up the intensive intervention process and (b) monitor the student's response and systematically improve the program to match the target student's individual needs. The goal is to increase the quality of intensive intervention, improve student outcomes, and help schools design intensive intervention programs that are clearly distinguishable from less intensive (Tier 2) intervention programs.

Applying the Taxonomy

Daniel is a fifth-grade student who received his school's Tier 2 math intervention during fourth grade. The Tier 2 intervention program was evidence based, well articulated, and delivered in small groups by a trained interventionist. Its focus was fluency with basic facts, multidigit addition and subtraction, and whole-number word problem solving. Daniel achieved performance commensurate with his classmates on word problems, and his fluency with basic facts improved nicely. Yet, as Tier 2 intervention ended, Daniel still relied on counting strategies to solve the more difficult basic facts (e.g., 7 + 8), and regrouping within multidigit addition and subtraction problems (e.g., 114 + 329) still proved challenging.

Moreover, during fourth grade, Daniel fell further behind peers in other ways, as the focus on multiplication and division of whole numbers and the focus on fractions increased. Although Daniel could skip count by 2s, 3s, and 5s for multiplication, he spent considerable time calculating more difficult facts in the context of procedurally complex multiplication and division. He typically relied on repeated addition as his primary strategy but was often inaccurate with repeated addition on 7s, 8s, 9s, and 12s. He could label a fraction from a picture but struggled to compare fraction magnitudes without pictures, and he could not identify or calculate fraction equivalencies.

More generally, Daniel experienced working memory limitations and struggled to remember concepts and procedures that were previously mastered. He was also increasingly frustrated with his failing mathematics performance and was beginning to manifest behavior difficulties. At the start of fifth grade, the RTI team referred him for special education. The comprehensive evaluation diagnosed a mathematics learning disability, and the evaluation team determined that intensive intervention, provided via special education, was required to prevent Daniel from falling further behind. Ms. Marks was assigned to develop and implement Daniel's intensive intervention program.

Ms. Marks builds Daniel's intensive intervention program by applying the Taxonomy of Intensive Intervention in two stages. In the set-up stage, she applies the Taxonomy to select the intensive intervention platform and to identify the progress-monitoring system to be used for tracking Daniel's response to this platform. In the implementation stage, Ms. Marks reapplies the Taxonomy on a periodic basis, whenever the progress-monitoring data indicate Daniel's response to the program is inadequate. On these occasions, she uses the Taxonomy to identify fruitful directions for individualizing the platform to meet Daniel's needs more effectively.

The Set-Up Stage

In the set-up stage, Ms. Marks applies the first six dimensions of the Taxonomy to select the intensive

Table 1. The Taxonomy of Intervention Intensity

Intensity dimension	Definition
Strength	How well the program works for students with intensive intervention needs, expressed in terms of effect sizes
Dosage	The number of opportunities a student has to respond and receive corrective feedback
Alignment	How well the program (a) addresses the target student's full set of academic skill deficits, (b) does *not* address skills the target student has already mastered (extraneous skills for that student), and (c) incorporates a meaningful focus on grade-appropriate curricular standards
Attention to transfer	The extent to which an intervention is designed to help students (a) transfer the skills they learn to other formats and contexts and (b) realize connections between mastered and related skills
Comprehensiveness	The number of explicit instruction principles the intervention incorporates (e.g., providing explanations in simple, direct language; modeling efficient solution strategies instead of expecting students to discover strategies on their own; ensuring students have the necessary background knowledge and skills to succeed with those strategies; gradually fading support for students' correct execution of those strategies; providing practice so students use the strategies to generate many correct responses; and incorporating systematic cumulative review)
Behavioral support	The extent to which the program incorporates (a) self-regulation and executive function components and (b) behavioral principles to minimize nonproductive behavior
Individualization	A validated, data-based process for process for individualizing intervention, with which the special educator systematically adjusts an intensive intervention platform over time to address the student's complex learning needs

Note. The focus of this article is intensive *academic* intervention. Because students with intensive academic intervention needs often demonstrate co-occurring behavioral problems, this Taxonomy includes behavioral support as a dimension of intervention intensity. Also note that this Taxonomy has been adapted to also address students with emotional and behavior disorders and those with major co-occurring academic and emotional and behavior disabilities.

intervention platform. She initiates the seventh dimension by identifying the progress-monitoring system for tracking Daniel's response to this platform.

Dimension 1: Strength. The Taxonomy's first dimension for selecting the intensive intervention platform is the strength of the intervention. *Strength* indicates how well the program works specifically for students with intensive intervention needs. If the program is strong for this subpopulation of learners, then the program is more likely to produce good results for Daniel, with fewer program adjustments required to meet Daniel's needs.

Intervention effects are quantified in terms of effect sizes, which indicate how much higher intervention students score at the end of intervention compared to students who did not receive that intervention. Let us say the intervention developers report an effect size of 1.0 standard deviation on an achievement test with a mean of 100 and standard deviation of 15, specifically for students who start intervention with academic performance at or below the 20th percentile (as is often the case for intensive intervention students). This means that if the average posttest score for students who did *not* receive intervention is 85, then the mean posttest score for students who *did* receive the intervention is 100. An effect size of 1.0 standard deviations is large. Generally, effect sizes of 0.25 standard deviations indicate an intervention has value in improving outcomes. Effect sizes of 0.35 to 0.40 are moderate; effect sizes of 0.50 or larger are strong.

Intervention programs that demonstrate strong effects for the kind of students in need of intensive intervention are more appropriate for use as intensive intervention platforms. Special educators should seek out interventions that disaggregate effects for students with intensive intervention needs. This information is provided, when available, in the National Center on Intensive Intervention (NCII) Academic Intervention Tools Chart (http://www.intensiveintervention.org/chart/instructional-intervention-tools).

Ms. Marks reviews the NCII tools chart when considering program options for Daniel's intensive intervention platform. She notices that effect sizes for Fractions Face-Off! (L. S. Fuchs, Schumacher, Malone, & Fuchs, 2015), disaggregated for students who begin intervention below the 21st percentile in math, range from 0.85 to 2.64 (see Figure 1). On this basis, Ms. Marks thinks Fractions Face-Off! might be a good choice for Daniel, but she still has five additional dimensions of intensity to consider. She reads the information describing Fractions Face-Off! on the NCII website. She also contacts the developers of this intervention to obtain more information

Figure 1. NCII Tools Chart: Fractions Face-Off!

National Center on
INTENSIVE INTERVENTION
at American Institutes for Research

Disaggregated Data for <20th Percentile: Yes

Disaggregated Outcome Data Available for Students at 20th Percentile or Below

Targeted Measures

Construct	Measure	Effect Size
Math	Comparing Fractions	1.64***
Math	Fraction Number Line	1.07***
Math	Fraction Calculations	2.48***

Broader Measures

Construct	Measure	Effect Size
Math	National Assessment of Educational Progress	0.85***

and discovers that they have updated Fractions Face-Off! with Super Solvers (L. S. Fuchs, Malone, Wong, Abramson, Schumacher, & Fuchs, 2017).

Super Solvers is a 39-session Tier 2 intervention. Each standard lesson lasts 35 minutes and has four parts: Problem Quest, Fraction Action, Math Blast, and Power Practice. Problem Quest addresses operations and word-problem solving with proportions, magnitude comparisons, and division of fractions. Word-problem instruction relies on schema theory (L. S. Fuchs et al., 2004; L. S. Fuchs et al., 2010), with which students learn the structure of different word-problem types. Students are taught to think about the word-problem narrative to identify the problem type and then apply the solution strategy that matches the identified problem type.

Fraction Action includes explicit instruction on understanding fraction magnitudes. Students are taught strategies to compare, order, and place fractions on the number line; taught to differentiate between the number of parts (the numerator) and the size of the parts (the denominator); and taught to use benchmarks (½ and 1) for assessing fraction magnitude. Math Blast builds fluency on skills foundational for thinking about and operating with fractions. For example, students solve as many multiplication problems or fraction comparison problems as they can in 2 minutes, with the goal of beating the previous day's score. Power Practice is independent work to practice just-introduced and previously taught content.

Super Solvers includes a curriculum-based measurement (CBM) progress-monitoring system (see Figure 2). An alternate CBM form, tapping the Fraction Action portion of Super Solvers, is administered before intervention starts and every 2 weeks during intervention.

In conjunction with this progress-monitoring system, Super Solvers incorporates an executive function and self-regulation component to encourage students to set realistic goals for their performance on CBMs. The executive function and self-regulation component also encourages students to persevere through difficult problems and regulate their attention during Super Solver sessions. Super Solvers also includes a behavior management system to encourage persistence, accurate work, and attentive behavior.

With this information in hand, Ms. Marks begins completing the Taxonomy of Intensive Intervention Form (see Figure 3) to evaluate the intensity of Super Solvers for Daniel. She awards Super Solvers a score of 3 (each dimension is graded on a 0-to-3 scale; 3 is the high end of the scale) to reflect the strong effect sizes for students who begin intervention with performance at or below the 20th percentile.

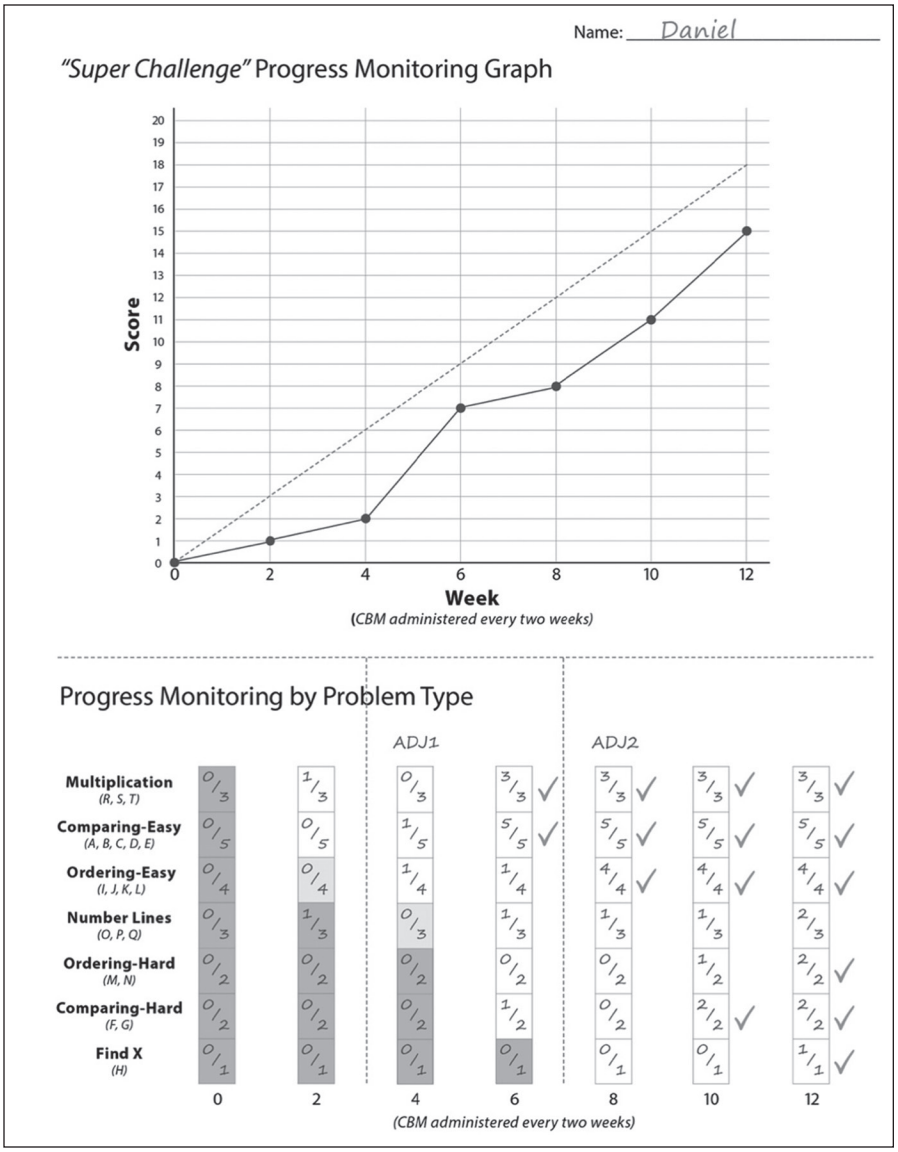
On the Taxonomy of Intensive Intervention Form, *t*he grading scale is 0 = fails to address dimension, 1 = addresses dimension minimally, 2 = addresses dimension moderately well, and 3 = addresses dimension well. *IIP* refers to intensive intervention platform. Plus marks show which dimensions of the Taxonomy Ms. Marks adjusted. *ADJ1* refers to Ms. Marks's first adjustment to the platform; *ADJ2* refers to her second adjustment. (Note that strength is based on studies conducted on groups of children. It does consider Daniel specifically. Therefore, this dimension is relevant only at the set-up stage.)

Dimension 2: Dosage. The *dosage* dimension of the Taxonomy refers to the size of the instructional group, the number of minutes each session lasts, and the number of sessions provided per week. Each of these structural features of the intervention reflects the number of opportunities students have to respond and receive corrective feedback. So, we define the dosage dimension in the Taxonomy as number of opportunities to respond and receive corrective feedback.

If the developers do not provide this information in the program manual, we suggest the special educator randomly select two lessons near the beginning of the program, two from the middle of the program, and two near the end of the program. For each lesson, the special educator counts how many times each *single* student has to respond and receive corrective feedback.

Ms. Marks finds that Super Solvers, which in standard format is conducted in groups of two students, provides each individual student with an average of 50 opportunities to respond and receive correct feedback in every lesson (for two students, a total of 100). To reflect this large number, she awards Super Solvers a score of 3 for Dosage. (There would be more opportunities to respond if Ms. Marks decides to deliver Super Solvers one-on-one.)

Figure 2. Daniel's curriculum-based measurement progress-monitoring graph



Dimension 3: Alignment. The third dimension of the Taxonomy is Alignment. This reflects the extent to which the intervention (a) addresses the target student's full set of academic skill deficits, (b) does *not* address skills the target student has already mastered (extraneous skills for that student), and (c) incorporates a meaningful focus on grade-appropriate curricular standards. This focus on alignment is important because many intervention programs restrict the set of skills addressed. For example, in early reading, many intervention programs limit their focus to word-level skill and reading fluency, even though many students also experience difficulty with listening and reading comprehension. In early mathematics, many programs are limited to number concepts and calculations, even though many students also experience difficulty with word problems. Maximizing alignment increases intensity. It also creates efficiency for the special educator by reducing the number of required adjustments to the intensive intervention platform.

We also emphasize the importance for intensive intervention to focus on the grade level's challenging standards. This may help the target student participate in and profit from the Tier 1 program. Alignment requires the special educator to explicitly connect intervention on foundational-skill deficits to align with the standards addressed in general education. For example, if a fourth-grade target student's mathematics performance is substantially below grade level, with poor understanding of and procedural skill with whole numbers, the special educator may select an intensive intervention platform with high match (content coverage) on whole numbers. Yet, recognizing that fractions are a substantial focus at the intermediate grade levels, the special educator must adjust the intensive intervention platform to incorporate meaningful fractions instruction. The special educator may need to limit the range of denominators to minimize whole-number demands while promoting understanding of fraction principles.

To grade Super Solvers on alignment, Ms. Marks considers information from Daniel's comprehensive evaluation. She identifies which of his skill deficits are addressed in Super Solvers. Eighty percent of Daniel's skill deficits are addressed in this program (all but whole-number addition and subtraction). Ms. Marks then considers this percentage along with the number of extraneous skills covered (0%) and the percentage of grade-level state standards addressed (50%). Together, these three percentages reflect Super Solvers' alignment for Daniel. Programs with a high degree of alignment are more likely to produce stronger effects for the target student. Ms. Marks judges Super Solvers' alignment for Daniel as moderate (grade = 2).

Dimension 4: Attention to transfer. The fourth dimension of the Taxonomy, attention to transfer, refers to the extent to which an intervention is systematically designed to help students transfer the skills they learn to other formats and contexts. It also refers to the extent to which the intervention helps students realize connections between mastered and related skills, which are required to produce meaningful generalization.

Transfer is a major obstacle for students with severe learning problems, and research shows the benefits of

Figure 3. Completed taxonomy of intensive intervention form for Daniel

Student Name: Daniel

Intensive Intervention Platform: Super Solvers

Taxonomy Dimension	IIP	ADJ1	ADJ2	Notes:
1. Strength	3			
2. Dosage	3+	NC	NC	IIP: Before intensive intervention, increased dosage with 1:1 (instead Super Solvers is 2:1).
3. Alignment	2	+	+	ADJ1 (W4): Added 3 min. of multiplication rhymes/mnemonics and 2 min. practice; ADJ2 (W8): Added addition/subtraction with regrouping practice.
4. Attention to Transfer	3	NC	NC	
5. Complexity	3	NC	NC	
6. Behavioral Support	3	+	+	ADJ1 (W4): increased opportunities to earn bonus points, with mix of easier problems; ADJ2 (W8): Behavior contract changed to require use of taught strategies for comparing/ordering fractions and checking work.
7. Individualization*		Oct. 1 (W4)	Nov. 1 (W8)	ADJ1 (W4): struggling with hard multiplication facts; add new strategies & additional practice; ADJ2 (W8): cannot remember how to calculate equivalent fractions and struggles with identifying fractions equivalent to 1/2

LEGEND

Rating schedule:

- IIP — Teacher analyzes potentially suitable interventions *before* implementation
- ADJ1 — Instructional Adjustment 1: Teacher re-analyzes intervention because a student is making inadequate and requires individualization
- ADJ2 — Instructional Adjustment 2: Teacher re-analyzes intervention because a student is making inadequate and requires individualization

Coding scale for dimensions 1-6:

- 0 — Fails to address standards
- 1 — Addresses standard minimally
- 2 — Addresses standard moderately
- 3 — Addresses standard well

explicit transfer instruction. For example, in a large randomized control trial, L. S. Fuchs and colleagues (2003) contrasted schema-based instruction (teaching students to recognize the underlying mathematical structure of whole-number word-problem types) with and without explicit transfer instruction. With explicit transfer instruction, teachers explained how superficial word-problem features (e.g., response format, vocabulary) can make problems look unfamiliar even though the problem type has already been mastered by the target student. Teachers also provided practice in sorting problems with confusing superficial problem features into the word-problem types students had learned, and teachers encouraged students to search novel problems for familiar word-problem types. Results indicated dramatic benefit for explicit transfer instruction.

Interventions that include explicit transfer instruction offer greater intensity than those that assume transfer will occur. Special educators should select intensive intervention platforms that incorporate explicit transfer instruction, when this is available. When programs do not include explicit transfer instruction, the special educator may incorporate explicit transfer instruction before starting to implement the intensive intervention platform. Alternatively, explicit transfer instruction may provide a promising direction for adjusting the intensive intervention platform as mastery of taught skills is achieved.

Ms. Marks judges Super Solvers to strongly focus on explicitly teaching for transfer. Super Solvers explicitly encourages students to apply the skills taught during intervention not only in their classrooms but also in everyday life. It explicitly teaches students how to identify opportunities in other settings to apply what they learn during intervention. The program also explicitly teaches students how problems may look unfamiliar (e.g., be presented in unfamiliar formats or include irrelevant information or with questions posed in novel ways) but how those unfamiliar-looking problems tap the skills students have learned during intervention. Ms. Marks awards Super Solvers a grade of 3 for its strong emphasis on explicitly teaching for transfer.

Dimension 5: Comprehensiveness. *Comprehensiveness* reflects the number of explicit instruction principles the intervention incorporates. Strong evidence indicates that explicit instruction promotes better learning among students receiving intensive intervention (for syntheses in mathematics and reading, see Gersten et al., 2009; Vaughn, Gersten, & Chard, 2000). Explicit instructional principles include: (a) providing explanations in simple, direct language; (b) modeling efficient strategies (e.g., for operating on text or solving mathematic problems) instead of expecting students to discover strategies on their own; (c) ensuring students have the necessary background knowledge and skills to succeed with those strategies; (d) gradually fading support for students' correct execution of those strategies; (e) providing practice so students use the strategies to generate many correct responses; and (f) incorporating systematic cumulative review.

Ms. Marks carefully reads the six lessons she randomly sampled (see Dimension 2: Dosage). As she reads, she identifies where Super Solvers incorporates each of these explicit instructional principles: She underlines every instance where explanations are simple and direct and crosses out every instance where explanations are complex or indirect. She underlines every instance where the taught solution strategies provide students with efficient routes to correct solutions; she crosses out every instance where the taught solution strategies are inefficient and so on. She finds that Super Solvers relies exclusively on principles of explicit instruction and awards the program a grade of 3 on comprehensiveness.

Dimension 6: Behavioral support. Many students with severe academic difficulty display attention, motivation, and self-regulation difficulties that affect learning (e.g., Montague, 2007; Schunk & Zimmerman, 2011). Interventions that incorporate self-regulation and executive function components are more intensive than programs that do not incorporate such

components. The goal is to encourage students with a history of academic failure to persevere through academic struggle and continue to work hard, aim high, and adopt a high standard of coherence, in which students are not satisfied with answers that do not make sense. Many students with histories of severe academic difficulty require systematic encouragement and support for developing and exercising this type of noncognitive academic mind-set. The *behavioral support* dimension of intervention intensity reflects the extent to which interventions incorporate this focus and rely on behavioral principles to systematically build and support a strong noncognitive academic mind-set.

At the same time, some intervention students demonstrate noncompliant behavior that interferes with delivery of and productive engagement in intervention. This may include, for example, refusing to respond, disrupting intervention sessions, and distracting other students in the group. Therefore, the Taxonomy's behavioral support dimension also reflects the extent to which interventions incorporate behavioral principles to minimize such nonproductive behavior. When selecting the intervention platform, the quality of the intervention's behavioral support system needs to be considered.

Ms. Marks judges that Super Solvers' behavior support as moderate (grade = 2). It incorporates executive function and behavior management components, but she is concerned that these supports are not sufficiently strong to address Daniel's challenges.

Integrating information on the first six dimensions. In terms of these first six dimensions, most standard intervention programs score higher on some dimensions than on others. Ideally, the special educator will have at least two programs to compare, along with deep knowledge of the student who is targeted for intensive intervention. Understanding the program's strengths and weaknesses according to the Taxonomy's dimensions, along with the target student's skills and strategies, helps the special educator judge an intervention for its utility as an intensive intervention platform for this target student. A good match minimizes the number of program adjustments over time.

Individualization is a signature feature of special education. A validated process for individualizing intervention is *data-based individualization*.

On the basis of her analysis of the Taxonomy's first six dimensions, Ms. Marks selects Super Solvers as Daniel's intensive intervention platform. The grades she assigned the Super Solvers intensive intervention platform, according to the Taxonomy's first six dimensions, are shown on the Taxonomy of Intensive Intervention Form (Figure 3's first column).

We also note that special educators can often identify, before intervention begins, the dimensions on which the intensive intervention platform will fall short. In this situation, the special educator may incorporate adjustments to the program prior to implementation. For example, although Super Solvers' dosage is strong, Ms. Marks decides that Daniel's performance discrepancy requires an even stronger dosage. So she modifies Super Solvers from the standard 2:1 delivery to a one-on-one format. She notes this on the Taxonomy form with a plus mark on the Dosage row of the form (first column under *IIP*). This indicates she adjusted the platform prior to implementation.

At the same time, given (a) Daniel's history of difficulty with mathematics and his complex learning needs, (b) her knowledge that even high-quality validated intervention programs do not produce adequate outcomes for all intensive intervention students, and (c) the pressing need to boost Daniel's mathematics learning trajectory, Ms. Marks recognizes the importance of the Taxonomy's seventh dimension, individualization. This calls for identifying, in the set-up stage, the progress-monitoring system she will use to track Daniel's response to the platform. Later, in the implementation stage, individualization calls for a series of adjustments to the intensive intervention platform to make the platform effective for addressing Daniel's unique learning challenges.

Dimension 7: Individualization. The Taxonomy's seventh dimension, *individualization*, is a signature feature of special education (e.g., L. S. Fuchs et al., 2012; McLaughlin, Shepard, & O'Day, 1995). A validated process for individualizing intervention is *data-based individualization* (DBI; D. Fuchs, Fuchs, & Vaughn, 2014; Stecker, Fuchs, & Fuchs, 2005). To implement DBI, teachers collect progress-monitoring data frequently and apply validated DBI decision rules on a regular basis to determine if the intensive intervention is producing adequate response for the target student. Whenever the data indicate the student is not on track to meet his year-end goal, the teacher adjusts the program in ways that extend or alter the intensive intervention platform.

This teach-test-revise-test DBI process continues over the course of intensive intervention. Randomized control trials demonstrate that this DBI process improves the reading, mathematics, and spelling outcomes of intensive-intervention students (Stecker et al., 2005). The NCII website (http://www.intensiveintervention.org/) provides resources for selecting progress-monitoring tools and for implementing DBI. (NCII resources are made available with support from the Office of Special Education Programs,

within the U.S. Department of Education.)

In the set-up stage, Ms. Marks identifies the progress-monitoring system she will use to track Daniel's response to the Super Solvers intervention platform. Ms. Marks decides to use the progress-monitoring system that is embedded in Super Solvers. This progress-monitoring system provides CBM tests to be administered every 2 weeks. Each test, called the Super Challenge, is of equivalent difficulty, samples the program's curriculum in the same way, and includes 20 problems representing the fraction content addressed in Super Solvers. This Super Challenge CBM system has demonstrated reliability and validity. The Super Solvers manual provides directions for administering and scoring the tests and for engaging the student in the Super Challenge progress-monitoring system via the Super Solvers' executive function component. Students master the Super Challenge when they achieve a score of 20 (see Figure 2, in which the end point of the diagonal line signifies Daniel's goal).

Using the Taxonomy, Ms. Marks grades her selection of the progress-monitoring system on the Taxonomy of Intensive Intervention Form (Figure 3's first column, seventh row) in terms of evidence of the system's technical adequacy and its provision of validated decision rules for determining when adjustments to the intensive intervention platform are required to increase the probability of goal attainment.

Ms. Marks draws a dotted line connecting Daniel's first score (0) with this goal of 20 to show the rate of improvement Daniel needs to achieve if he is to meet the goal by the end of the program. Every few weeks, Ms. Marks reviews Daniel's progress. When Daniel's scores are consistently below the goal line or his rate of improvement is less steep than the goal line, Ms. Marks uses the Taxonomy to identify fruitful directions for further individualizing the intervention platform.

We note that Ms. Marks is fortunate that Super Solvers incorporates a progress-monitoring system to track Daniel's progress. Few Tier 2 interventions embed a progress-monitoring system. Therefore, special educators typically must identify the progress-monitoring system that best reflects the goals and outcomes of the target student's intensive intervention program. Resources to help schools identify technically strong progress-monitoring tools for individualizing intensive intervention are available on the NCII website. (NCII's Progress Monitoring Tools Chart rating system addresses these criteria.)

The Implementation Stage

This brings us to the implementation stage, in which the special educator reapplies the first six dimensions of the Taxonomy whenever the progress-monitoring data indicate that the student's response to the program is not adequate. Each time the special educator makes an adjustment to the intervention platform, she adds a column to the Taxonomy of Intensive Intervention Form (Figure 3). The column is labeled "Adjustment __; Week __" to indicate what number adjustment the column addresses and the week that adjustment was introduced. In the first six rows for that column, the teacher notes which dimensions of the platform were modified. In the seventh row for that column, the teacher grades the fidelity with which the DBI system was implemented. This includes (a) the accuracy with which data were collected and scored, (b) the faithfulness and timeliness with which decision rules were applied to the progress-monitoring data, and (c) the integrity with which the platform and all previous adjustments to the intensive intervention platform were implemented.

Ms. Marks administers the first CBM just before she begins conducting the Super Solvers sessions with Daniel, while ensuring accurate administration and scoring of the CBMs, responsive decision making to the progress-monitoring system, and initial fidelity to the Super Solvers platform. As intervention proceeds, she collects CBM data every 2 weeks and graphs the scores (see Figure 2).

After Week 3, Mrs. Marks applies decision rules to the graphed data. This indicates that Daniel's progress to date is inadequate. As shown in Figure 2, in the first weeks of Super Solvers, Daniel's CBM performance increased by only 1 point, without mastery of any problem type. (For problem mastery, see the skills profile below the graph. Each bar shows performance on one weekly CBM for each of the six problem types included on every CBM. On the bar, each box shows a fraction. The number of problems included on each CBM for that problem type is the denominator; the number Daniel answered correctly on that CBM is the numerator. When skills are mastered, the special educator marks the problem type with a checkmark.)

After careful analysis of Daniel's CBM graph and skills profile, his performance during tutoring, and her initial analysis of the Super Solvers intervention platform ("IIP" column on Figure 3), Mrs. Marks decides that the Taxonomy dimensions appropriate for adjustment and individualization are alignment and behavioral support. Vertical dotted lines show when Ms. Marks introduced adjustments to the Super Solvers platform. In the ADJ1 (Adjustment 1) column, on the Alignment and Behavioral Support rows, she places a plus mark to indicate further intensification. In the Individualization row, she briefly summarizes her analysis of Daniel's struggle and needs.

In terms of alignment, Mrs. Marks's judges that Daniel's use of multiplication in the context of fraction problems, including fraction word problems, is laborious, detracting him from accurate higher-order thinking. She therefore adds 5 minutes of multiplication strategy instruction to each session. This includes 3 minutes of skip-counting practice and 2 minutes of multiplication fluency practice. In terms of behavioral support, Mrs. Marks judges that Daniel, although mostly cooperative and attentive, is

frustrated by frequently failing to earn Super Solver bonus points, due to inaccurate work. Ms. Marks therefore increases the number of opportunities Daniel has to earn bonus points and includes some easier problems within these opportunities.

As shown in his graph, Daniel's overall CBM score increased as a function of this adjustment to the intervention platform, and his skill with multiplication facts improved (see skills profile; Figure 2). After Week 7, however, Daniel's progress is still inadequate to assume goal attainment. Ms. Marks notes that he is struggling with hard comparing-and-ordering-fraction problems (see skills profile). After inspecting work samples, she decides that his weaknesses in deriving fraction equivalencies are due to his challenges in keeping track of his work.

She therefore introduces a second adjustment to the platform (see ADJ2), again on the alignment and behavioral support dimensions, to better address Daniel's needs. With this second adjustment to alignment, she adds to each session 5 minutes of fraction tile work to address concepts and strategies for deriving fraction equivalencies. With the second adjustment to behavioral support, she alters the behavior management program to require Daniel to attack hard comparing-and-ordering problems using the taught strategies and to check work with fraction tiles. With this second round of revisions to the platform, Daniel's progress accelerates nicely over Weeks 8 to 12.

In Sum

This case study illustrates how special educators and related personnel incorporate the Taxonomy of Intervention Intensity to systematize the process for (a) selecting a promising intensive intervention platform and (b) identifying fruitful directions for adjusting that platform to meet the target student's individual needs. The goal is to increase the quality of intensive intervention, and thereby improve student outcomes and help schools distinguish among levels of intensity in the intervention services they provide.

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