

# Direct Instruction

## NEWS

ADI Effective School Practices

DON CRAWFORD and RANDI SAULTER, Editors

## Autumn: A Time for Change

Welcome to the fall 2010 edition of the DI News. Some of you may not have noticed, but we're a little behind our usual schedule for this issue. Both of your editors have changed where we work from the East Coast back to the West Coast. With new schools to work with we have been swamped, leaving little time for our editing work. In addition we have a new managing editor (Welcome Lynda Rucker!) who has had to learn the ropes on this edition. We apologize for the late arrival, but better late than never!

Despite its late arrival, this issue is packed with useful and interesting articles. Tim Slocum has provided the piece for the "Board Member Corner." Rather than a career retrospective, Tim shares what he is all about at Utah State and the projects he currently has underway. Tim tells us about the Utah State doctoral program for evidence based practices such as DI. He also provides a great summary of the reasons why there is so much interest in the use of DI with autism spectrum disorders (ASD). If you've ever wondered what that was all about—Tim does a great job of explaining the rationale.

Another board member, Cathy Watkins gave an address to the Association for Behavior Analysis Conference on Autism. From her address Cathy has written a pithy summary of "What is Direct Instruction?" We have reprinted it here for your benefit—you may find her analysis of the key features of Direct Instruction to be illu-

minating as well as useful in explaining why it is so unique.

Martin's Musings in this issue breaks some new ground in DI by conceiving of remediation in terms of four levels of increasing intensity. Dr. Kozloff distinguishes and gives examples for each of the following four levels of remediation: 1) simple error corrections; 2) part-firming corrections; 3) re-teaching procedures; and 4) remedial or intensive instruction. If you have never thought of DI corrections and remedies as being part of a sequence similar to the levels RTI, you should read through this article. It will help you think in a new way.

Zig has allowed us to print a piece from the Zig Site: "Thank You Josh Baker." This story of the founder of DI working in a steel mill during his teens is full of foreshadowing of the elements of instructional design. The lessons that Josh Baker taught Zig as a young man deeply affected how he would later approach the task of designing effective instruction. Read about how Josh taught a young Zig how doing a job exactly the right way can make all the difference. *[Editor note: As we write this, Zig is in the hospital. We all are sending him best wishes for a speedy recovery.]*

Randy Sprick has sent us another gem from Safe and Civil Schools, where they are constantly working to help teachers be more effective managing their classrooms. Randy changes the old adage "Spare the Rod, Spoil the Child" to a more scientifically supported "Spare the Rod, Teach the

Child." Beyond supporting the idea of positive behavior supports and teaching as the best way to improve classroom discipline, Randy outlines the key things teachers must do to be effective. Many in our society think that the end of corporal punishment means the end of well-managed classrooms. We know better and Randy talks about how to spare the rod and still have a great classroom.

Kase Wickman has written about the DI Awards ceremony from the summer ADI conference in Eugene. Find out who won, why they won, what people had to say about the winners, and

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## *Contribute to DI News:*

*DI News* provides practitioners, ADI members, the DI community, and those new to DI with stories of successful implementations of DI, reports of ADI awards, tips regarding the effective delivery of DI, articles focused on particular types of instruction, reprints of articles on timely topics, and position papers that address current issues. *The News'* focus is to provide newsworthy events that help us reach the goals of teaching children more effectively and efficiently and communicating that a powerful technology for teaching exists but is not being utilized in most American schools. Readers are invited to contribute personal accounts of success as well as relevant topics deemed useful to the DI community. General areas of submission follow:

**From the field:** Submit letters describing your thrills and frustrations, problems and successes, and so on. A number of experts are available who may be able to offer helpful solutions and recommendations to persons seeking advice.

**News:** Report news of interest to ADI's members.

**Success stories:** Send your stories about successful instruction. These can be short, anecdotal pieces.

**Perspectives:** Submit critiques and perspective essays about a theme of current interest, such as: school restructuring, the ungraded classroom, cooperative learning, site-based management, learning styles, heterogeneous grouping, Regular Ed Initiative and the law, and so on.

**Book notes:** Review a book of interest to members.

**New products:** Descriptions of new products that are available are welcome. Send the description with a sample of the product or a research report validating its effectiveness. Space will be given only to products that have been field-tested and empirically validated.

**Tips for teachers:** Practical, short products that a teacher can copy and use immediately. This might be advice for solving a specific but pervasive problem, a data-keeping form, a single format that would successfully teach something meaningful and impress teachers with the effectiveness and cleverness of Direct Instruction.

**Submission Format:** Send an electronic copy with a hard copy of the manuscript. Indicate the name of the word-processing program you use. Save drawings and figures in separate files. Include an address and email address for each author.

**Illustrations and Figures:** Please send drawings or figures in a camera-ready form, even though you may also include them in electronic form.

Completed manuscripts should be sent to:

ADI Publications  
P.O. Box 10252  
Eugene, OR 97440

Acknowledgement of receipt of the manuscript will be sent by email. Articles are initially screened by the editors for placement in the correct ADI publication. If appropriate, the article will be sent out for review by peers in the field. These reviewers may recommend acceptance as is, revision without further review, revision with a subsequent review, or rejection. The author is usually notified about the status of the article within a 6- to 8-week period. If the article is published, the author will receive five complimentary copies of the issue in which his or her article appears.

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finally what the winners had to say about the honors. If you couldn't be there, this is the next best thing. If you were, you'll be interested in Kase's insightful recap of the event.

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Don says in this article. If you keep reading you can find out how to solve this problem—although it may involve more teaching than you expected.

Finally, you may want to see the news release and graphs showing the success of the all-DI Arthur Academics in Portland, Oregon. We encourage you to send us your own success stories for subsequent issues of the DI News. After all, academic success is what we are all about! As always we hope you find this issue educational, entertaining or both. **ADI**

## *Help us out!*

Contribute your story of success with DI! We want to hear from you!

You all have stories and it is time to share them. This is *your* journal—let it reflect your stories!

See the directions on page 2 on how to make a contribution. You'll be glad you did.

**BRYAN WICKMAN, Executive Director, Association for Direct Instruction**

## *ADI News*

No sooner do we finish off one National Direct Instruction conference than we begin planning the next! Mark July 24-28, 2011 on your calendar now and make your plans to be in Eugene, Oregon for the 37th National DI Conference. We are excited to announce that Cary Andrews along with Zig Engelmann will be the featured keynote speakers.

Cary is the Associate Superintendent of Curriculum Implementation of Language Arts at The Roger Bacon Acad-

emy-Charter Day School in Leland, North Carolina. This Direct Instruction school has been honored by the State Board of Education for achieving "School of Distinction" for the 2008-2009 School year and "Honors School of Excellence" status. It has also been recognized as a **Top 25** School out of more than 1,850 K-8 schools throughout the state for the academic growth of its students. For 2005-6, over **92%** of the students scored at or above grade level on the North Carolina End-of-Grade (EOG) reading tests. The school

serves a student body that is 41% economically disadvantaged.

Cary started his teaching career in Dallas as a kindergarten teacher. He is a longtime DI trainer and is known for his high energy and enthusiasm. His keynote is certain to inspire and entertain as well as inform.

We are planning some great new sessions for the upcoming year. Also, updated training on the various revised versions of the DI curriculum will be presented. Plan on being here for the most comprehensive DI training event available. **ADI**

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## *DI Educators, Students, Schools Earn Awards and Recognition at the National DI Conference*

The Association for Direct Instruction held their 36th annual DI Hall of Fame and Excellence in Education Awards July 25 in Eugene, Oregon.

Trainers, administrators and students were among those honored at this

year's banquet, where the Wayne Carnine Student Improvement Award, the Excellence in Education for Administration award, the Director's Award, and this year's induction into the DI Hall of Fame were made.

The Wayne Carnine Student Improvement Award is presented to DI students who have turned either a behavioral or academic corner and excelled. The students are nominated for the award in memory of Doug Carnine's father, Wayne. The award-winning students receive \$200 cash and a reaffirmation of their good work in the classroom.

This year, the board selected two students for the award. Josmar Jose Anto-

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This year, the board selected two students for the award. Josmar Jose Anto-

nio, a bilingual fifth grader at Brevard Elementary School in Brevard, North Carolina, was nominated by his corrective reading teacher, Sarah Kane, for his tremendous progress in reading comprehension and fluency. In the fall, he was reading at 112 WPM. By late February, his reading fluency was at 175 WPM with only three errors. One of six children, Josmar cares for his three younger siblings while his parents work at night, but still manages to complete his homework.

“Josmar is overcoming the challenges facing him, accepting responsibility for himself, and making amazing progress,” wrote Kane in her nomination letter.

Rikki Begay, a third grade, multi-disabled student at Sanostee Day School in Sanostee, New Mexico, was also selected to receive a Carnine Award.

In one of many nomination letters written on Rikki’s behalf, her principal, Anne Lopez, said this: “When I think of Rikki I think of an angel – she is a great example of kindness to her peers, perseverance, and displays a great zest for life and happiness.”

Rikki and her mother, as well as her special education teacher, Suzanne Eltsosie, came to Eugene to receive the award in person.

Geraldine Herrod, a DI trainer and the reading coordinator at Sanostee, spoke about Rikki, and the difficulty that many Native American children face.

“We walk in two different worlds,” Herrod said. “We walk in the western society, but we also walk in our culture. Rikki is special, because she walks in three worlds: she also walks in the disability world...Without the program *Reading Mastery*, Rikki was not able to explore the world outside those

three worlds. *Reading Mastery* opened up a whole new world for her.”

The recipient of the Director’s Award, for support of DI users and continued excellence in the field, is selected by ADI Executive Director Bryan Wickman. This year, trainer Karen Sorrentino was honored.

“She started as a special ed teacher when there was no such thing,” Wickman said, introducing Sorrentino amid a standing ovation. She used her time at the podium, however, to thank her fellow DI instructors.

“For those of you who have worked in Direct Instruction for a number of years, you have to understand that it’s not just commitment to the job, it’s because of the kids and the commitment to kids,” she said. “I thank all of you for using the programs, for reaching out and trying to help the kids.”

The schools and organizations listed below are institutional members of the Association for Direct Instruction. We appreciate their continued support of quality education for students.

American Preparatory Academy  
*Draper, UT*

Bancroft-Rosalie School  
*Bancroft, NE*

Beacon Services  
*Milford, MA*

Cash Valley Elementary School  
*Lavale, MD*

Central Linn SD  
*Brownsville, OR*

City Springs School  
*Baltimore, MD*

Coyne and Associates Education Corp.  
*Encinitas, CA*

Crazy Horse School  
*Quinn, SD*

Criterion Child Enrichment  
*Milford, MA*

Evergreen Center  
*Milford, MA*

Exceptional Learning Centre  
*Ajax, ON*

Exceptional Learning Centre  
*Ajax,*

Foundations for the Future Charter Academy  
*Calgary, AB*

Gering Public Schools  
*Gering, NE*

Haugland Learning Center  
*Columbus, OH*

Hinckley - Finlayson Sch Dist  
*Hinckley, MN*

Institute for Effective Education  
*San Diego, CA*

Keystone AEA Instr. Services  
*Elkader, IA*

Knik Elementary School  
*Wasilla, AK*

Law Offices of Maureen Graves  
*Irvine, CA*

Mescalero Apache School  
*Mescalero, NM*

Morningside Academy  
*Seattle, WA*

Mountain View Academy  
*Greeley, CO*

Mt Pleasant Cottage School UFSD  
*Pleasantville, NY*

Mystic Valley Regional Charter  
*Everett, MA*

NIFDI  
*Eugene, OR*

San Carlos USD #20  
*San Carlos, AZ*

SRA  
*DeWitt, MI*

The American School in Switzerland  
*Montagnola, Switzerland*

Tiospa Zina Tribal School  
*Agency Village, SD*

Anne Desjardins, a longtime DI trainer and the administrator of Cache Valley Learning Center in Logan, Utah, was presented the Excellence in Education Award for Administration.

Bob Dixon, a member of the ADI board of directors, read from a letter nominating Desjardins, sent by a public school curriculum coordinator who has worked with Desjardins, and whose grandson Desjardins has taught.

“Anne’s educational talents are immense and have enriched the lives of hundreds of fortunate children in this community who had the opportunity to be taught by her and/or attend the private school she co-founded,” Dixon read. “Anne Desjardins represents the best education has to offer. I feel privileged from being able to learn from her at her school, in Oregon, and from afar through my grandson.”

“It’s humbling to be in this company. I have been a teacher for 36 years, and I still love it, and I’ve been a DI teacher for 31 of those years,” said Desjardins. “No matter what kind of student we have, Direct Instruction is just the soul of our school. You’ll hear that it’s not great for kids who are gifted, and we have those kids at our school, and they just shine.

“In my professional life, it does not get better than this, so thank you, thank you, thank you.”

To conclude the evening, Molly Blakely presented the DI Hall of Fame plaque to Paul McKinney, who has been the vice president of Educational Resources, Inc. for the last 12 years. Blakely described her first time meeting McKinney, when she attended one of his training sessions 26 years ago in Rehoboth, New York.

“I was envisioning an old gray-haired professor-type looking guy,” she said. When she finally met him, however: “He’s so handsome!”

Besides being handsome, Molly cited McKinney’s abilities in training, consulting, decreasing anxiety in teachers and, on top of that, making them leave “with a pocket full of enthusiasm,” as well as the ability to teach the program.

McKinney joked throughout his acceptance speech—“I’d appreciate it if you could put your drink down and give me some attention,” he chastised a group in the audience—and thanked many of the people he has encountered in his 42 years of teaching.

“We are an accumulation of the experiences we’ve had and the people who come in and out of our lives,” he said. “Some come in for a short time, and they teach us lessons. Some teach us hard lessons, but if we’re smart and we think about it, all of those lessons are important as to who we are now. Some come in and stay a long, long, long time. I have been blessed in my personal and professional life in that I’ve had a lot of wonderful people come in.”

In *Reading Mastery III* (Signatures 2) there is a series of stories about a beagle named Jokey. People like Paul McKinney who were around when those stories were being written know that the stories were based on the Engelmans’ real-life family dog of the same name. In his acceptance speech, Paul recalled Zig Engelmann taking him and a colleague on a hike at his tree farm. After half an hour, a little torn up from trekking through thorns and poison ivy and bushes, they came to a clearing with a pine tree in the middle.

“You see that pine tree?” Engelmann said. “Jokey the dog is buried there. Nothing ever dies.”

(Of course, McKinney says, as Engelmann walked off, McKinney and his colleague were hugging and crying: “Jokey! Jokey! Jokey is there!”)

To close out the evening, McKinney reminded old hands at DI and new teachers alike, that they’re all teaching for the same reason: the kids. No matter how much teachers get wrapped up in competition and bluster, in the end, it’s all for the kids.

“We forget that we are here for the same reason,” he said. “We’re more alike than we are different. It’s about the kids. So I say to you folks, those of you just starting out, embrace it. Make it your own. It will change your life forever. And for those of you who’ve been around the block a long time, bless you. Bless you from the bottom of my heart. Thank you.” *ADI*

## Plan now to attend

### *The 37th National Direct Instruction Conference and Institutes*

**July 24–28, 2011**

**Hilton Eugene Hotel & Conference Center  
Eugene, Oregon**

The most comprehensive offering of Direct Instruction training and information available anywhere.

News sessions for new and experienced participants.

### **Special Keynote Speakers**

Siegfried Engelmann  
Senior Developer of Direct Instruction Programs

Cary Andrews  
Associate Superintendent for Curriculum Implementation and Development: Reading and Language Arts

Roger Bacon Academy, Leland,  
North Carolina

## Spare the Rod, *Spoil* Teach the Child

Although illegal in 30 states, corporal punishment continues to be used as a means of disciplining students in 20 states. According to a recent report, *Impairing Education*<sup>i</sup>, published jointly by the Human Rights Watch<sup>ii</sup> and the American Civil Liberties Union<sup>iii</sup> (ACLU), approximately 223,190 children were paddled in American schools during the 2006-07 school year.

### Effects on Students

In an earlier report, *A Violent Education*<sup>iv</sup> (2008), the Human Rights Watch and the ACLU document how corporal punishment in schools:

- Inflicts needless physical, psychological, and emotional pain.
- Creates an atmosphere of fear and mistrust for many students, not

only those who receive the punishment.

- Discriminates against students of color.
- Discriminates against students with disabilities.
- May contribute to a student's decision to drop out of school.

As noted in these reports, current research on corporal punishment refutes its effectiveness in changing inappropriate student behavior. Yet the practice has long-lasting adverse affects on society in general. Corporal punishment perpetuates violence in our culture by sending the clear message that adults think hitting is appropriate.

### Honey vs. the Paddle

At *Safe & Civil Schools*, we think along the lines of, "Spare the rod, teach the

child." Models of Positive Behavior Support (PBS) do just that. The research literature on PBS indicates that prevention and positive feedback are more effective in managing student behavior than strictly reactive techniques such as corporal punishment.

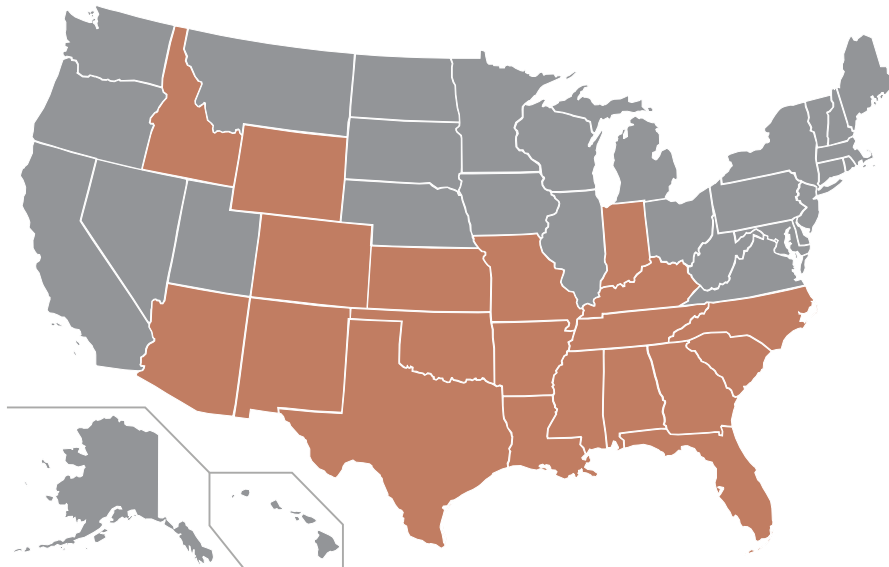
The old adage, "You can catch more flies with honey than with vinegar" loosely summarizes the principle on which Positive Behavior Support<sup>v</sup> is based. Students respond positively to respectful treatment and negatively to degrading treatment.

Positive Behavior Support describes a generic set of strategies designed to improve behavioral success with non-punitive, proactive, systematic techniques. A PBS approach incorporates *proactive*, *positive* (nonpunitive), and *instructional* strategies exercised over time with consistency. The emphasis is on, "How can we change the system, setting, or structure to help Johnny stop talking out in class and learn to be academically and socially successful?" rather than on, "What can I do to Johnny to make him stop talking out in class?" The acronym STOIC outlines the major strategies of a *Safe & Civil Schools* approach to PBS:

- **Structure your classroom for success.** The way the classroom is organized (physical setting, schedule, routines and procedures, quality of instruction, and so on) has a huge impact on student behavior. Effective teachers thoughtfully structure their classrooms in ways that prompt responsible student behavior.
- **Teach behavioral expectations to students.** Effective teachers explicitly teach students how to behave responsibly and respectfully (in

**Figure 1**

*Legality of corporal punishment in the United States. Rust-colored states allow corporal punishments. Gray-colored states do not.*



[Graphics courtesy of the Wikimedia Commons, used with permission granted under the Creative Commons Attribution ShareAlike 3.0 license.]

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Reprinted with permission from *Safe and Civil Schools newsletter*, Fall 2009

other words, to be successful) in every classroom situation — teacher-directed instruction, independent seatwork, cooperative groups, tests, and all major transitions.

- **Observe and supervise.** Effective teachers monitor student behavior by physically circulating whenever possible and visually scanning all parts of the classroom frequently. Effective teachers also use meaningful data to observe student behavior, particularly chronic misbehavior, in objective ways and to monitor trends across time.
- **Interact positively with students.** Effective teachers focus more time, attention, and energy on acknowledging responsible behavior than on responding to misbehavior — what we call a high ratio of positive to negative interactions. When students behave responsibly, they receive attention and specific descriptive feedback on their behavior.
- **Correct fluently.** Effective teachers preplan their responses to misbehavior to ensure that they respond in a brief, calm, and consistent manner ensuring that the flow of instruction is maintained. In addition, with chronic and severe misbehavior, teachers think about the function of the misbehavior (“Why

is the student misbehaving?”) and build a plan that helps the student learn appropriate behavior.

Only the fifth and last strategy — correct fluently — is reactive. The first four strategies — structure, teach, observe, and interact positively — describe techniques effective teachers use proactively to prevent misbehavior before it occurs. To accomplish true behavior change, the proactive strategies (structure, teach, observe, and interact positively) must be implemented.

When it is necessary to correct fluently, we can recommend procedures that are effective and do not include the adverse consequences of corporal punishment.

### Correcting Fluently

A certain amount of misbehavior is bound to occur in any classroom. The trick is learning to respond in ways that lead to fewer occurrences of the inappropriate behavior. Correcting fluently is such a response.

An effective correction is one that:

- *Changes the future occurrence of the behavior.* The correction reduces the chance that the student will exhibit

that behavior in that situation in the future.

- *Does not disrupt other students.* In other words, the correction is fluent. The teacher’s response does not stop the flow of instruction and does not distract other students from the work they are doing at the time the student misbehaved.
- *Treats the student who misbehaved with dignity and respect.* Teachers should never belittle their students.
- *Does not reduce the student’s motivation to exhibit positive behaviors.* Imagine a high school coach whose corrections inspire all players to want to work even harder in the future.
- *Does not jeopardize the positive relationship between teacher and student.* Throughout the correction, the teacher must convey fondness, caring, and high expectations for the student — both academically and behaviorally.

(For more in-depth procedural information, see CHAMPS, 2009).

Correcting fluently is a strategy that can help you rectify misbehavior in a manner that helps the student whose behavior is chronically problematic, reduces

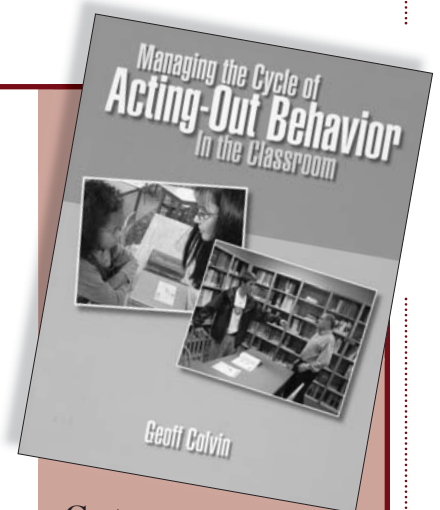
Now available from ADI

## *Managing the Cycle of Acting-Out Behavior in the Classroom*

Geoff Colvin

This text is based on Dr. Colvin’s 25 years of experience and research in working with the full range of problem behavior. He presents a model for describing acting-out behavior in terms of seven phases.

A graph is used to illustrate these phases of escalating conflict. The information will enable the teacher or staff member to place the student in the acting-out sequence and respond appropriately. Well-tested, effective, and practical strategies are described in detail for managing student behavior during each phase of the cycle. The book also contains many helpful references as well as an extensive set of reproducible forms.



Cost:  
\$28.00 list  
\$24.00 member price

To order, see page 37.



the degree to which that student's behavior interferes with the learning of others, and makes it easier for you, as teacher, to feel more effective, useful, and valued in your classroom.

### Sparing the Rod and Teaching the Child

STOIC, with its proactive and corrective procedures, can actually accomplish more toward changing student behavior than corporal punishment. This follows from the many studies that show students respond positively and productively to teachers who take the time to build warm and trusting relationships with them, who treat them with dignity, and who punish fluently, consistently, and fairly.

More information about setting up a classroom management plan based on

tenets of Positive Behavior Support is available in *CHAMPS: A Proactive and Positive Approach to Classroom Management*, 2nd ed. Chapter 9 deals extensively with correcting severe and chronic misbehavior and elucidates the information presented here.

You may also want to read more about corporal punishment in U.S. schools. There are a number of sources you can check:

On August 11, 2009, the *New York Times* wrote a balanced article, "Disabled Students Are Spanked More,"<sup>vi</sup> on the HRW/ACLU report cited above.

The next day, *Time* released an article, "Corporal Punishment in U.S. Schools,"<sup>vii</sup> that provides a succinct summary of the HRW/ACLU report.

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<sup>i</sup> <http://www.aclu.org/human-rights/impairing-education-corporal-punishment-students-disabilities-us-public-schools>

<sup>ii</sup> <http://www.hrw.org/>

<sup>iii</sup> <http://www.aclu.org/>

<sup>iv</sup> <http://www.hrw.org/en/reports/2008/08/19/violent-education>

<sup>v</sup> <http://www.safeandcivilschools.com/research/papers/pbs.php>

<sup>vi</sup> [http://www.nytimes.com/2009/08/11/education/11punish.html?\\_r=1](http://www.nytimes.com/2009/08/11/education/11punish.html?_r=1)

<sup>vii</sup> <http://www.time.com/time/nation/article/0%2C8599%2C1915820%2C00.html>

<sup>viii</sup> <http://www.newsweek.com/2009/04/24/the-principal-and-the-paddle.html>

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DR. CATHY WATKINS, BCBA, California State University

## From DT to DI: Using Direct Instruction to Teach Students with ASD

### What is Direct Instruction?

The term direct instruction is used in various ways in the literature. It is sometimes used to refer to any form of instruction involving direct interactions between teachers and students. It is also used to refer to a set of effective teaching procedures identified by Rosenshine and Stevens (1986) that includes review, statement of goals, presentation of new material, opportunities for guided practice, systematic corrections and feedback, and independent practice. The term has

recently been used to refer to any type of structured teaching method.

It is easy to confuse the term direct instruction (not capitalized), which is a set of teaching practices, and *Direct Instruction*, which is a research-based, integrated system of curriculum design and effective instructional delivery based on over 30 years of development.

The Association for Science in Autism Treatment defines *Direct Instruction* as "A systematic approach to teaching and

maintaining basic academic skills. It involves the use of carefully designed curriculum with detailed sequences of instruction.... Students are taught individually or in small groups that are made up of students with similar academic skills. Instructors follow a script for presenting materials, requiring frequent responses from students, minimizing errors, and giving positive reinforcement (such as praise) for correct responding."

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the degree to which that student's behavior interferes with the learning of others, and makes it easier for you, as teacher, to feel more effective, useful, and valued in your classroom.

### Sparing the Rod and Teaching the Child

STOIC, with its proactive and corrective procedures, can actually accomplish more toward changing student behavior than corporal punishment. This follows from the many studies that show students respond positively and productively to teachers who take the time to build warm and trusting relationships with them, who treat them with dignity, and who punish fluently, consistently, and fairly.

More information about setting up a classroom management plan based on

tenets of Positive Behavior Support is available in *CHAMPS: A Proactive and Positive Approach to Classroom Management*, 2nd ed. Chapter 9 deals extensively with correcting severe and chronic misbehavior and elucidates the information presented here.

You may also want to read more about corporal punishment in U.S. schools. There are a number of sources you can check:

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*Direct Instruction* is best represented by the commercially available programs developed by Siegfried Engelmann and his colleagues, most of which are published by Science Research Associates (SRA) (see [www.sra4kids.com](http://www.sra4kids.com) for a list of Direct Instruction programs). The reader is referred to *Introduction to Direct Instruction* (Marchand-Martella, Slocum, and Martella, 2004) for detailed information about Direct Instruction programs in various content areas.

### Research Summary

The Individuals with Disabilities Education Improvement Act of 2004 emphasizes the use of instructional methods that are research based. Direct Instruction programs are research-based but, more importantly, they are research-validated as effective with students with diverse learning needs, including students in special education and general education.

Numerous experiments that focused on how students learn most effectively shaped the many technical details of *Direct Instruction* programs (MacIver and Kemper, 2002). Controlled research studies provide empirical support for the specific instructional design principles and the instructional methods that provide the foundation for DI programs (Engelmann and Carnine, 1991; Becker and Carnine, 1980).

The first widespread dissemination and research on Direct Instruction was Project Follow Through, a federal compensatory education program authorized by the Elementary and Secondary Education Act of 1965. Follow Through operated as a longitudinal research project to answer the question: What works to teach children who are at risk for academic failure? A national evaluation compared the performance of children in over 20 different instructional models representing a broad range of educational practices. The Direct Instruction model produced the highest level of positive

impact on measures of basic skills, cognitive conceptual skills, and self-concept (Watkins, 1988).

A follow up study by Gersten, Becker, Heiry, and White (1984) provided evidence that Direct Instruction can meet the needs of all learners and is clearly effective with students who have a higher probability of failure. Students who entered the study with low IQ scores gained nearly as much each year in reading and math as other students in the Direct Instruction model — more than one year of achievement per year of instruction on the Wide Range Achievement Test.

*Direct Instruction programs are research-based but, more importantly, they are research-validated as effective with students with diverse learning needs, including students in special education and general education.*

More recently, the positive effects of Direct Instruction have been noted by the American Federation of Teachers (1999), the Center for Research on the Education of Students Placed at Risk (Borman, Hewes, Overman, Brown, 2002), and the American Institutes of Research (Herman, et. al, 2002), which identified Direct Instruction as one of only three school reform programs to have a “strong” record of evidence of positive effects on student achievement.

Although Direct Instruction has been shown to be an effective teaching method for a variety of academic areas in both general and special education settings, there has not been controlled research on its application specifically

to individuals with autism spectrum disorders. However, Direct Instruction contains a number of components that it seems reasonable to expect would be effective and beneficial.

## *Features of Direct Instruction*

### General Case Programming

Difficulty generalizing information and skills is a commonly noted characteristic of ASD (Sundberg and Partington, 1998). Therefore, it is particularly important that programs be specifically designed to teach generalizable skills and strategies. Identification of generalizable strategies that students can use to solve a wide variety of problems is the foundation of Direct Instruction.

Engelmann and Becker (1978) called this “general case programming” because the goal is to teach the general case rather than a set of discrete specific instances. A general case programming strategy is one that uses the smallest number of examples (stimuli) to produce the largest possible amount of learning. General case programming has been shown to enhance generalization, even with individuals with severe disabilities (e.g., Horner and Albin, 1988).

General case programming also refers to the design of instruction that clearly communicates one and only one meaning. This emphasis on bringing responding under the control of specific, relevant stimuli (Becker, Engelmann, & Thomas, 1975; Becker and Carnine, 1980; Horner, Bellamy, and Colvin, 1983) is a particularly important aspect of teaching children with autism spectrum disorders who often respond under inappropriate stimulus conditions.

### Track Organization

The content of many instructional programs is organized in units or modules, where skills and strategies are

introduced, practiced, and tested within a specified period of time. Information in one unit is seldom integrated into subsequent units, resulting in predictable difficulty with skill maintenance. In contrast, Direct Instruction programs are organized in “tracks.” Tracks are sequences of activities that introduce a skill, then develop and expand the skill across multiple lessons.

There are numerous advantages to designing programs in tracks. Student attention is better maintained because they do not work on a single skill for an extended period of time; instead lessons are made up of relatively short exercises that address a variety of skills. Difficult tasks are interspersed among easier ones. Newly introduced tasks are mixed in with well-practiced ones. Each lesson includes a variety of skills, formats, and difficulty levels.

The unique track design of Direct Instruction programs may be particularly advantageous for students with autism spectrum disorder because it provides natural variation in the presentation of tasks within a lesson.

Researchers in both autism and DI have addressed the composition of instructional sessions in terms of variety and type of tasks presented. Dunlap and Koegel (1980) compared a constant task condition in which a single task was presented throughout a session, to a varied task condition, in which the same task was interspersed with a variety of other tasks. The varied task session produced improved and stable levels of correct responding as compared to constant task sessions.

Similarly, interspersing instructional trials on known or maintenance behaviors with trials on acquisition tasks results in more responsiveness and fewer behavior problems (Horner, Day, Sprague, O'Brien & Heathfield, 1991). These results are consistent with Engelmann's recommendation that maintenance tasks should be pre-

sented during instructional sessions in which new acquisition tasks are being taught. Direct Instruction programs carefully control task variation. About 10 - 15% of the material in each lesson consists of new learning or acquisition tasks. The remaining 85 - 90% of the tasks involve activities that provide review, practice, expansion, and application of previously learned information (S. Engelmann, personal communication, December 27, 2007).

*Direct Instruction programs may be appropriate for children with ASD because they are fast-paced and can keep the child actively engaged, rather than allowing them the opportunity to focus their attention elsewhere.*

### Scripted Presentation

One key distinction between Direct Instruction and other instructional programs is the explicit nature of instruction. Precise implementation is accomplished in DI programs through the use of scripts. How the teacher presents examples is explicitly stated. What the teacher says and does is specified. The instructions are not general, rather the exact words to use when presenting each task are provided. The teacher's other behaviors, pointing, signaling for a response, etc. are precisely specified. The programs indicate where children are likely to make mistakes and precisely what the teacher should do to correct each error. Such attention to detail in the design of the program is essential for children with exceptional learning needs, because details make the difference between academic success and failure.

Scripts support the needs of students with ASD for consistency and predictability. Direct Instruction curricula may also benefit to children with ASD in that the scripted instruction allows for individuals other than certificated teachers to teach academic skills. *Well-trained* paraprofessionals and parents can deliver the programs and provide children with extra practice if necessary. The scripts also ensure consistency across all individuals who provide instruction to the child.

### Formats

Exercises of a particular type are formatted or “patterned.” Patterned exercises are easier to teach and easier for children to follow. By learning how to present one exercise of a particular type, the teacher knows how to present similar exercises that appear in subsequent lessons. Formats are designed to be clear and concise to help students focus on the important aspects of examples. These patterned formats help students to be successful.

Formats change as students become proficient. Initially formats include a great deal of structure and support for students' use of skill. However, the support that is so critical during initial instruction must be gradually reduced until students are using the skill independently. As students move through lessons, formats shift in a number of important ways: 1) from overt to covert responding, 2) from simple to complex contexts, 3) from prompted to unprompted formats, 4) from massed to distributed practice, 5) from immediate to delayed feedback. These instructional programming strategies facilitate the transition from teacher directed instruction to generalized and independent application of strategies and skills.

### Pacing

Direct Instruction programs may be appropriate for children with ASD because they are fast-paced and can keep the child actively engaged, rather

than allowing them the opportunity to focus their attention elsewhere. Lessons are characterized by a rapid and constant interchange between teacher and students. The teacher presents tasks quickly and moves quickly from activity to activity. This allows little “down time.” A quick pace is needed to present the many trials required for children to master critical skills and concepts. Academic learning time is maximized resulting in more learning and fewer behavior problems.

Research with both general education students and students with autism support the use of rapid pacing. For example, Carnine (1976) recorded off-task behavior, correct responding, and participation during beginning reading instruction for low-achieving first-grade children during two different rates of teacher presentation. Results showed that fast presentation was accompanied by a lower rate of off-task behavior and an increase in correct responding and participation.

Engelmann and Becker (1978) found that when teachers maintained a fast rate (12 responses per minute), students responded correctly about 80 percent of the time and were off-task only 10 percent of the time. However, when the rate was only four responses per minute, accurate responding dropped to 30 percent and off-task behavior increased to 70 percent of the time.

Similar studies have been conducted with children with autism. Koegel, Dunlap, and Dyer (1980) compared rapid pacing and slow pacing during instructional sessions with low-functioning autistic children. They found that short intertrial intervals (faster pacing) produced higher levels of correct responding and improving trends in acquisition than longer intervals between trials.

Similarly Dunlap, Dyer, and Keogel (1983), found that short intertrial intervals produced higher levels of correct responding and lower levels of

self-stimulatory behavior in children with autism. These studies support the use of fast-paced instruction to promote responding and appropriate behavior of children with ASD.

### Summary

Direct Instruction programs provide clear directions on how to structure active student involvement and frequent responding. Instructional formats ensure predictable teaching routines. Controlled teacher wording enhances student understanding. Content analysis guarantees that priority topics are taught. Careful sequencing of skills maintains high rates of student success as content becomes increasingly complex. Correction procedures ensure that students acquire critical content. Continuous progress monitoring and adjustments based on assessment information ensure adequate practice and skill mastery. Finally, Direct Instruction programs are specifically designed to foster generalization. Direct Instruction may provide an effective and practical option for teaching students with autism spectrum disorders. **ADI**

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## Help us out!

Contribute your story of success with DI! We want to hear from you!

You all have stories and it is time to share them. This is *your* journal—let it reflect your stories!

See the directions on page 2 on how to make a contribution. You'll be glad you did.

Marchand-Martella, N.E., Slocum, T.A., & Martella, R.C. (Eds.). (2004) *Introduction to Direct Instruction*. Boston, MA: Allyn and Bacon.

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DR. DONALD CRAWFORD, Executive Director, Arthur Academy Charter Schools

## Arthur Academies Rank High in Six Districts

Arthur Academy charter schools are top performers in each of the six districts in which they operate. The Arthur Academies in the David Douglas, Reynolds, Woodburn, Portland, Gresham-Barlow and St. Helens districts ranked high in state testing, meeting AYP standards and Report Card rating. Arthur Academies serve students from a full range of academic levels. During the year of 2009-10, the number of below-average students was reduced from 40% to 14%, and the number of above-average students was increased from 40% to 71%.

In the state testing, the Arthur Academy charter school ranked highest among other elementary schools in many subjects in each of their sponsoring districts. In the David Douglas,

Reynolds and St. Helens districts, the Arthur Academy school ranked highest in seven subjects that were tested. The Woodburn Arthur Academy ranked highest in five of the subjects tested, and the Gresham Arthur Academy ranked highest in four subjects. Among the 62 Portland elementary schools, the Portland Arthur Academy tied in two subjects for the highest ranking. In all six Arthur Academies, 93% of the students in grades 3-5 met the reading standard and 84% met the math standard.

Possibly the most interesting comparison is made in the 5th grade science results. Arthur Academies ranked the highest in five of the six districts in the subject of science. The philosophy of the Arthur Academy schools is

to emphasize early achievement in language skills, reading and math so that the potential for increased knowledge in content subjects like science, social studies, literature, music and art is possible.

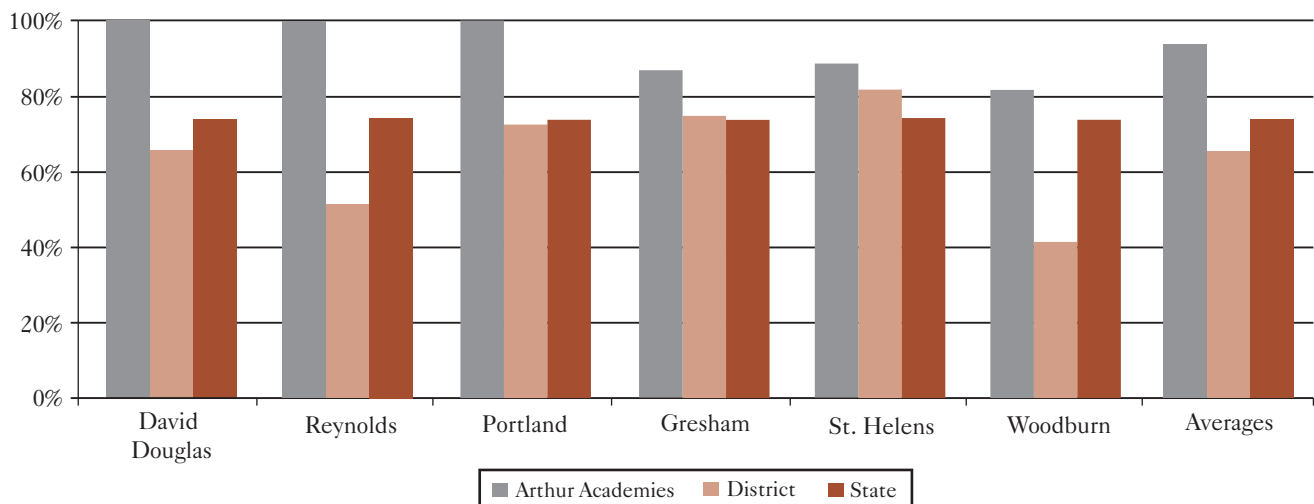
All of the six Arthur Academies, or 100%, successfully met the AYP standard set by the No Child Left Behind requirements. None of the districts were able to achieve a 100% pass rate among their schools.

As a result of their strong test performance, five of the six Arthur Academies were rated Outstanding. Of the five rated Outstanding, three were the only school in their district receiving this rating.

A final report on these assessments plus national standardized test results can be found on the website: [arthuracademy.org](http://arthuracademy.org) **ADD**

**Figure 1**

*Arthur Academy 2010 Oregon State Testing Results, All Six Arthur Academy Scores for 435 Students in Grades 3-5, Percent Meeting 2010 Oregon State Science Standards*



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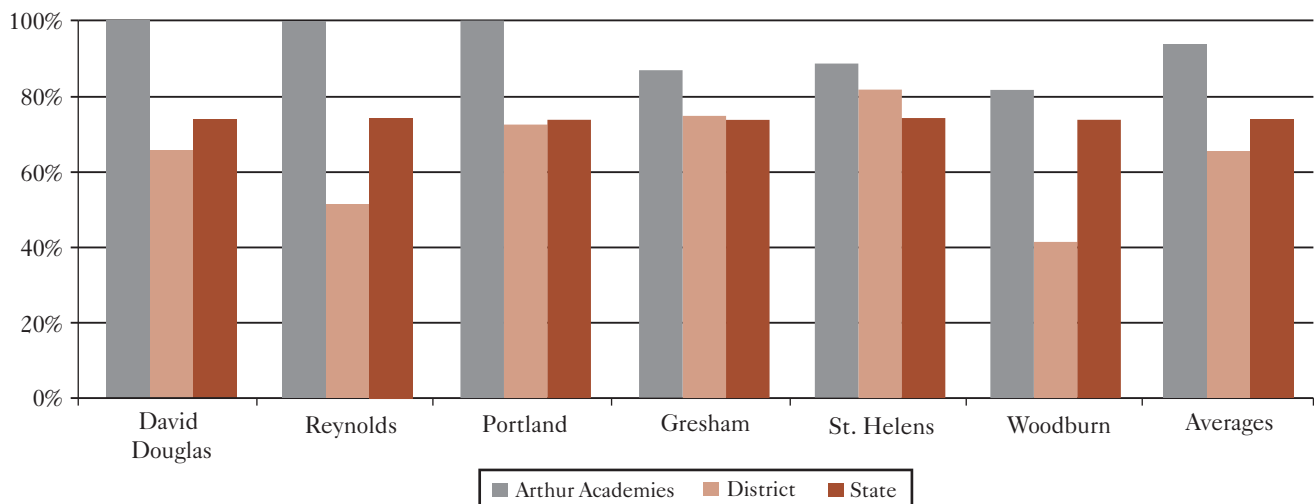
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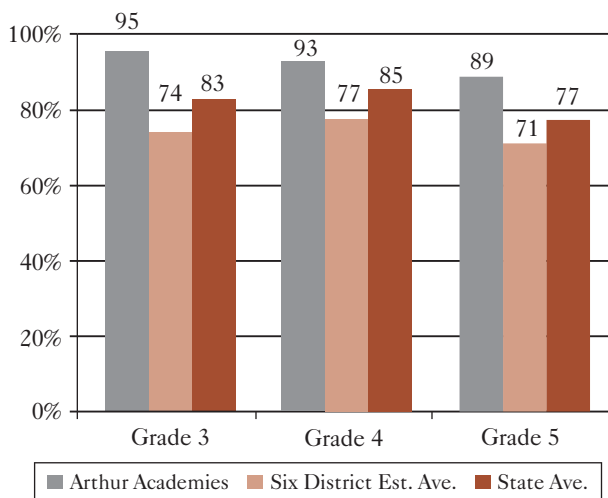
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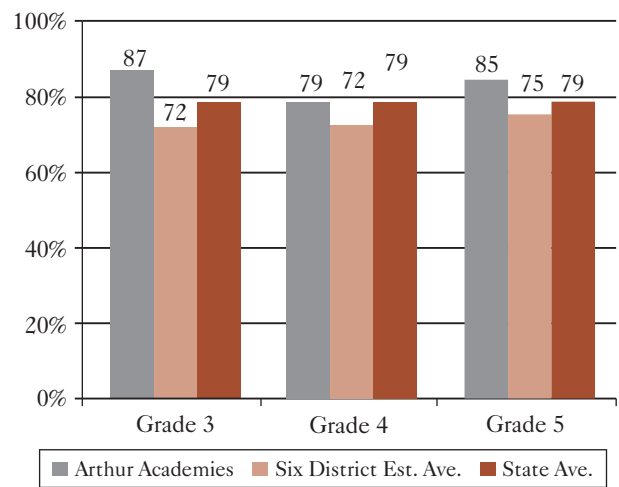
**Figure 2**

*Arthur Academy 2010 Oregon State Testing Results, All Six Arthur Academy Scores for 435 Students in Grades 3-5, Percent Meeting 2010 Oregon State Reading Standards*



**Figure 3**

*Arthur Academy 2010 Oregon State Testing Results, All Six Arthur Academy Scores for 435 Students in Grades 3-5, Percent Meeting 2010 Oregon State Math Standards*



TIM SLOCUM. Board member since 1998 (Board President 2006 – 2009)

## Board Member Corner

*Building good language and reading skills is too important to leave to chance – it is our professional responsibility to attend to every aspect of education that can contribute to children’s language and literacy outcomes.*

This is the central focus of my role as a professor of Special Education at Utah State University. Preparing new teachers who are excellent Direct Instruction practitioners with strong data-based decision making skills has always been an important part of my role. But here, I want to highlight several new developments that I have been engaged in recently.

The first is preparing and mentoring doctoral students who are focused on becoming professors of special education. There is a strong need for new, young professors who have excellent skills in teacher preparation, research on DI, and instructional design/development. Currently, too few special education teacher training programs

prepare their graduates in DI teaching techniques, effective lesson design, data-based problem solving, positive behavioral supports, and other research based practices. At the same time, we need more research on DI programs. New programs are being produced and new questions are being raised all the time, e.g., effectiveness of DI within Response-To-Intervention (RTI) models, use of DI with children with autism. There are simply not enough researchers with interest, knowledge, and skills in DI to address the important research questions adequately. Further, new programs are needed to fill gaps and address emerging educational problems. All told, there is a lot of work to be done within the context of universities. One of my roles has been to coordinate a doctoral program that can prepare new faculty who are interested and able to meet these needs, and to maintain continuous

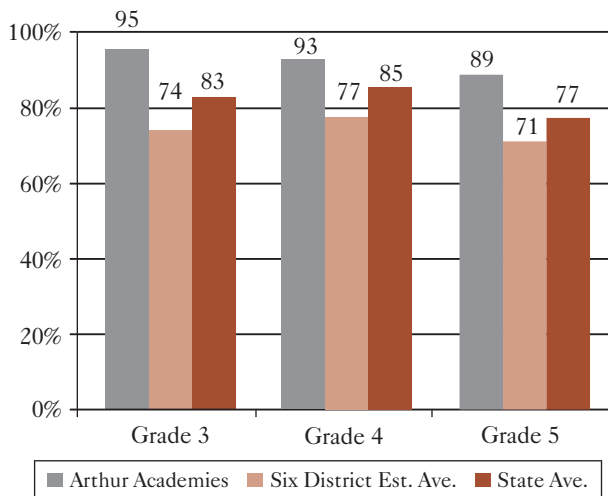
financial support for doctoral students in the program.

Our current federal grant to support doctoral education targets cross-disciplinary training in evidence-based practices in language and literacy. It is a collaborative effort with like-minded colleagues in special education, applied behavior analysis, and speech-language pathology. Students in the program complete a Ph.D. in Disability Disciplines specializing either in special education, applied behavior analysis, or speech-language pathology, and including a set of courses and internships that are focused on evidence-based interventions to improve language and literacy outcomes for children. The course of studies includes training and hands-on application in all of the major roles of a professor at a major university: teacher preparation and supervision, research and academic writing, professional presentation, and grant writing. Financial support for students comes from federal grants and leadership preparation grants as well as



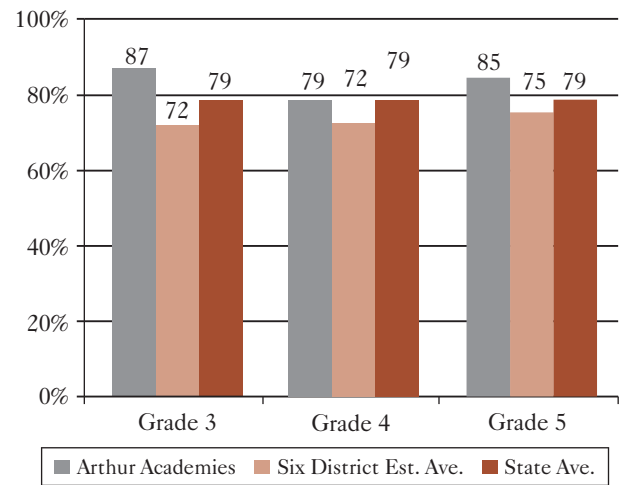
**Figure 2**

*Arthur Academy 2010 Oregon State Testing Results, All Six Arthur Academy Scores for 435 Students in Grades 3-5, Percent Meeting 2010 Oregon State Reading Standards*



**Figure 3**

*Arthur Academy 2010 Oregon State Testing Results, All Six Arthur Academy Scores for 435 Students in Grades 3-5, Percent Meeting 2010 Oregon State Math Standards*



TIM SLOCUM. Board member since 1998 (Board President 2006 – 2009)

## Board Member Corner

*Building good language and reading skills is too important to leave to chance – it is our professional responsibility to attend to every aspect of education that can contribute to children's language and literacy outcomes.*

This is the central focus of my role as a professor of Special Education at Utah State University. Preparing new teachers who are excellent Direct Instruction practitioners with strong data-based decision making skills has always been an important part of my role. But here, I want to highlight several new developments that I have been engaged in recently.

The first is preparing and mentoring doctoral students who are focused on becoming professors of special education. There is a strong need for new, young professors who have excellent skills in teacher preparation, research on DI, and instructional design/development. Currently, too few special education teacher training programs

prepare their graduates in DI teaching techniques, effective lesson design, data-based problem solving, positive behavioral supports, and other research based practices. At the same time, we need more research on DI programs. New programs are being produced and new questions are being raised all the time, e.g., effectiveness of DI within Response-To-Intervention (RTI) models, use of DI with children with autism. There are simply not enough researchers with interest, knowledge, and skills in DI to address the important research questions adequately. Further, new programs are needed to fill gaps and address emerging educational problems. All told, there is a lot of work to be done within the context of universities. One of my roles has been to coordinate a doctoral program that can prepare new faculty who are interested and able to meet these needs, and to maintain continuous

financial support for doctoral students in the program.

Our current federal grant to support doctoral education targets cross-disciplinary training in evidence-based practices in language and literacy. It is a collaborative effort with like-minded colleagues in special education, applied behavior analysis, and speech-language pathology. Students in the program complete a Ph.D. in Disability Disciplines specializing either in special education, applied behavior analysis, or speech-language pathology, and including a set of courses and internships that are focused on evidence-based interventions to improve language and literacy outcomes for children. The course of studies includes training and hands-on application in all of the major roles of a professor at a major university: teacher preparation and supervision, research and academic writing, professional presentation, and grant writing. Financial support for students comes from federal grants and leadership preparation grants as well as

research grants. Graduates are well prepared to take on university roles and have a broad impact on special education practice. If you are interested in learning more about this career path, please contact me.

A second direction in my current work is to develop strategies for use of DI programs with learners with autism spectrum disorders (ASD), and to begin a research program on this topic. My colleagues, Cathy Watkins and Trina Spencer, and I have completed a book chapter that describes the close match between the specific learning needs of children with ASD and the features of Direct Instruction. We point out that the research base strongly supports the use of DI in many curricular areas and with many populations. But relatively few studies of DI with learners with ASD have been published. Flores and Ganz have recently published several important studies (Flores & Ganz, 2007, 2009; Ganz & Flores, 2009) demonstrating the use of DI programs to teach several important language skills to this population. Using multiple baseline designs, they showed very clear and dramatic effects of teaching such skills as identification of common materials, inference, deduction, analogies, and opposites.

Further evidence about the effectiveness of using DI with children with ASD comes from correspondence between characteristics of the learning needs of these children and the features of DI. One of the most distinct characteristics of children with autism is that they often learn incorrect generalizations. In addition, like so many children with disabilities, they are often substantially behind their peers in academic skills. Both of these important issues are addressed through general case instruction – one of the core features of DI. In general case instruction, examples are carefully arranged to teach precise generalization. Possible misinterpretations are logically ruled out with examples and non-examples. Students learn to gen-

eralize to all appropriate situations and no inappropriate situations. This is important for learners with ASD because it is efficient – it enables us to teach more content in less time – and because it precludes incorrect generalization. These results are important for all learners, but those with ASD are particularly vulnerable to poorly designed instruction.

*Scripts are important for making training clear and efficient. They help new professionals know exactly how they are to introduce, teach, and practice each skill.*

Direct Instruction formats have many features that support children with ASD. Formats provide for consistent routines, wording, and set-up of tasks. This is especially helpful for learners who are vulnerable to being disrupted by unexpected changes in routines and wording. This consistency keeps the irrelevant aspects of the interaction in the background so the new content can be the focus in the foreground. Formats, of course, do not remain fixed throughout an instructional track; they gradually change as teachers provide fewer prompts and tasks become more complex. This systematic fading of prompts and increasing demands on the student allows for high levels of success while students learn to independently perform challenging skills.

The fact that formats are presented to teachers as detailed scripts is also advantageous. Children with ASD often receive instruction from several professionals (i.e., teachers, paraprofessionals, and others) who may have very different backgrounds and instructional skills. Scripts are impor-

tant for making training clear and efficient. They help new professionals know exactly how they are to introduce, teach, and practice each skill. They are also very helpful for supervision – the supervisor and direct teacher both know what should be happening and they can focus on how well it happening. Scripts reduce problems of lessons drifting away from a clear focus on the instructional objectives. Finally, scripts ease problems with coordination across professionals. With scripts, all staff can give consistent explanations, teach consistent formats, and coordinate several staff teaching a single program.

DI is also characterized by brisk pacing and frequent active student responses. Carnine (1976) demonstrated that brisk pacing can increase student participation, increase accuracy of student responses, and reduce time off task. Researchers have found that brisk pacing produced more correct responses, more learning, and reduced self-stimulatory behavior (Dunlap, Dyer, & Koegel, 1983).

DI lessons feature numerous short tasks building multiple skills. This produces variety within each lesson. A series of short, varied tasks tends to hold student attention better than a single, longer task. In addition, newly introduced and potentially difficult content is interspersed among well-practiced content, providing varied levels of familiarity and difficulty. This may be particularly important for students who struggle with new, unfamiliar demands, and who may become frustrated with large amounts of difficult material. Dunlap and Koegel (1980) found that presenting a variety of tasks to children with autism resulted in improved levels of performance compared with those same tasks presented with less variation.

These and other features of Direct Instruction that have been shown to be beneficial for learners with ASD provide additional evidence that DI is

likely to be very effective for these students. But we also need to consider whether DI programs teach the skills that these students often need. One primary challenge that distinguishes children with autism lies within the domain of language. Autism specialists who provide intensive behavior analytic treatment have been very successful in building fundamental language skills such as following instructions and requesting and naming objects with basic sentences. But they have not developed sophisticated programs for teaching the more advanced language skills targeted by *Language for Learning* and *Language for Thinking*. In addition, although some children with ASD learn remarkable decoding skills with little instruction, many struggle with decoding and need very explicit and powerful reading instruction. Thus, many DI programs are natural next steps after early intensive behavioral intervention. They teach the content that learners with ASD typically need.

Direct Instruction programs can also offer learners with ASD a bridge from intensive one-on-one teaching to group instruction within the more complex social context that is typical of classrooms. This is often a difficult transition for these students. DI groups offer well-defined roles and clear expectations. But at the same time, they are more socially demanding than the learning environments to which many of these students are accustomed. DI groups appear to be a particularly good context for teaching these skills. Many teachers who use DI with children with autism create a gradual transition by initially introducing DI formats one-to-one, then integrating these students into small groups with familiar formats and well-learned content. This corresponds with the DI principle of teaching one thing at a time. For these learners, the transition to groups is a challenging step, so it makes sense to make this

step as easy as possible by minimizing demands from formats and content.

The research base, instructional features, and content of DI programs make them a logical choice for many students with autism. But having reviewed research on the specific learning needs of children with autism, and having noted how closely these needs map onto the features of DI, it becomes apparent that the kinds of instruction that these children need is not so different from other children. The features of DI that make it appropriate for this particular group of learners are the same features that make it effective for gifted, typically developing, at-risk, learning disabled, and other groups. All groups benefit from programs that are organized to teach strategies and “big ideas” that include careful arrangement of examples and sequenced introduction of skills, that produce high rates of active student responses and sufficient amounts of practice, and that use formats to enhance success while learning complex skills. All this brings us back to one of the fundamental strategies that drives Direct Instruction: Start by designing and implementing outstanding instruction. When we start here,

we and our students are set up for success. **ADI**

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Dear friends in the DI community,

## What do you remember most about your first experience seeing or using DI?

You no doubt have plenty of stories to share about your first time with Direct Instruction, whether it was 30 years ago or last month. We hope to hear these stories—and learn from them—in upcoming issues of the DI News.

Send us your responses—short answers are fine—to Don Crawford, [dc0843@aol.com](mailto:dc0843@aol.com), or Randi Saulter, [itsrandi@aol.com](mailto:itsrandi@aol.com). Let us know your name and your affiliation (school, organization, synagogue, rifle club, political party, etc.). Have a good idea for a future question? Let us know that, too!

—Don & Randi, editors



## *Why won't my students look back for the answer?*

*Or "Why does Reading Mastery teach students that they should remember the answer instead of looking back to find it?"*

Teachers of intermediate and middle grades students often complain that their lower performing students won't look back in the text for the answers to reading comprehension questions. When students don't do what we want, it is our job to figure out if the problem is a "can't problem" (the students are not able to do what we want) or a "won't problem" (the students are not motivated to do something they are able to do). "Can't problems" are fixable through instruction. "Won't problems" require increased motivational structures.

When it comes to "not looking back," teachers should not assume it is a "won't problem." It is not wise to assume those students are simply too lazy to turn pages! Remember that student behavior typically has a rational basis. There is a good reason students don't look back for answers. The reason is that lower performing students don't find "looking back" particularly helpful. That is, **students don't often find the answer when they "look back."**

Why don't lower performing students find the answer when they look back? They don't find the answer because they are missing one of the four prerequisite skills that they would need to be successful. Those skills are 1) to understand the answer, 2) the ability to skim, 3) to know what word or words for which to skim, and 4) the ability to recognize that they have found the

answer. Students need to be taught each of those skills if they haven't developed them on their own. The following discusses how to teach each of those four skills. In the meantime, the teacher can work through these skills in stages as part of regular reading instruction, attacking each in turn, but keeping students engaged in answering reading comprehension questions while reading. These skills should be part of every teacher's repertoire.

### **Stage 1: Understanding the answer when it is pointed out to the student.**

In this first stage, the teacher should find the answers *for* the students, and point them to the specific sentence or paragraph that gives the information to answer the question. Initially, the teacher may want to read the specific sentence or paragraph aloud *to* the student(s), then follow up by repeating the question that the sentence answers.

Many times teachers are surprised to find that even after reading the text to the students, their kids cannot answer the question. Today, many questions asked of students are questions which require drawing an inference, whereby the answer is not explicitly stated in the text passage that comes closest to answering the question. Students must bring additional, unstated information to bear on the question in order to be able to answer it. If students lack that additional information, necessary receptive vocabulary, and/or receptive language skills, they won't be able to answer the question even when the relevant passage is read to them.

It is unwittingly cruel of teachers to tell students to "look back" for the answer to an inference question where

the needed information is not stated in the text. The students are going to be looking for a *long* time since they are looking for an explicit answer.

How can you help a student who, after reading the relevant text, cannot answer an inference question? Answering an inference question requires recalling some implicit information. The teacher should read the text and then explicitly *add* the unstated information needed to answer the question. Immediately after the teacher reads the question and the text, the teacher should tell the student(s) what they need to know (that is not in the text). If the students have the two pieces of information in their working memory at the same time, they may be able to make the connection. If that doesn't work, the teacher will have to give the answer and try to explain the inference. If the teacher has to do that, there's going to be a lot of work ahead to develop student skills to the point where they can answer these questions without so much help. The teacher needs to keep trying to see if students can get the inferences on their own—and then when some students do, make sure to have them explain to the others.

Teachers should keep reading the part of the text that answers the question and then gradually and systematically reduce the scaffolding. Once students can make the inference, when the teacher gives them the unstated information they need, the students are ready for the teacher to reduce his/her help. The teacher should try not giving the unstated information to see if the students can answer the question after being read the relevant part of the text. When students can reliably answer inference questions without being given the assumed background knowledge, they are ready for the next step. The next step would be for the teacher to stop read-

ing the text *to* them, and let the students read it for themselves.

At this point, the teacher has reached the first milestone. The class is to the point where most of the students can reliably understand the textual information and answer questions when the teacher points out where the answer is and has the students re-read the relevant paragraph or sentence to themselves. Now the teacher is ready to work on the task of helping students find answers.

The prerequisite skill for finding the answer on their own is for the students to be able to recognize the answer when they run across it. Unfortunately, because texts vary so greatly in difficulty, learning to recognize answers is not a once-and-forever skill. Students will be able to recognize literal answers before inferential answers. Students will be able to understand some inferential answers when they read them better than others. So the teacher has to keep in mind how difficult it is to tease the answer out of the text. The best bet is for the teacher to look up the relevant text for all the questions prior to attempting to deliver a lesson. Often teachers will be surprised at how indirect the information is that answers the question. Students will be learning to recognize answers even when they are given the location of the information, e.g., “All the information answering that question can be found in the second paragraph on page 124. You’ll have to think hard about it, because it is not stated directly—but there is no better place than that paragraph.”

Recognizing the answer on their own is a difficult skill—and it will be the next to last skill students master. Not only do students have to recognize where the information is that (probably indirectly) answers the question, but also they have to look around enough to know that there isn’t any place that answers the question more directly. It may be becoming apparent why know-

ing the questions ahead of time might be a more efficient way to read through a text and why it is far easier if students can remember the answers to information rather than looking it up. This fact explains why Reading Mastery did not encourage students to spend time looking back for answers—it was not a good use of instructional time. However, many state tests now require students to find evidence from

*The key thing that teachers must understand is that students must be able to recognize answers before being asked to look back for answers.*

the text for their answers, so there really isn’t any choice.

The key thing that teachers must understand is that students must be able to recognize answers before being asked to look back for answers. In the meantime, while students are learning the next two skills, teachers should keep directing students to the relevant section of the text. Now students are ready for the next stage, learning how to skim.

### **Stage 2: Finding the answer by skimming for a teacher-supplied word.**

Many students do not know how to skim. It is especially common for weak readers to read everything at the same word-by-word pace. When we look for answers, we need additional skills in addition to the skill of skimming for a specific word. We are using sophisticated strategies of looking for any of several possible words, as well as using our memory of a general idea of where the answer could be. That’s not going

to work as a strategy to teach lower performing students—because we are asking them to develop more than one new skill at a time.

How can we break this down? We want the students to develop one new skill and then use it in a strategy that will be successful. Why must it work every time? Because the only strategies that are used by students are ones that work successfully most of the time. *[That’s the genius behind the beginning of Reading Mastery—it develops a decoding strategy that works all of the time—and even so we struggle to get all students to use the sounding out strategy consistently.]*

Here’s a way to break down the task that, although artificial, will help students develop the skill of skimming to find answers. For each question, the teacher must first find the answer and then choose a word for which the students should skim. It must be, obviously, a relatively uncommon word in the target paragraph. (Skimming for “the” would be very time consuming!) It should be, if at all possible, a word in the question. If there is no uncommon word that is in both the question and the answering paragraph, it may be necessary to choose another word. Later, the teacher will have to help students figure out what word to “skim for,” so this will be good practice for the teacher. In addition, having to identify for the students “where to look” will give teachers a much better sense of the inherent difficulty of “looking back” for answers.

To start, the teacher must teach students the “physical skill” of skimming. They will have to learn that skimming does not involve reading every word, but simply looking for a given word. The teacher should model skimming on an overhead or some way so students can see how fast it goes when you are just looking for a certain word. More than a few exercises where the teacher has students skim for a key word on a page should be done. Having a skimming race or two each day

for a couple of weeks would be a good way to get this skill jump-started. “Turn to page 347 everyone and look up. [pause and wait] OK, all eyes are on me. When I say go, skim for the word ‘obviously.’ Go!” Look for the first students to get there. Recognize them as the winners. Then change your contest to measuring how many seconds it takes until everyone has found the target word. Keep having the contests until everyone is proficient at skimming for specific words on a page.

To begin using this strategy, the teacher could put the key words for certain questions on the board something like this:

- #34 look for “unhappily”
- #36 look for “bounding”
- #37 look for “impacted”

The teacher should explain to students that if they cannot remember the answers for those questions listed, they can find the answer by skimming for that key word and reading the whole paragraph in which the key word is located. So a student who was trying to answer question 34 would skim for the word “unhappily” and when found would read the entire paragraph in which the word was located. Students who ask for help on those questions would be directed to skim for the key word and read the paragraph to themselves. Because students have already achieved mastery at understanding answers once they have found them, this strategy should be very successful.

If teachers are creating and typing out their own questions, they could also help students by underlining key words that are in the question and are found in the paragraph in which the answer is located. Using words from the question is the simplest strategy for “finding key words for which to skim” and so should be used as often as it will work. Teachers would have to teach students about the reason these words were underlined. Of course, where there is no

appropriate key word in the question, the teacher will have to revert to finding a key word in the answering text paragraph and putting it after the question, perhaps in parentheses.

Teachers will recognize that students are still quite dependent when skimming for a teacher-supplied key word. Undoubtedly the work of finding each answer and identifying the key word to find it will seem somewhat burdensome. Two points apply, however. First, doing this chore themselves will

*Probably the best way to help students learn to recognize the difference between a paragraph that answers a question and one that doesn't is to limit the number of choices.*

help teachers recognize that the task is easier to say than do. That is, sending students back to find the answer on their own is really assigning a more difficult task than it appears at first glance. Second, regularly skimming back for key words to find answers is the best practice possible for teaching students the process they will need to use independently. In carrying out this process, students are gaining a lot of valuable experience. Most importantly, it will be a successful experience. They will be finding the answers! There are only two skills left for students to learn: recognizing answers and choosing key words. Both can benefit from a scaffold to help students succeed.

### **Stage 3: Recognizing the answer (or recognizing when you don't have the answer).**

The next thing students need to be able to do is recognize when a para-

graph answers a question and when it doesn't. This is not typically taught explicitly.

Some students learn to copy out text material in order to create a long answer to a question. If teachers don't read homework carefully, sometimes this strategy will receive passing marks, even though the material is non-responsive (it simply doesn't answer the question). As teachers attempt to prepare students for challenging state tests that require students to provide textual evidence to support answers it becomes apparent that this skill—recognizing what information answers a question and what does not—is not as simple as many have assumed.

Probably the best way to help students learn to recognize the difference between a paragraph that answers a question and one that doesn't is to limit the number of choices. Teachers can give students the choice between two paragraphs (telling the kids that one paragraph answers the question and one does not), then ask the students which paragraph answers the question. Teachers could list the choices right after the question (or post them on the board), e.g., Question #2 is answered by either paragraph 7 or 8. This discrimination step could be done as a whole group prior to asking students to work independently to answer the questions.

It would be beneficial for students to learn to articulate why they chose the correct paragraph. Asking the “how do you know?” question is the key to helping students understand what cues they are using to recognize the passage that contains the answer.

After students can correctly choose between two paragraphs, a good next step is to tell them a page number and ask them to find the answering information from the page. This limits the looking around, but still requires students to recognize the sentences or

paragraphs that answer the question. Now that students can recognize answers, they can move to the last step: choosing the key word for which to skim. Only at this point will they be able to self-correct if they choose a key word that doesn't work.

#### **Stage 4: Choosing a key word, skimming for it, and deciding if you've found the answer.**

As is clear from the title of this section, students are now going to be doing a series of steps in a procedure. The way to teach procedures involves teaching and modeling the sequence of steps, providing guided practice with corrective feedback, and then gradually releasing control to the students.

The teacher should model this process as authentically as possible, so that students see how they are to deal with dead ends. The process of finding the answers should be done as a group, marking the found answers and going on to the next question without stopping to write answers. The modeling process should occur with all necessary questions for several days before expecting students to do it. To borrow a term, this could be identified as the "think aloud" step. The teacher gives insight into how he/she uses a process to solve a "problem."

To model the process the teacher should choose a key word, explaining

why it is his/her best guess, and then the teacher and the class should skim back for the word. When the word is found, the teacher or a student should read the paragraph aloud. The teacher should model asking him/herself if this is the answer. If yes, then mark the paragraph and move on. If no, the teacher should model how he/she decides to either keep skimming or go back and choose another word. Once another key word is found through skimming, the process of reading the paragraph and asking oneself if the paragraph answers the question is repeated. This goes on until the answer is found. Once found, the paragraph should be marked in some way, so that the "looking for the answers" part of the lesson can move through as many examples as possible with the teacher modeling how to do it.

Next the teacher would lead the process, prompting students as to what should be done next, asking for the answer to the following questions.

"What word will we use as our key word?"

"What's the first paragraph in which we find the key word?"

"Read the paragraph."

"Does it answer the question, yes or no?"

"Should we keep skimming or choose a new word?"

Once students are reliably following the process and answering the questions, the teacher should move to the next phase of guided practice. In this phase, the teacher stops prompting the order of the steps in the sequence and simply asks the students, "What's the first step?" or "Now what?" or "What's next?" The students are now leading themselves through the process, which is an important accomplishment.

The teacher should monitor carefully that all students can respond correctly to these questions before turning the students loose to find answers on their own. The teacher must be sure to call on students randomly. No matter who is called upon, the student should be able to name the next step or choose the key word or decide if the answer is contained in the paragraph just read aloud. Once every student can do these steps, they are ready to work on their own. Only at this point is it appropriate to ask students to look back for an answer. It will no longer be hard to motivate them to do this—because they have the skills to do it successfully. *ADI*

SIEGFRIED ENGELMANN

## *Thank You, Josh Baker*

I've been enormously lucky to have worked with people who taught me how to think straight and solve difficult problems. The person who may have influenced me the most was Joshua Baker.

I met Josh on my first day on the job at the Ingersoll Steel Company on the

far south side of Chicago. I was 15 and looking for a summer job that would get me in shape for athletic pursuits. I had heard that Ingersoll was a good place to go because it had an abundance of physically demanding jobs.

I had to talk the employment office into hiring me. There was a posted

sign that said, "No Hiring." I told the man at the counter, "In a factory this big, there has to be some job that nobody else wants to do. I'll do the job and do it well." I believed what I said, but I had no idea of how challenging those jobs were. He looked me in the eye, and I looked him in the eye. Then he said, "Are you sure you want that kind of job?"

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"Yes."



“Okay, you got it. Fill out this form.”

I did. I lied about my age. I wrote 16 because that was the minimum age for employment.

The next day, after a brief physical exam and receiving a pair of gloves and safety glasses, I returned to the man who hired me. He gave me my identification card, and showed me the time clock I would use to punch in and out. Then he called somebody to escort me to my work station. When we walked through the hallway into the factory the noise level rose to the point that I could hardly hear my escort, who shouted and cupped his hand around his mouth to focus his voice. We walked more than a city block through a maze of aisles flanked by huge presses and a three-high rolling mill that converted blocks of white-hot steel into 1/8 inch sheets that were about four feet wide and more than 20 feet long.

Finally we came to the annealing furnaces on the south side of the plant. The annealing furnaces provided the final finish on plow discs and other type of blades. The discs were first shaped by starting out as little blocks of white hot steel and then flattened, trimmed, and shaped by a series of presses. Then the discs were hung on hooks that transported them through the acid tub, and finally they went onto conveyor belts that carried them through the annealing furnaces, which hardened their surfaces.

The worker who stacked the discs after they finished their tour through the furnaces had the most demanding job on the line. The discs dropped unceremoniously but continuously in stacks of five from the conveyer onto an apron grid where they spread out. The worker picked them up and put them in a stack that would grow to more than four feet high before a fork lift would take them away and provide a new skid for the next stack.

The worker didn't touch the discs, but used long tongs. These look like pliers with jaws not much bigger than those on large pliers but with handles that were more than two feet long. The worker held the tongs with two hands and used it to shuffle and organize three or more blades at a time, pick them up, and with one looping motion, transport them to the stack that was growing on a wooden skid. As the stack became higher, the procedure required more effort to swing the blades up and rotate them so they would land neatly on top of the stack.

*As the discs kept dropping  
on the apron faster than I  
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a surge of panic; I also  
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The worker who operated a press just behind the end of the annealing line showed me how to use the tongs, and which oversized buttons to press to stop and start the conveyer. He also told me that a relief man would give me a five-minute break every hour. Then he turned on the conveyer, watched me for a few minutes, and went back to his press. I was on my own. As the discs kept dropping on the apron faster than I could gather them up, I felt a surge of panic; I also realized how hot it was. My station was right next to a huge overhead door that was open. Outside was a fan with blades as big as a small airplane propeller, blowing cooler air on me. The temperature was well over 110 degrees, but I didn't sweat. I just slowly became coated with salt.

I could not keep up with the discs as they relentlessly dropped from the conveyer. I was working as fast as I could but the pile of discs on the apron

grew so large that discs were sliding off the apron onto the floor. The man operating the press behind me noticed I was in trouble, turned off my conveyer, took my tongs, and cleaned off the apron. Then he said, “Don't kill yourself, but remember everybody on your line is on piece work. When the line goes slow, nobody on the line earns more than the minimum.”

Following those encouraging words, he started the conveyer and I tried like hell to keep up, but I couldn't. I had to stop again. This time I cleaned the discs off the apron and pressed the start button. The same thing was happening again. My arms hurt; my back hurt; I think I was crying but I didn't have tears, just salt. When I was ready to press the button again, a black man trotted over to the furnace, took my tongs and said, “Go outside and sit on your ass. I'm your relief man.”

I told him. “I can't do this job. I quit. I quit. I tried but I just can't do it.”

He said, “No, no. You're not quitting. You'll catch on. Go sit down for a while. I'll show you how to do it.”

I sat outside and watched him. He was in his mid 30s, about six feet tall and lean. As he worked, I could see that his arms were muscular. He didn't stop the conveyer. He just stacked and organized discs about four times as fast as I could do it, occasionally picking up discs from the floor. As he worked he pointed things out. “You want to stand like this, so the stack is more to your side. Then you take one step, pull the discs off the apron fast and make a sweet swing. Like this...” It probably took him less than two minutes to clear all the discs off the apron. Then, as the conveyer continued to discharge discs, he sat down across from me and told me, “I didn't know you were going to be here today, or I'd have been here earlier. I'll give you more than 5 minutes an hour, because it's important for you to learn

to make the right moves. If you don't learn them, you'll make the job hard because you'll swing the wrong way, take too many steps, and use too much energy. If you learn it right, the job isn't hard because you're sitting on your ass half the time. In fact the job is fun."

I thought: Like hell it's fun.

After he all but cleared the apron, he called over, asked if I was ready to try again, and handed me the tongs.

He watched me, as I did my fumbling best, and pointed out little details, like holding my right hand closer to the jaws of the tongs. "Gives you more leverage," he said.

After possibly a couple of minutes, he said, "I have 10 other guys I have to relieve, so I'll get back as soon as I can."

He came back about 20 minutes later and told me I was in luck because the other line he relieved was down. He worked with me on a couple of details, then told me to go sit on my ass again.

I made it through that first day but my forearms were throbbing; my back was screaming; my butt and legs were sore. And my self-confidence was on the rocks.

I took a bus home. People stared at me. I didn't know why until I got home. My mother looked at me and said, "Oh my god, what happened to you?" I looked in the mirror. The image reflected how I felt. My face was black around my nose and mouth with grey patches of dried sweat and soot covering the rest of my face."

I told my mother how work went and she said, "Well, you're not going back to that terrible place again!"

I went back. I was so sore that I didn't think I'd be able to hold onto the tongs. Also, I had discovered, when I showered the night before, that I had

left three coins in my back pocket (although somebody had mentioned not to wear metal objects) and my butt had three burn marks to show where the coins had been.

Josh relieved me about 15 minutes every hour over the next week. Also, he arranged it so the line was running about half the number of discs it ran on my first day.

My third day was a little better. My form definitely improved and I didn't fumble around as much trying to maneuver my tongs to pick up discs. I was still sore, very sore, but I could deal with it. One of the things that kept me going was thinking about the next day. It was Saturday and I would have two days to recover.

I improved steadily. During my breaks I would talk with Josh. I was fascinated with him. One day, he took his gloves off when we were talking, and I noticed that his left hand had only two fingers and a thumb. He explained that he was working a press that did something out of sequence and went down before he could get his hand out. He cautioned, "If you work on presses in this place, know your machine and know it well. They will sometimes screw up although management denies it. It's always operator error, never machine error. But don't ever forget that this a dangerous place to work."

From our conversations I learned that Josh had gone through two years at the University of Chicago. He quit because, "There aren't a hell of a lot of jobs for guys of my color, and I could see that I was on a dead-end road. So you just move on and do the best you can."

Our talks during breaks confirmed that he was a very smart guy. One time he told about helping a friend put a roof on his house. He explained how his friend was bungling the job and said, "If you build anything you have to understand basic rules of

geometry or you do stupid things." He explained measuring tricks to make sure that corners were exactly 90 degrees and that the roof joists were parallel and configured so they formed identical isosceles triangles.

The way Josh influenced me most was through his attitude and philosophy about work. Once, after I complained about the hard work in the mill, he said, "Be careful about thinking that way. A job is just a job. It doesn't interpret itself and say, 'Oh I am a good job,' or 'I am a horrible job.' It just sits there and is what it is. You're the one who interprets. And with all the jobs I've ever known, if you interpret them as a challenge that you can meet, that's what the job becomes. And if you really put your mind to it and say 'This job is fun,' you can make it fun."

"How do you do that?"

"Well, you just tell yourself, 'There is no way this job can beat me. I'm going to beat this job. I'll keep score and prove it to the job every day--I own you.' The day goes by faster, you have some good thoughts, and it doesn't cost any more than believing you hate the job and can't wait for the day to end. If you're going to work eight hours a day in a place like this you better enjoy doing what you're doing."

Another time he said, "The job is even more fun when you work on a piece-work line. If everybody on the line thinks of themselves as part of a team, they not only work better; they earn more."

He used our line as an example. He told me that they were running twice as many discs on the line as they should be running. He said, "Everybody on this line gets a piece-work bonus, and it's not much harder to do."

For me, it was a hell of a lot harder, but I took his advice and set goals for myself. My main goal or wish was to become as good as Josh, and I became

pretty good, but I didn't even come close to Josh. He remained totally out of my league. Near the end of the summer I was able to keep the apron clean when it carried twice as much material, and I could even pause from time to time, but there was no way I could sit on my ass half the time, until the last couple of weeks of the summer.

The mill closed the annealing furnaces to rebuild them. The time required for rebuilding was not very long, but they couldn't begin work until the furnaces cooled enough for workers to get inside and tear out the floor bricks.

The wait time was over a week. In the meantime, I was transferred to department 27, which was in a cold Mill that built things like large industrial sinks that were about six feet long. That's the line I was on.

I operated a press that was so big I could sit down in it sideways with both legs straight and arms stretched to the side. My whole body was inside the die area of the press.

I had the "toughest" press on the line because I had to perform more operations than the other press operators. The others just took the sink-in-work from the conveyor line that ran along the row of giant presses and put it in the press, then, using both hands, simultaneously hit the red buttons on either side of the opening. That made the press close and then reopen. Then the operators took the sink from the press and returned it to the conveyor.

I had to do several more steps. I couldn't simply lift the sink from the press after it was pressed, because the sink was stuck to the die. So I had to pull up the end of the sink that wasn't stuck and slam it down hard. Most of the time, this would free the sink. Sometimes it wouldn't. I used a long pry bar to wedge the sink free.

Because I was at the end of the line, I couldn't return the finished sink to the conveyor. I had to carry it five feet to

the side and stack it. I did all the things Josh taught me to do. I went through the steps slowly at first and thought about how I should position myself, how I could save time by saving steps. After only a few days, workers would stand around and watch me work. I was good. I had figured out how to position the sink in the die with one sweet swing. Then after I freed it, I didn't walk it over to stack it. I launched it so it landed softly on the stack. If you do it right, you don't dent the sink because it comes down on a cushion of air. True, I got bawled out a couple times by inspectors for denting sinks, and I was told not to toss them, but I continued to toss them so there wasn't a dent in a carload. By my last week on the job, I could sit on my ass while the sinks lined up on the conveyor, until the row of sinks are getting so long that the guy on the press behind me wouldn't have room to put his sink on the conveyor line. Then I would put on my show. It would take me maybe eight minutes to catch up. Then I would sit on a turned-over sink for about three minutes.

Two days before my "summer vacation" was over, I had an experience in which I could have lost my life if I hadn't heeded the advice Josh gave me. That advice was: "Know your machine." I knew mine, the loud "Pchoo" sound it made when you pressed the red buttons, how long it took for the press to close, how long it took to open.

On the life-threatening occasion, a sink in my press was so stuck that I couldn't release it with the pry bar. So I climbed inside the press with the bar to see if I could pry it out from the other side. Suddenly, I heard that unique announcement that only my press made: "Pchoo." I dropped the pry bar and dove out of the press, just before the press came down on my pry bar and broke the die inside the press.

Because my press was disabled, the line was down, and engineers appeared

within a couple of minutes. I told them what happened, but they didn't believe me. They said I left the pry bar inside the press. I showed them that it couldn't have happened that way because the damaged sink was already pressed. So the only way I could have created this outcome would have been to press the sink, then put my pry bar on top of the sink, and hit the buttons to press the sink again. "Why would I do something like that?"

I asked the other workers if they saw what happened. Nobody did. While they were waiting for the tool-and-die folks to remove the broken die from the press, the guy who operated the press behind me activated my press three or four times then waited a few seconds before activating it again. Each trial resulted in a faithful "Pchoo" followed by the press closing and opening. He looked me and shrugged. I think that the other press operators believed me, but it was basically my word against the engineers'; however, after we stood there about ten minutes, my press announced, "Pchoo" and came down without any coaxing from red buttons.

I said, "Did you see that? Did you see that?"

Yes, they all saw it or heard it. "Damn," one of them said, "you're one lucky son of a bitch."

I agreed. I was lucky to learn from the man who was obviously the best worker in the whole damn mill.

On my last day I walked over to the hot mill to say goodbye to Josh. We shook hands and I thanked him for all that he taught me. I told him I would never forget him.

He said, "This is not a good way to say goodbye. You come by at the end of the shift. We'll go across the street and I'll buy you a lemonade."

We went to the bar across the street. It was payday and the bar was crowded

and happy. The owner was also happy to cash everybody's check.

Josh bought me a lemonade and made an announcement. "Let's have a toast to Ziggy. He's going back to high school as a man."

Everybody cheered. The guys sitting around me slapped me on the back. I smiled and nodded and felt very proud of myself. After I finished my lemonade, one of the workers handed me a beer and said, "If you're going to be a man, you should be able to drink like a man." I drank the beer with bravado, and before I left the bar, I drank another beer. I could really feel it, so I didn't go straight home because I knew that my mother would smell the alcohol in a second. I went to a buddy's house and called my mother to tell her I'd be late because it was my last day at work. I hung out for about two hours. During that time, I ate a whole box of Sen-Sens to mask the smell of alcohol.

When I got home I went to the kitchen. My mother came in and pointed out that dinner was now cold. She brought some food from the refrigerator, looked at me, and said, "What is that odor? Have you been drinking alcohol?"

Not me.

That summer was not the last time I saw Josh. Two summers later, I thought I had a job as a lifeguard at the 75th street beach in Chicago. The job fell through and I went back to Ingersoll. Things had changed. The base salaries for working on lines were lower, but the piece-work bonuses were higher. Apparently this change was designed to promote greater efficiency. Josh, who now had a few grey hairs, had adapted to the change. He was no longer a relief man. Instead he would work at different jobs. As he explained to me, all production lines have a bottleneck. If you remove the bottleneck, the line goes faster, and everybody on the line makes more

money. So Josh analyzed different lines, identified the bottleneck in each, and then got together with the guys on the line. They discussed how Josh could take the keystone job, do it much faster than it ever had been done, and everybody on the line would earn big piece-work bonuses. Josh explained to me that this was a short-term strategy that worked for only a couple of weeks. Management would then "adjust" the piece-work rate on the job so the faster rate didn't earn any bonus. Time for Josh to find another line.

He told me that management was trying to find an excuse to close down the current line he was working on and said that if I wanted to see it I should drop by soon. He added, "It's pretty impressive."

The next day I dropped by for a couple-of-minutes survey and ended up watching it for about 20 minutes. It would have been spectacular in a circus. The bottleneck in the line was the third or fourth press in shaping 30-inch curved plow discs. The process starts with a white-hot block of steel. Then a couple of presses start to shape it. These presses go slowly because the disc rotates and stops, as a heavy

shoe pulls down on the side of the disc to taper it. After the disc is probably two feet in diameter, the bottleneck occurred. The hitch was that the operator removes the disc from the press but does not put it on a conveyor line because the next press is across the aisle, which is about 15 feet wide and accommodates workers, fork lifts, and small trucks that carry material and belch out fumes. The operator carrying the heavy disc has to wait for a break in the traffic, then walk across the aisle and transfer the disc to the next operator, who puts it in his press.

That routine had changed a lot. Josh had his buddy operating the bottleneck press. His buddy was big and very strong. When he took the disc out of the press, he didn't walk across the aisle with it. He held it with his tongs as he spun around in a full circle, then launched it, more than 15 feet in the air, right over the aisle. The disc turned white hot, as bright as the sun. And when it sailed through the air like a giant Frisbee, it lit up the mill.

Josh operated the press on the other side of the aisle. He stood there holding his tongs with one hand. The bottom handle of the tongs hung down. He tracked the disc as it came down,

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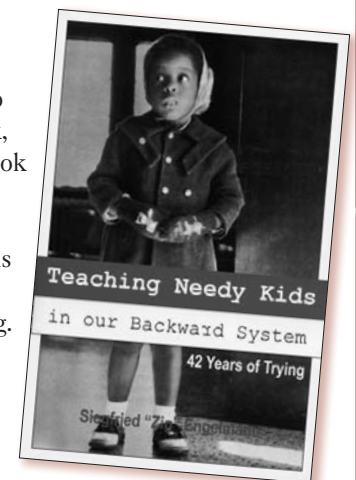
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positioned the jaw of his tong under the lip of the disc. Then he grabbed the other handle of his tongs, closed the jaws, swung the disc so it circled down, then up, right above the die in his press. Josh released it as it turned a dull red. Plop. I couldn't help it. I clapped when I saw it. I knew how spectacular it was because I knew how hard it was to use those long tongs, and I knew how heavy those big discs are.

I wasn't the only one watching this show. At least five other workers on break were watching. I said to the guy next to me, "Have you ever seen anything like that in your life?"

He smiled and said, "Hell no!"

In addition to workers were two men from the front office, wearing clean short-sleeve shirts and holding clipboards. They were not there for entertainment. They were waiting for Josh to drop a disc, just one, so they would have an excuse to make the line go back to the original configuration. During the time I watched, he didn't drop any, of course.

I marveled over the strength of Josh's buddy, and the precision of his delivery. If the discs didn't stay pretty level as they went through the air, Josh

wouldn't be able to get his tongs under their lip. If the discs didn't go as high as they went, they wouldn't clear the trucks that have big loads. The delivery was flawless and very consistent.

As for Josh, he was a magician who could explain every detail of his performance.

I briefly observed the performance again on the next day, the last day of the show. On the day that followed the line returned to its traditional configuration. Management couldn't use the excuse that Josh damaged material because during the days they observed he didn't drop one. Their back-up excuse was "Safety issues," particularly scales from the radiant disc that could badly burn somebody on the aisle below. Safety. Sure. During the three times I worked in the Mill, one guy was hung up on the hooks and dragged through the acid bath; another guy was cut in half by a sheet of steel that slid off the conveyor of three-high rolling mill, and a third guy was beheaded as he tried to clean the steel shavings out of his press.

Josh went back to a job he had earlier. It had an okay piece-work rate. Josh planned to stay there for a while as he found another bottleneck somewhere.

The good news was that during the 10 days Josh and his buddy put on their show, everybody on the line earned more than they could have earned in five weeks. So everybody was quite happy, including Josh.

The last time Josh and I talked, I commented on how technically sound every part of his show was. He said something like, "Yes, but I'm impressed with you because you can see the technical details of the job. You need to remember that. Think of the details of the job, any job. If you arrange details the right way, the job is well done, and fun."

In fact, I don't remember all the details of what Josh said or I said. So my account may be a little distorted in places, but I have very vivid memories of Josh, what he did, and the messages he conveyed to me. Over the years, I've tried to think in the manner he taught me to think. I have tried to make work something I look forward to. And I have faithfully followed his maxim that big pictures are composed of details, and the only way to engineer the big picture is to become aware of all the details and configure them so they work harmoniously together. Thank you, Josh. ~~ADI~~

MARTIN KOZLOFF, University of North Carolina

## MARTIN'S MUSINGS

### *Four-Level Procedure for Remediation*

Teaching is a lot like building a pathway. The mason cements bricks together (instruction) according to a plan (curriculum, scope and sequence). When a brick is firmly in place, the mason adds another brick (strategic integration of elements into larger wholes). The mason fixes prob-

lems **before** the path gets out of shape. For instance, the mason,

1. Taps a brick to line it up. [In teaching, this is simple *error correction*.]
2. Removes a brick, spreads the mortar again, and puts the brick back—making sure it fits better. [In teaching, this is called *part-firming*.]

3. Removes a crooked row, smoothes rough edges, and puts them back in place. [In teaching, this is called *reteaching*.] Or,
4. Determines that the path requires a **different brick-laying method**. So, the mason uses smaller bricks (focuses on smaller skill elements); uses a wooden frame (scaffolding) to hold the bricks till the mortar hardens; and uses special tools. [In teaching, this is *intensive instruction* or *remedial instruction*.]

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The procedure for remedying difficulties goes from small re-adjustments to larger changes. Let's apply this to teaching.

1. Students are taking turns reading a history text. The sentence is, "The Anti-Federalists wanted minimum government." Sally reads, "The Anti-Federalists wanted mimum government." Does Sally need a special education class? No, the *first and simplest thing to do is correct the error*.
2. What if Sally makes the same error again? Error correction didn't teach her to sound out the word. So, now you *focus on the part of the word with which Sally has difficulty*. It's called **part-firming**. Work on the "n says nnn" part. Then give a test/check. [Point to the letter n. "What sound?" *nnn*.] When Sally is firm, have her read "minimum" again.
3. Let's say Sally and five more students *frequently* misread words that have n, m, d, b. They read "night" for "might"; "dang" for "bang"; "mutt" for "nut"; "dent" for "bent." And they stop between sounds "Four...teen." "Foot...ball." "Mis...take." Simple error correction and part-firming didn't fix the problem. Why not? Probably because *these students have never been firm on the letter-sounds (n says nnn) and on the sounding out routine ("Don't stop between the sounds")*. So, they need to be **retaught**.
4. Finally, some students need more than error correction, part-firming, and re-teaching. They need to be *taught a different way*. They need to focus on smaller parts of the skill. They need more scaffolding, or additional methods to help them learn. For example, some students have difficulty transforming what they see (the written word) into speech. Other students have difficulty seeing the difference between how m and n look, or hearing the difference in how these letters sound. Some students need more

practice and review than their current curriculum provides. These students need *intensive instruction*. Also, some students have learned so many bad habits (such as guessing rather than sounding out unfamiliar words), that they need to be taught all over again. These students need *remedial instruction*.

Now let's examine each level of remediation.

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## *Level 1. Simple Error Correction*

### **When to Use Simple Error Correction**

Use simple error correction when students make errors that are simple to fix. For instance:

1. Students need the information presented again.  
"Here's the definition of spore...."  
"This letter makes the sound rrr."
2. Students weren't paying close attention and therefore misunderstood the question or misread a problem.
3. Students were going so fast (reading, adding numbers) that they made mistakes.

Tell students early on that they will make mistakes and that this is okay: "Everyone makes mistakes. I'll help you. You'll get it right. And you'll be smarter."

Remind students of the rule: "We don't make fun when people make mistakes." Also stress, "When you try hard, you get it. You succeed."

"Sally is trying hard. [Working a math problem.] She's going to get it.... She got it! When you try hard, you get it!"

### **Whom Do You Correct?**

*You correct the group if you asked for a group response. You correct an individual if you asked one student.*

### **Steps in the Simple Error Correction Procedure**

Students make errors reading the definition of usurpation.

1. **Model.** Show or say the information the student(s) missed.  
"Usurpation is a wrongful seizure of authority or privilege belonging to another."
2. **Lead.** Lead the group (if you called on the group) or the individual student (if you called on one student) to perform the information you just modeled. The lead is not always needed. It depends on whether students need the additional practice.  
"Define usurpation with me.....  
*Usurpation is a wrongful seizure...*"
3. **Test/check.** Repeat the question or tell students to perform the task again, to see if they learned it.  
"Define usurpation."
4. **Start over.** Students read the sentence again, or go back a few words on a word list they were reading, or go back to the beginning of a math problem. Why? By backing up or starting over, *students repeat the sequence that led*

to the error item. This puts the error item in context.

“Okay, let’s go back and start with unalienable right.”

5. **Retest.** After the task is *redone* (step 4), go back to the word, step, or item they missed, and retest.

“What’s the definition of...”

“Do that step again.”

*Pay attention to responses of students who first made the error.*

The purpose of the retest is to check retention. Do students remember the correct response?

### **Error Correction. Letter-sound Correspondence**

Ms. Cervantes is reviewing letter-sound correspondence. She has several examples of letters spread out on the board.

a m s t  
s e e i  
r i t m f a  
t e s f m

She points and taps next to each one and says,

“What sound?” [The whole class responds.]

*aaa*

“Yes, aaa.”

“What sound?”

*mmm*

“Yes, mmm.”

“What sound?”

*fff*

[The letter is f. Two children made an error. Noah said sss. Shania said rrr. Ms. Cervantes immediately points and taps next to the letter f, and says...]

“That sound is ffffffff.”  
[Model]

“Everybody. Say it with me.”  
[Lead]

*fff*

“Again, say it with me.” [She repeats the lead just to be sure.]

*fff*

“Everybody. Your turn. What sound?” [Test/check]

*fff*

“Yes, fff. You got it!” [Verification]

*Error correction itself is often not enough. Some students need an incentive to “get it right the first time.”*

[The class does a few more letter-sounds from the board, and then Ms. Cervantes goes back to f.]

“Everybody. What sound?”  
[retest]

*fff*

“Yes, fff. You got it right!” [Verification]

Later in the day, Ms. Cervantes tests/checks again occasionally by showing Noah and Shania the letters they had missed and asking “What sound?” Before the next lesson she’ll be sure to review all the sounds the students missed.

WARNING! Error correction itself is often not enough. *Some students need an incentive to “get it right the first time.”* Otherwise, they’ll continue to be sloppy, go too fast, not pay attention, and not try hard to learn. *There-*

*fore, it’s important to give incentives and reinforcement for getting it right the first time.*

“Boys and girls, let’s review all 10 of our vocabulary words. I’ll say a word; you think of the definition; and then I’ll call on ONE of you. **The error limit is TWO.** If you get eight or more correct, you get a 10 minute break for snack. Open your notebooks and review the vocabulary words before we start.”

“Roger, that was excellent the way you read that line with NO mistakes!”

### *Level 2. Part Firming*

Simple error correction works if students weren’t paying attention, or need to hear or see the information one more time, or were going so fast they made a mistake. But simple error correction isn’t enough if students’ *knowledge is weak.* For instance,

1. *Students are not firm on pre-skills and background knowledge, such as facts and concepts.*
2. *Students are not firm on the elements of a cognitive routine.* Students make multiplication errors when they don’t remember multiplication facts ( $7 \times 5 = 35$ ) or rules about renaming (35 is 3 tens and 5 ones).

$$\begin{array}{r} 3 \\ 67 \\ \times 45 \\ \hline \end{array}$$

What is a “part” in part firming? *A part is more than the specific item on which the student made an error.* Here are examples.

1. The sentence to read is, “The first book of the Bible is Genesis, which means beginning.” A student reads “general” rather than Genesis. *The part to firm would NOT* be just the one word, Genesis—as in simple error correction. *The part would*



be “*The first book of the Bible is Genesis.*”

2. Students are reading a word list. The teacher points to each word and says, “What word?”

and  
land  
ear  
rear  
oar  
roar  
lame  
flame

A student misreads “oar” as “ear.” *The part would be the four words—ear, rear, oar, and roar.* Why? Because reading these four words (not just oar) requires knowledge of the **same kind**. If you change e to o, ear becomes oar and rear becomes roar. If you change o to e, oar becomes ear and roar becomes rear. Therefore, *firm these four words as a unit, or part, so that students learn how e and o change words.* Do you see that if you merely corrected the *one* error (“That word is oar. What word?”) the student will make the same error on roar?

Part firming has a few more steps than simple error correction. Here’s the procedure. )

### Procedure for Part Firming

1. Model. Give the correct answer to the question or show the correct action in the task.
2. Repeat the task or question.
3. **Go back and repeat the part in which the task or question is located.**  
(Repeat steps 1-3 until the whole part is firm.)
4. Go to the next step/part.
5. Go back to the **beginning** of the exercise and do the whole series of steps/parts.
6. Give individual turns.

7. Give a delayed test/check **at least two more times** (once after you have done another exercise and once at the end of the lesson).

If the error has been corrected with this procedure, students will have practiced correctly at least 4 times:

- at step 3
- at step 5
- at step 7 (after another exercise)
- at step 7 (at the end of the lesson)

(From Mary Gleason. “Advanced DI delivery techniques.” 25th Annual National Direct Instruction Conference and Institutes. Eugene, OR. July, 1999.)

Let’s use part firming with one of the examples above.

### Part Firming. Misreading Words on a Word List

Students are reading a word list. The teacher points to each word and says, “What word?”

and  
land  
ear  
rear  
oar  
roar  
lame  
flame

Some students misread “oar” as “ear.” *The part to firm will the four words—ear, rear, oar, and roar—*because reading these four words requires knowledge of the same kind. When the teacher gets to “oar” and some students say “ear,” the teacher knows that the students aren’t firm on how e and o change the words. *So she takes these four words out of the list and works on them as a part.* Here are the steps in the part firming procedure.

#### 1. The model

Teacher. “Listen. I’ll sound out this word.” o a r

“I won’t say the a.” [States a rule.]

[Teacher moves her finger under the letters.]

“ooorrr.” [Model]

“Listen again. ooorrr.”

“Say it with me.” [Lead]

“Don’t say the a.” [Pre-correction.]

Teacher. “ooorrr.”

Class.

Teacher. “Your turn. Sound it out.” [Test/check]

Class. “ooorrr.”

Teacher. “Yes, ooorrr.”

[Teacher erases the o and writes e.] e a r

“I changed the o to e. Now I’ll sound it out.”

“I won’t say the a.”

[Teacher moves her finger under the letters.]

“eeerrr.”

“Listen again. eeerrr.”

“Your turn. Don’t say the a. [Test/check. Pre-correction.]

Class. “eeerrr.”

Teacher. “Yes, when we change the o to e, the word is eeerrr.”

[Now teacher does the same thing with rear and roar to show what happens when you change e to o and o to e.]

“Listen. I’ll sound out this word.” r e a r

“I won’t say the a.” [States a rule]

[Teacher moves her finger under the letters.]

“rrreeerrr.” [Model]

“Listen again. rrreeerrr.”

“Say it with me.” [Lead]

“Don’t say the a.” [Pre-correction.]

Teacher. “rrreeerrr.”

Class.

Teacher. “Your turn. Sound it out.”  
[Test/check]

Class. “rrreeerrr.”

Teacher. “Yes, rrreeerrr.”

[Teacher erases the e and writes o.] **r o a r**

“I changed the e to o. Now I’ll sound it out.”

“I won’t say the a.”

[Teacher moves her finger under the letters.]

“rrrooorrr.”

“Listen again.” rrrooorrr.”

“Your turn. Don’t say the a.”  
[Test/check. Pre-correction.]

Class. “rrrooorrr.”

Teacher. “Yes, when we change the e to o, the word is rrrooorrr.”

## 2. Repeat the task or action

[Teacher goes back to the word list—to the word students missed—oar.]

Teacher. “What word?” **o a r**

Class. “oar.”

Teacher. “Yes, oar. And you didn’t say the a!”

## 3. Go back and repeat the *part* in which the task or question is located.

[Teacher goes back up the word list and **restarts at ear**. Teacher pays attention to the response of students who made the errors.]

Teacher. “What word?” **ear**

Class. “ear.” **rear**

Teacher. “Yes, ear.” **oar**

“Next word. What word?”  
**roar**

Class. “roar.”

Teacher. “Yes, roar.”

“Next word. What word?”

**THINK.** [This is the spot where they erred.]

Class. “oar.”

Teacher. “Excellent! oar.”

“Last word. What word?”

Class. “roar.”

Teacher. “Yes, roar. You got them all right.”

## 4. Go to the next step/part.

[The teacher continues down the list.] **lame**

Teacher. “Next word. What word?”  
**flame**

Class. “lame.”

Teacher. “Yes, lame.”

Next word. What word? Careful. Look at that first letter.”  
[Pre-correction]

Class. “flame.”

Teacher. “Yes, flame.”

## 5. Go back to the beginning of the exercise and do the whole series of steps/parts.

[Teacher repeats the whole word list—it’s not too long.]

Teacher. “Starting over. You can do it.”

“First word. What word?”

Class. “and.”

Teacher. “Yes, and.”

[Teacher goes down the list. When she gets to the part that starts with ear, she tells students, “Be careful. Is it an o or an e?”]

## 6. Give individual turns.

[The teacher does the list again, calling on individual students—especially the students who made errors before. The teacher does the words in random order. But when she gets to the part, she does the juxtaposed words—ear/oar, rear/roar—so students can apply their firmed-up knowledge.]

Teacher. “What word? Jessie?”

Jessie. “ear.” **e a r**

Teacher. “Yes, ear. What word, Jessie.  
Careful.” **o a r**

Jessie. “oar.”

Teacher. “Terrific. You got it.”

## 7. Give a delayed test/check at least two more times (once, after you have done another exercise, and again at the end of the lesson).

The next exercise after the word list is story reading. Students take turns reading and answering comprehension questions about passages. After the exercise, the teacher quickly does the word list again. Next the class does several more exercises—spelling and writing paragraphs. That is the end of the lesson. The teacher does the word list one more time before going to the next lesson—math.

Please read the above procedure again. Just the communication with students. You’ll see that it goes pretty fast.

*Note. You may think that attention to such small details and so much repetition is not needed for all students. You may be correct. But it’s much better to err on the side of providing more scaffolding than your students need, than too little—which would mean continued errors and frustration. With repetition, you’ll learn how much your students need, and then adjust the procedure. For diverse learners, this highly-scaffolded instruction may be required.*

## Level 3. Reteaching.

A teacher was using a beginning reading program that has 150 lessons. The class was moving right along. At lesson 120, the kids were tested. It turns out that they had stopped learning at lesson 50! They couldn’t do what they were taught way back in lesson 60, or 80, or 110, etc. Therefore, the teacher had to go all the way back to lesson 50 and reteach 70 les-

sons. What a waste of time! How did this happen? Two reasons.

1. The teacher did not assess students' *acquisition* ("Did they learn what I just taught?") or *retention* ("Do they remember what they learned earlier?"). Therefore, she had no idea that students weren't learning or retaining.
2. *The teacher did not teach effectively in the first place.* She did not focus on objectives, did not use clear models, did not use a wide enough range of examples, did not correct errors or firm weak parts, did not review, etc.

*Some teachers receive students from earlier grades who don't have the pre-skills and background knowledge needed to learn the new material.* A third grade teacher should be working on reading connected text, but some students coming from grade 2 still can't read separate words accurately. An eighth grade teacher is supposed to work on algebra, but some students from grade seven still can't multiply or divide fluently. How did this happen? The same reasons as before. *Poor instruction and poor assessment of learning.* More time wasted.

*Sometimes it's not so extreme.* A teacher is preparing students for the next unit. He reviews background knowledge, such as vocabulary words, or math facts, or the routine for analyzing historical documents, or a big idea (a theory of social change). He finds out that students are weak.

In these three cases—lack of achievement in reading, algebra, and history—there is a lot that students don't know. Simple error correction isn't enough. Part firming isn't enough. Students need to be **re-taught**. Here's a procedure for reteaching. [It is very important that you review the documents cited below.]

## Procedure for Reteaching

1. **You have a rough idea that students are weak in some area, but you need to find out exactly what the weaknesses and gaps are.** So, have students perform the tasks with which they are weak. Identify what they don't know. Identify what they **need** to learn. For instance, students misread

boat as bowat  
float as flowat  
ship as s-s-s hip  
shack as s-s-shak  
dart asbart  
din as bin

What kinds of errors are students making?

- a. In boat and float, students are not treating the a after the o as silent.
- b. In ship and shack, students are not treating sh as a consonant digraph, and are instead saying each sound separately.
- c. Students are misreading d as /b/

Likewise, let's say students are slow and inaccurate at reading connected text. What do students need to know to read passages fluently? Carefully observe as they read a passage. This will tell you if they simply need to move more quickly from word to word, or if they need to read each word more quickly. Or if they are weak on the skills and steps in sounding out words (e.g., not stopping between sounds). Or if they are weak on letter-sound correspondence.

Finally, let's say students are making many errors on a retention test (cumulative review) of long division. Carefully watch them solve long division problems. You will see if they are weak on estimation. ["25 goes into 120....."] Or multiplication? ["4 times 25 is....."] Or subtraction. Or writing the numbers in the right place. [Please review the documents "Designing Instruction: Task Analysis" and "Designing Instruction: Phases of Mastery."]

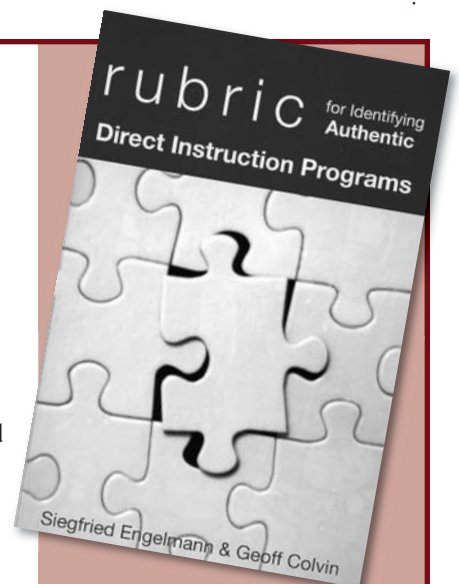
2. **Identify what you will reteach. Arrange the items in a logical sequence.** For example, you should

## Rubric for Identifying Authentic Direct Instruction Programs

Siegfried Engelmann & Geoff Colvin

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reteach letter-sound correspondence **before** you reteach how to sound out words that contain those letters. You should reteach fluency with single words before you reteach fluency with passages. [Please see item 6 in the document “Assessing and Improving Curriculum Materials.”]

3. **Examine curriculum materials that are used. Identify weaknesses. Correct them or get better materials.** Are objectives proper and clear? Is too much taught each lesson? Are tasks arranged illogically—for example, are students expected to learn a whole before they learn the elements? Is there enough review and practice? Are examples wide and varied? *Does it make sense to continue to use what doesn't work?* [Please review the document, “Assessing and Improving Curriculum Materials.”]

4. **Examine instructional procedures that are used, and the classroom environment. Identify weaknesses. Correct them.** For example, did the teacher consistently gain attention, focus on the objectives, provide clear models, lead students through tasks (several times until they “got it”), teach and immediately test small amounts, immediately correct errors or firm parts, juxtapose examples and reveal sameness and difference, give delayed acquisition tests to ensure that students learned the new material? If not, that may be why students didn't learn in the first place.

Did the teacher systematically work on fluency and generalization, and frequently review and practice earlier material, correct errors and firm parts as needed? If not, that may be why students didn't retain knowledge or can't apply knowledge to new examples. [Please review the document, “Delivering Instruction: Procedures for Teaching.”]

5. **Using your observations (in number 1 above), and prior knowledge of students, identify any special learning conditions students—especially your diverse learners—may need.**

For example,

a. Prompts to look at or listen to a specific thing.

(1) “Listen to the first sound in rrrrun.”

*Did the teacher systematically work on fluency and generalization, and frequently review and practice earlier material, correct errors and firm parts as needed? If not, that may be why students didn't retain knowledge or can't apply knowledge to new examples.*

(2) The teacher writes the words she, shack, ship, and shot on the board and has students sound them out, but instead of touching under the s and the h as students sound out the words, the teacher touches **between** and under the sh, as a prompt to say them **together**.

b. Repeated presentations of models or information.

“Listen. Alliteration is the **repetition** of initial **consonant** sounds in neighboring words. Such as **Mindy** found the **missing marble**. Listen again, alliteration is the repetition of initial consonant sounds in neighboring

words. Such as **Mindy** found the **missing marble**.”

c. Extra practice until students are firm. For instance, the teacher has students practice saying the “sh” sound by asking “What sound do these two letters make when they are together?”

d. Explicitly teaching rules. For example,

“When o comes before a (load, road), say oh and NOT aaa.”

The teacher has students state the rule before they sound out oa words.

Class. “When o comes before a (load, road), say oh and NOT aaa.”

Teacher. (points to “load”) “Does o come before a?”

Class. “Yes.”

Teacher. “What's the rule?”

Class. “Say oh and not aaa.”

Teacher. “Read it.”

Class. “load.”

Teacher. “Yes, load. You said oh and not aaa.”

e. Adding small tests/checks to ensure that students learn every bit of the information.

Teacher. “Listen. Alliteration is the repetition of initial consonant sounds in neighboring words. Such as **Mindy** found the **missing marble**. Do you hear a sound **repeated**?”

Class. “Yes.”

Teacher. “What sound?”

Class. “mmm.”

Teacher. “Is mmm a **consonant**?”

Class. “Yes.”

Teacher. “Is mmm an **initial** consonant

in Mindy, missing, and marble?”

Class. “Yes.”

Teacher. “Mindy found the missing marble. Are the words missing and marble **neighbors**?”

Class. “Yes.”

Teacher. “So, is ‘Mindy found the missing marble’ alliteration?”

Class. “Yes.”

Teacher. “Yes it is. You are so smart!”

7. **Determine whether the whole class or a smaller group needs reteaching.**
8. **Select a time and place for reteaching.** It’s a good idea to schedule reteaching time **soon after lessons** (in which the error patterns are discovered) and **right before next lessons** (that require that students are firm and no longer making the same errors).
9. **Select a learnable amount to work on during reteaching lessons.** For example, a teacher should only firm up a few letter-sound correspondences, and not ten at once.
10. **Keep track of progress on the objectives that you identified in number 2, above.**

## *Level 4. Remedial and/or Intensive Instruction*

Some students need more than error correction, part firming, or reteaching. They need to be taught a *different way*. This different way is provided through remedial instruction or intensive instruction.

### **What is the Difference?**

Some students have fallen behind. There are large gaps in their skills

because they’ve been “taught” for so long with poorly designed curriculum materials, with poorly delivered instructional methods, or in a classroom environment that is noisy and inefficient. They may be only a month behind or they may be years behind. For example, some students in grade 10 read at a fourth grade level. These students need well designed instruction that produces solid skills quickly. If not, they’ll never catch up and are likely to fail. **These students need remedial instruction.**

Some students are **diverse learners**. They may have cognitive impairments that affect their memory or the speed with which they produce language. They may be from minority cultures or impoverished families. Therefore, they have limited language skills, and few skills at gaining, organizing and retrieving knowledge.

### **Features of Remedial and Intensive Instruction**

Most effective remedial instruction will also be intensive instruction. Here are some of the main features. Note that these are often essential for your diverse learners.

1. **Students are tested to see where they “place” in a scope and sequence.** For example, most remedial and/or intensive programs consist of levels, and each level consists of lessons. Some students may place (be prepared for) level 2; others for level 1.
2. **Instruction is in small groups** (6-12) so the teacher can easily see, hear, and assist students, and so students receive many opportunities to respond.
3. **There are more prompts than in ordinary instruction.**
  - a. **Accentuation.** For example, to help students read words with a silent “a” or “e,” words might at **first** be written like this. fade seam.

- b. **The teacher provides more instructions, pre-corrections and reminders.**

“Everybody, put your finger under the **first** word.” [Teacher checks]

“Remember, **do not stop** between the sounds.”

“**First** you will say rrr. Again, **first** you will say rrr.”

“**First** you will say foot. **Then** you will say ball. What will you say **first**?”

- c. **Templates.** For instance, multiplication problems would have boxes under them so that students know where to write.
- d. **The teacher provides more think time.**

For example, students read a word list. Instead of pointing and tapping next to a word, and saying, “First word. What word?” the teacher says, “First word. **Sound it out in your head.....**What word?”

- e. **Graphic organizers**, such as visual concept maps, help students to organize and retrieve knowledge.
  - f. **The teacher emphasizes important words with “pause and punch.”**

“Listen. Conifers are trees with...(pause) NEEDLES... and... (pause) SCALELIKE leaves...and...(pause) CONES.”
4. **The teacher focuses on even tiny knowledge elements, and uses focused, explicit instruction.** For example, the teacher ensures that students
    - a. Know all the vocabulary words in instructions and in text.

b. Recognize and respond appropriately to important cues. For example, the teacher ensures that students see the difference between the + and – signs in math problems, and remember what to do.

“This [+] means add. What do we do when we see 3 + 4? We....”

c. Are firm on pre-skills and background knowledge needed **next** in a lesson. In other words, review and firming are not just at the beginning of the lesson, but **right before** the knowledge is needed as well. For example,

“Let’s review our sounds.”

r a m s  
o—> o—> o—> o—>

Then students sound out am, ma, ram, sam

d. The teacher uses focused, explicit instruction procedures: gain attention; frame instruction; model; lead; immediate acquisition test/check; error correction; examples and nonexamples; delayed acquisition test; review.

5. **Students are taught routines for remembering, organizing, retrieving, and applying knowledge.** Examples include lists, note cards, outlines, and simplified written routines to follow.

6. **Stronger reinforcement methods are used.** For example, there would be group rewards for achievement, with visual displays of progress. The teacher would frequently reinforce the group and individuals for attention, effort, imitating desirable behavior of other students, and accuracy. And students and teacher set performance objectives (such as the number of correct words read or problems solved per minute), and students chart their daily performance. *ADI*

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