Direct Instruction news
ADI Effective School Practices

RANDI SAULTER, Editor

New Strategies and Changes for Fall

Welcome to the fall 2012 edition of the *DI News*. This issue brings some changes, as Don Crawford is no longer the co-editor of the *News*. Randi Saulter remains as editor, and Don will still turn up in these pages to offer his wisdom as a contributor.

In fact, he has an article in this issue. "The Top Nine Problems Getting Choral Reponses" doesn't just examine the main reasons that teachers aren't getting choral responses the way they'd like, however. It looks at the ways in which teachers may *think* they are getting good choral responses when they aren't and strategies a teacher can use to diagnose and fix those problems.

Another article that presents some helpful strategies is Barack Rosenshine's "Principles of Instruction: Research Strategies that All Teachers Should Know." A reprint from the Spring 2012 edition of *American Educator*, this article integrates a list of ten principles drawn from solid research findings with strategies teachers can use to implement those principles in the classroom.

Speaking of research, we also have some information about research done on researchers and their research! "Results of the National Institute for Direct Instruction's Researcher Survey" reports on that very thing, having asked those interested and/or participating in DI research about their background, interests, and availability to continue building a robust DI research community.

Our community is a thriving one indeed, as was evidenced by the success of yet another summer conference and another round of awards presented. This is covered in Amy Johnston's article "Excellence in Education Awards at the National DI Conference." The stories of the recipients receiving the Siegfried Engelmann Award Excellence in Education Award, the Wesley Becker Excellent School Award, the Hall of Fame Award, the Wayne Carnine Student Improvement Awards, and the first-ever Carnine Sustained Student Achievement Award are always inspiring and this years' are no exception.

Of course, none of this would be possible without the groundbreaking work of Zig Engelmann, and from NIFDI we learn of a video biography about Zig that was released this summer. Be sure to check it out.

Finally, we have another reliably excellent piece from Dr. Martin Kozloff. In this issue, Dr. Kozloff takes an unflinching look at the repeated failure of public education over the past few decades. Then, he examines the ways in which teachers can become more effective based on *real* research about how humans acquire knowledge and how we can apply that to curriculum development and to different teaching activities.

The new school year's been underway for a couple of months in most places by now, and we hope that as you settle into it, you find this issue of the *DI News* both motivating and packed with information you can use! ADI

AMY JOHNSTON, Executive Director, Association for Direct Instruction

ADI News

Most educators spend at least a portion of their summer (often a significant portion) planning for the next school year. Summers at ADI are marked by our annual National Conference, but this summer the Association also spent a great deal of time planning. Since joining ADI last year, I have made a point of examining the what, how, and why of our operations. As a result, much of the spring and summer was spent analyzing the inner workings of ADI and then planning how we can do things better.

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In this issue

Direct Instruction News

The DI News is published in the fall, spring, summer, and winter by the Association for Direct Instruction. The Association for Direct Instruction is a professional organization dedicated to the development and dissemination of information and training for users of Direct Instruction.

The Association for Direct Instruction was incorporated in 1981 in the state of Oregon for educational purposes. ADI is a nonprofit, tax-exempt corporation under Section 501(c)3 of the Internal Revenue Code and is a publicly supported organization as defined in Sections 170(b)(1)(A)(ii) and 509(a)(1). Donations are tax-deductible.

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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.

ADI News... continued from page 1

In June, ADI members were asked to vote on a ballot to convert ADI's membership from "voting" to "nonvoting". At the time of the mailing, there were just under 500 members eligible to vote on this issue. We received 104 responses voting in favor of the measure, and 3 votes against the measure. Due to the overwhelming positive response, the ADI Board of Directors was able to vote unanimously to accept an amended version of our bylaws making the change official. The ADI Board now has the ability to make decisions affecting the future of the organization rather than putting every issue before the membership for a vote at the Annual National Direct Instruction Conference. This is significant because it will allow ADI to be more responsive and more flexible now and in the future.

Another change that was made this summer was the decision to make the 2012 issue of the *Journal of Direct Instruction* (JODI) our last. Over the last few years the number of submissions we received for each issue steadily decreased. In addition, researchers who were able to publish in a journal with a broader readership often did so. Finally, it is expensive for any organization, particularly one the size of ADI, to publish a peer-reviewed journal. Rather than struggle to publish a few articles each year, we are repurposing our resources to frequently publicize timely research that is important to our members.

To that end, I am very excited to announce our first new research initiative, our brand new research blog (currently titled "Educational Research & Direct Instruction"). The purpose of the blog is to "push" timely, relevant information on educational research to our members that will help address current issues in schools and classrooms here in the US and around the world. Over time, we plan to invite a wide range of researchers to be guest contributors to our research blog. Our first two regular contributors will be Dr. Kerry Hempenstall, of RMIT in Melbourne Australia, and Dr. Cristy Coughlin of Eugene, Oregon. Be sure to visit our website at www.adihome.org for more information.

In addition to all of the exciting activities above, we also held our annual National Direct Instruction Conference and Institutes here in Eugene, Oregon this July. Our National Conference always attracts a very diverse group of attendees with this year being no exception. This year, we welcomed attendees from 6 countries (other than the US), 38 states, and 126 schools or districts!

Siegfried "Zig" Engelmann opened the conference with a rousing keynote on the psychology of teaching that was, in my opinion, one of his best. Zig's keynote is a must watch, and is now available on our website (see below). Our invited keynote this year was Eric Mahmoud, Founder and CEO of four charter schools in Minneapolis, Minnesota. He shared with an audience of more than 500 educators from around the world his "Five-Gap Analysis" and "Gap-Closing Framework" as well as the results from each of his four schools. The impact he is having on lives of young people in Minneapolis is profound. It was evident that I wasn't the only one moved by his words when I looked around at the close of this address and saw tears of hope and inspiration flowing from the eyes of nearly all in attendance. This is one that you'll definitely want to share with your colleagues, friends and family.

Other notable mentions from this year's National Conference include a first-ever "Bonus Session" presented by Dr. John Stone, founder and president of the Education Consumers Foundation (ECF) as well as a presentation and book signing by Clear Teaching author, Shep Barbash. Both presentations, as well as the opening keynotes, are available for online viewing at www.adihome.org. The DVDs are also available for purchase from our online store or by calling us at 800-995-2464.

I'd like to leave you with the closing words from Mr. Mahmoud's keynote: *"Our children are in the race of life. Not only do we have to give them the skills, we have to give them the confidence to compete. Not only do we have to give them the confidence to compete, we have to give them the grit so that each and every time they fall, they get back up. And then most importantly, when our children fall, who's going to be there to pick them up and get them back in the race? That's the work of educators."*

Thank you all for the work that *you* do and thank you for your support of ADI. I wish you all a wonderful school year full of hope and success. 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.

Apology from Randi

In the previous issue of the *DI News*, the article "The Singapore Implementation" was mistakenly credited to Doug Blancero with the affiliation Educational Resources, Inc. Doug Blancero's affiliation is JP Associates, Inc. Randi apologizes profusely for the error!

AMY JOHNSTON, Executive Director, Association for Direct Instruction

Excellence in Education Awards at the National DI Conference

For more than thirty years the Association for Direct Instruction has been honoring educators, researchers and students who have achieved exceptional success through their use of Direct Instruction with our annual Excellence in Education Awards. The recipients are nominated by their peers and recognized each July at the ADI National Direct Instruction Conference in Eugene, Oregon. Awards given this year include the Siegfried Engelmann Excellence in Education award, the Wesley Becker Excellent School Award, five Wayne Carnine Student Improvement Awards, and a first-ever Carnine Sustained Student Achievement Award.

Siegfried Engelmann Excellence in Education Award

Jason Dejolie

The 2012 Siegfried Engelmann Excellence in Education award was made to Jason Dejolie, the fifth grade teacher at Hunter's Point Boarding School in Window Rock, Arizona. Hunter's Point is a Bureau of Indian Education (BIE) school that has approximately 20 students per grade level. Although the school previously participated in the BIE Reads program, used *Reading Mastery*, and even made AYP their first two years using RM, the year Dejolie joined them (SY 2011-2012) they lost their principal and their entire teaching staff and were defunded. Dejolie, an experienced DI teacher in his mid-twenties, was undaunted. With energy and enthusiasm, he organized his fellow new staff members and trained them in implementing *Reading Mastery*. Dejolie called Dr. Linda Carnine, who had been the DI consultant at his former school, to share his excitement

Linda Carnine and Jason Dejolie

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.

Ahfachkee School
Clewlaton, FL

American Preparatory Academy
Draper, UT

Awsaj Institute for Education
Qatar

Baltimore Curriculum Project Inc.
Baltimore, MD

Bear River Charter School
Logan, UT

Cape York Aboriginal Australian Academy
Cairns, Australia

Centennial Public School
Utica, NE

City Springs School
Baltimore, MD

CUSD300
Carpentersville, IL

David Douglas Arthur Academy
Portland, OR

Educational Resources Inc.
Ocala, FL

Foundations for the Future Charter Academy
Calgary, AB

Gresham Arthur Academy
Gresham, OR

KRESA
Portage, MI

Legacy Academy of Excellence
Rockford, IL

Leigh Brougher, McGraw-Hill School Education Group
Dewitt, MI

Lucklamute Valley Charter School
Dallas, OR

Mille Lacs Band of Ojibwe
Cloquet, MN

Morningside Academy
Seattle, WA

Mystic Valley Regional Charter
Maiden, MA

Nay Ah Shing Abinoojiyag
Onamia, MN

Portland Arthur Academy
Portland, OR

Ramah Navajo School Board
Pine Hill, NM

Reynolds Arthur Academy
Troutdale, OR

Rogue River School District
Rogue River, OR

St. Helens Arthur Academy
St. Helens, OR

Standing Rock Community School
Fort Yates, ND

Standing Rock Elementary School
Bismark, ND

USD #428
Great Bend, KS

Woodburn Arthur Academy
Woodburn, OR

with her over the gains he was seeing in his new school using *Reading Mastery*. After hearing his story and reviewing his school's NWEA and DIBELS data, Dr. Carnine nominated him for the 2012 Siegfried Engelmann Excellence in Education Award. In nominating him, Dr. Carnine wrote: "It takes considerable leadership to bring an entire faculty on board, provide the training they need to implement the *Reading Mastery* program and get the kind of student achievement results in one year."

Wesley Becker Award, Kim Gagnard (left) and Mary Detscher (right)

Wesley Becker Excellent School Award

Avoyelles Public Charter School, Mansura, Louisiana

Avoyelles Public Charter School (APCS) was selected as the recipient of the 2012 Wesley Becker Excellent School Award because for ten years they have shown continuous improvement. APCS began in 2000 with 250 students in grades K-4 in the small farming town of Mansura, Louisiana. Today they serve 700 students in grades K-12. APCS, led by founder and executive director Julie Roy, has the "highest expectations for students and teachers" according to their DI consultant from Educational Resources, Inc. (ERI), Mary Detscher. "All students are there to learn, and all teachers are there to teach. Julie believes that student learning is a direct function of instruction and she insists on stellar instruction."

APCS was recently recognized as the number one charter school in the state of Louisiana in student achievement data (LEAP, GEE, attendance). 99% of their students passed the Louisiana Educational Assessment Program (LEAP), 100% passed the Graduation Exit Examination (GEE) and End of Course (EOC) tests, and they had a 95% attendance rate. Louisiana gives schools a letter grade of A+ to F based on test scores on state testing in grades 3 through high school. In 2011, APCS earned an A+ rating for the second year in a row.

The pride that the students take in their own accomplishments and in their school is evidenced by the numerous letters of support we received from APCS students supporting their school's nomination for the 2012 Wesley Becker Excellent School Award.

No one made a more convincing case, however, than long-time APCS Board Member Julia Boston. Julia writes: "This school has been a beacon to this parish and an example to other schools across the state. APCS has proven that dedication, accountability, and determination made a difference for all children, regardless of race, socioeconomic background, or family unit construction. The school represents the parish's minorities, poor, wealthy, middle-class, single-family households, and racially mixed families, all of which find success at APCS." She sums up her praise of APCS saying "…everyone from top to bottom is in the business of educating children. It is their goal that all students learn and their belief that all students can learn that impresses me the most."

Hall of Fame

Dr. Cathy Watkins

This year, the ADI Board of Directors nominated their own Cathy Watkins, ADI Board President, to the Hall of Fame. Cathy recently retired as a Professor of Special Education from California State University, Stanislaus, where she served on the faculty for 23 years and was the Director of the Center for Direct Instruction. In addition to her academic duties, Dr. Watkins is an extraordinary practitioner, demonstrating a passionate commitment to

Hall of Fame, Cathy Watkins (left) and Milly Schrader (right)

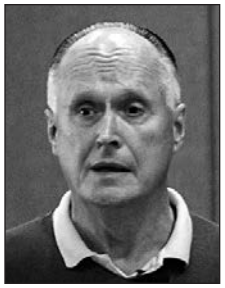
implementing effective instruction in the schools.

Karen Sorrentino, who emceed this year's Awards Celebration, said, "I've known Cathy a long time and I can honestly say Cathy has never taught without profound understanding, a lot of emotion, a great sense of humor, and most importantly, passion." Ms. Sorrentino then turned the podium over to Cathy's longtime friend, colleague, and fellow Hall of Fame member Milly Schrader, who presented the award.

Milly recounted her earliest memories of working with Cathy: "After working in Project Follow Through for a number of years, I decided I wanted to become a principal. I was excited when I got to be the principal of the lowest performing Title I school in the district. I was excited about it, but I also knew that you can have all the knowledge in the world … but you need somebody to come in ... and help. And that's when Cathy came in. Cathy came in as a consultant to work with teachers and bring in the knowledge that needed to happen. She always knew what needed to be said. She got my teachers to the point where they really understood. After 12 years, my school became the highest performing Title I school in the district and outperformed half of the regular schools. Cathy's indomitable spirit was infectious and helped me greatly."

Milly asked her fellow Hall of Famers Linda Youngmayr and Tim Slocum for quotes to share with Cathy during her award presentation. Linda Youngmayr said that, "Cathy is the task master of

good instruction. Students know it, and those who understand worship her for it. Others fear her, for she is unrelenting in communication of standards and good instruction."



John Stone

Tim Slocum, eloquent as always, contributed the following: "Cathy's vision and leadership have been absolutely critical in keeping ADI healthy. Cathy has a rare understanding of Direct Instruction, an ability to communicate and inspire, and an absolute dedication to effective instruction. Collaborating with Cathy on the ADI Board and on writing projects have been among the highlights of my career."

Upon accepting her award, Cathy said "I've seen the names of the people who are on that (Hall of Fame) plaque, so I can tell you that I am deeply humbled and tremendously honored to receive this award."

Wayne Carnine Student Improvement Awards

Tayevawn "Taye" Felton

Taye is seven years old and is in the second grade. He was nominated by retired DI educator Betsy Primm, who has worked with Taye's teacher, Donna House. Taye's nomination was sent to ADI in the form of a scrapbook that was simply too wonderful not to share. A complete version can be found on our website at www.adihome.org by typing "Taye" in the search box in the upper right hand corner of the home page. Here is a condensed version of Taye's story as written by Betsy Primm.

According to Taye's mother, his kindergarten experience was "horrible". At the end of kindergarten, Taye only knew a few letter names and sounds. In first grade, he made little progress. Then Taye had the good fortune to land in Mrs. Donna House's class. Mrs. House is one of those dedicated, capable, and caring teachers that every parent wants for their child.

Mrs. House noted that Taye was a gifted singer, had a good oral vocabulary, was able to communicate his thoughts and ideas well, and had a strong working memory—especially for details. Mrs. House realized that he had good potential, but she was concerned that she did not have the materials or the time to be able to give Taye the individualized instruction in reading that she thought he needed.

Mrs. House mentioned her concern about finding the right reading program to a colleague who suggested *Teach Your Child to Read in 100 Easy Lessons*. That conversation caused Mrs. House to remember that she had used DISTAR as part of her student teaching many years earlier in Appleton, Wisconsin. In Mrs. House's words, "I remember it (DISTAR) being the best part of my student teaching experience because the children were successful and so was the teacher."

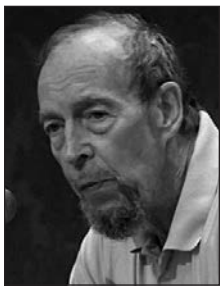
She bought a copy of the book, studied it, and decided to give it a try. That decision proved to be a turning point for Taye and also for Mrs. House. After four months of reading instruction with *Teach Your Child to Read in 100 Easy Lessons*, Taye's score on the District Benchmark Assessment *went from 40% to 74.29%!* As of this writing, Taye is almost finished with the book. His motivation to learn to read well is infectious. Mrs. House states, "I have no doubt that Tayevawn can read as well or better than the majority of children in second grade. Taye's perseverance, motivation and solid acquisition of reading skills this year has been and will continue to be examples to his teachers, his family, and his classmates. He is truly lighting the way!"

Ana Moreno

Ana is a fifth-grade student at Hutchinson Magnet School at Allen in Hutchinson, Kansas and was nominated by her teacher, Ms. Barbara Vieyra. Ana began using *Reading Mastery* (RM) in third grade, and was already well behind her peers testing into *RM I*. Ana made considerable progress during third grade, however, and scored in the "Exceeds Standards" category on the Kansas Assessment of Modified Measures for reading with accommodations. In fourth grade, Vieyra says, "I saw what every teacher wants to see in a student; Ana was becoming a child who loved to read!" Ana again scored in the "Exceeds Standards" category.

In fifth grade Ana was working in *Corrective Reading Decoding B2*. In the spring of this year, Ana achieved a score of 96%, the highest score in the entire fifth grade, on the Kansas Assessment of Modified Measures for reading with accommodations placing her into the "Exemplary" category.

As a result of her hard work, perseverance, and success in Direct Instruction, Ana will take the regular state assessment in reading in the Spring of 2013.



Zig Engelmann

Breck Beaver

Breck is a third-grade student at Avoyelles Public Charter School (APCS) in Mansura, Louisiana and was nominated by his reading teacher, Ms. Dana Dauzat. Breck has attended APCS since kindergarten and has received his reading instruction through *Reading Mastery* that entire time. Although Breck consistently made forward progress, his progress was hard won through many repeated lessons to ensure mastery. According to Ms. Dauzat, "He never complained, and he continued to work hard never giving up."

Breck began this year in *RM III*, but was tested and moved to the Horizons C/D group because of his outstanding progress. Throughout his academic career, Breck has always tested into the "intensive" category on DIBELS. This spring, for the first time ever, Breck scored at the "strategic" level. He is not in the highest reading group, but this spring he was the top performer in his group and, according to his teacher, "loves reading!" Breck is now reading on grade level and will begin fourth grade in *RM V*!

Guillermo Ortega Villa

Guillermo is a fifth grade student at

Harvard Elementary in Tacoma, Washington and was nominated by his principal Mr. Paul Elery. According to Mr. Elery, "In the last year and a half, Guillermo has moved up almost three grade levels in reading achievement and is now reading 80 words per minute! After spending kindergarten through half of third grade not reading, our instructional program and focus on providing enough repetitions has started to pay off." He goes on to say, "One of the side effects of Guillermo's academic success is the development of a great sense of humor and a glowing personality. He continues to work hard and seeing a great big smile on his face means he's learned something new. During the first few years at Harvard, we never saw that smile. Now, we see Guillermo smiling everyday!"

Michael (Mikey) Poledna
Mikey is a fourth grade student at Gresham Arthur Academy in Gresham, Oregon and was nominated by the school's Intervention Specialist, Amber Sparks (Amber is now the Principal.)

Ms. Sparks began working with Mikey during the 2011-2012 school year when he first entered her school. Mikey was very excited about taking the math placement test, but struggled when he got to the word problems, telling Ms. Sparks "I don't read so good." After completing his math placement, Ms. Sparks administered the fourth grade reading placement test. Mikey did not pass. Ms. Sparks promised Mikey that she would teach him how to read.

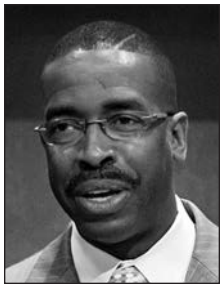
On his first check-out in *Corrective Reading Decoding B1* on January, Mikey read 21 words per minute. On his last check-out on May, he read 79 words per minute!

In addition to the incredible progress Mikey made in reading, his behavior has also made a complete transformation. Ms. Sparks writes, "He is now happy and engaged. He feels so proud of himself….His parents have said that he is a whole new kid even at home."

Carnine Sustained Student Achievement Award

Amanda Bhirdo
The first-ever Carnine Sustained Student Achievement Award was made to Amanda Bhirdo. Amanda was a recipient of the Wayne Carnine Student Achievement Award in 2001. When her nomination for the same award was received again this year, Dr. Doug Carnine and Dr. Linda Carnine decided to create a new award category more befitting of Amanda's many accomplishments.

When Amanda was in first grade, her IQ was estimated to be 63. Her mother, Martha, was told that Amanda would "peak" mentally as a third grader, that she would spend her life folding envelopes, and that she would live in a group home. At the age of eight, Amanda was diagnosed with infantile autism, this replacing an earlier diagnosis.


Eric Mahmoud

Not willing to give up on her daughter, Martha decided to homeschool Amanda and traveled the country in search of programs that could help. Enter Direct Instruction. Throughout the remainder of her academic career, Amanda was taught using Direct Instruction and, in fact, Amanda would eventually finish *all* of the DI programs. Her mother, inspired by the progress she saw in Amanda, went on to complete a master's degree in Special Education and eventually her doctorate.

Amanda eventually *did* catch up with her peers. At the age of 15, Amanda dually enrolled in the Florida Virtual School (an online high school), and in Florida Keys Community College. This spring, Amanda not only graduated from high school (in three years!) with a 4.0 GPA, but also graduated from Florida Keys Community College with 115 credit hours and a 3.94 GPA (she only needed 60 hours to graduate)!

This July, Amanda began the next chapter of her life as a student at Miami International University of Art and Design expecting to graduate with a bachelor's degree in 2-3 years. ADI

DON CRAWFORD, Director, Arthur Academies, Portland, Oregon

The Top Nine Problems Getting Good Choral Responses

Having all students in a class think about a question and generate their own answer to it increases active engagement and opportunities to respond, thereby increasing learning dramatically. That's why we use choral or unison responses so much in the Direct Instruction curricula. However, it is vitally important that the teacher know if all students are generating the correct answer. Done properly, a unison response allows the teacher to hear if some students are generating a different and therefore incorrect response. Unfortunately, it takes a fairly high level of skill to get a class to give the kind of choral response that enables the teacher to hear that some students are mistaken. Or, to say it another way, it is easy for choral responding to obscure errors and allow students who do not know the material to go uncorrected. Here are the top nine problems teachers have getting good choral responses.

1. Not having a good signal overall. A good signal has five parts: a focus cue, think time, a voice cue, a brief and consistent pause, and the auditory (snap, clap or tap) or visual (hand-drop) signal. If the students

are looking at their books you use the auditory signal. If they should be looking at you, be sure to use a silent visual signal—so they have to keep their eyes on you. The focus cue is the question or item to answer. The think time must be long enough to ensure all the students have time to come up with the answer. Students are taking a breath during the brief pause and getting ready to answer. The brief pause has to be of consistent length so students know when you will snap or drop your hand. They are to answer exactly with the snap or the hand drop. The signal has to have all those pieces so you can control think time and so students know exactly when to answer.

Solution: Have a good signal with all five parts: a focus cue, think time, a voice cue, a brief and consistent pause, and the auditory (snap, clap or tap) or visual (hand-drop) signal. Video yourself or have someone observe you to see if all the parts are there.

2. **Not giving students enough think time.** One of the most common reasons students do not answer on signal is that they haven't been given enough think time. If a teacher gives so little think time that no one can answer on signal, it becomes fairly obvious. There will be a couple of seconds of silence and then the quickest student in the bunch will generate an answer and the others will try to chime in as the leader is answering. This is pretty blatantly a problem of inadequate think time. But if the teacher doesn't realize why the students didn't answer on signal, she may simply repeat the item immediately. The second time around, the students don't need much in the way of think time because they already know the answer. So the second time, everyone can answer on signal. In the case where a teacher gives some think time, but not enough for all of the students to generate their own answer, the answer will come on signal, but will sound weak because only the quickest thinking students answered on signal. In that case, the "I need to hear everybody" before repeating the same question over again will solve the choral response problem, but will not reveal the underlying problem of inadequate think time.

****Immediate solution: Say "I didn't hear everyone answering on signal. I'm not sure everyone knows that item. I'm going to ask it again in a minute." Confirm the correct answer and go on and do two or three more items giving them more think time. If the problems stop, that's a good clue that inadequate think time was the cause. Now come back and give the missed item again (a delayed test), but this time give a good bit more think time, and see if the students really can answer on signal. If they all do answer and they answer on signal, you're good to go. If not, you have some more teaching to do. In either case you now have clear information, which is the point of the choral responding.*

3. **Missing the voice cue.** Where the scripts in DI programs say *(Signal)* it is assumed that teachers know that the signal will include the voice cue *and* the final snap or hand drop. So the voice cue, such as "Get ready," or "Everybody," is usually not stated in the script. In some instances, such as "What word?", there is something that can be used as a voice cue in the script, but not always. If a teacher reads the question in the script, such as "What's the title of the story?", sees the script with the word *(Signal)* and then simply snaps, students will not be able to answer in unison—because the voice cue is missing. Students do not know when the signal is coming without the voice cue and the consistent but brief pause after it. With the voice cue and the consistent pause students know when the final snap or hand drop is coming. So if the teacher asks the question, "What's the title of the story?" gives think time, then gives a voice cue such as "Get ready!" and then snaps—students will be able to answer on signal.

Solution: Be sure you have a voice cue such as "Get ready!" or "Everybody!" and a consistent but brief pause before every signal.

4. **Fixing all problems of choral responses only by immediately repeating the item again.** When some of the students do not answer on signal, any number of problems arises. This could be a compliance problem, but sometimes it is not. Students often want to answer on signal but need more think time, or lost track of the lesson, or don't really know the answer. The programs say to repeat the item to get everyone responding on signal. But immediately after a choral response all students can simply parrot the answer and usually in unison—even if they didn't understand the question. Imagine a student who had no idea of the answer and hears a few of the other students answer "Fifty-six." Then the teacher says, "I need to hear everyone together. What's eight

times seven?" And now the student (and everyone else) can say, "Fifty-six!" The students could correctly give the answer even if they didn't hear the question because all they have to do is repeat "Fifty-six." They don't need think time, because they know what they are supposed to say without processing the question. Even though the problem of "answering on signal" is fixed, the underlying problems may still be there. The teacher doesn't know who knows the answer and who is just parroting the answer.[1] The teacher also doesn't know if the students need more think time than she has been giving. If this happens more than a few times during a lesson, where the teacher gets a poor response and then simply repeats the item immediately, the teacher really doesn't know if the students are at mastery.

****Immediate solution: Same as above in # 2—but especially important to extend the think time when you do the delayed test. That's the most frequent reason students can't answer a question on signal.*

Long term solution: Fix your signal, give more think time, and always use a voice cue before the signal.

5. **Allowing some students to get by without answering the first time.** Sometimes a number of students do not answer a question. Again, it is a mistake to treat this as a compliance problem (unless you know it is a compliance problem because the only student who didn't answer was looking out the window). Saying "I need to hear everybody!" and immediately repeating the question will ensure the choral response sounds good, but you won't know why it didn't sound good in the first place. You don't know if the students weren't at mastery, weren't paying attention, needed more think time, etc. Your main job as a teacher is to know if your students are "getting" the lesson, so it is not OK to fix the problem and not know the underlying cause. Making the choral responses "sound" good is not the goal. The goal is for all the students to be able to generate their own answers to the questions and therefore be able to answer on signal the first time you ask the question.

****Immediate solution: Same as above in # 2. Make your students accountable for answering by making eye contact, looking at them and their mouths to see they are answering, and acting like you are interested in whether or not they all know the answer. Bend down and turn your head to "listen" obviously.*

Your main job as a teacher is to know if your students are "getting" the lesson, so it is not OK to fix the problem and not know the underlying cause.

Long term solution: Find other ways to make all students accountable for answering. Watch student mouths, look them in the eyes, and praise individuals or parts of the class who are answering on signal. You can give individual turns to students or to parts of the group you know didn't answer. When you say "I need to hear everybody answer!", make eye contact with the students who aren't answering.

6. **Allowing students to shout answers.** When you say, "I need to hear everybody answer!" your students will usually answer with louder voices. That's what crowds do when speakers say the same thing—everyone roars. So if teachers say that often, "I need to hear everybody!" it is not surprising to hear classes shouting out their answers in DI classrooms. But we do *not* want answers that are shouted out loudly. Why? Not just because it is annoying and hurts one's ears. There are two much more important reasons allowing students to yell out their answers is not good. One, shouting answers makes it hard to tell when some students have dropped out and couldn't answer the question. Two, shouting, especially among the leaders, also drowns out incorrect responses for which the teacher should be listening. In classrooms where students routinely shout out their answers, individual turns, if given to a random sample of the students, will reveal a number of students who are not at mastery because their lack of participation or incorrect answers could not be heard over the shouting.

Solution: Tell students you want them to answer in "normal" voices, or "inside" voices, or "college" voices. Call on one or two or three students to model answering in a "normal" voice. Then have a row do the same thing. Then have the whole class answer in a "normal" voice. Praise this and insist on it. Repeat any item where the students shout. (This is a compliance problem, so this is the correct response). Be consistent and you can fix this problem quickly. It is important because you are losing valuable information about the level of mastery in your class by letting your leaders shout out their answers. When you do tell students that you need everyone to answer, you can calmly add, "I don't need anyone to shout, I just need everyone to answer."

7. **Allowing students to answer in a slow, drony fashion**. It is easier for students to answer in unison if they answer in a slow, drony way—especially for answers of more than one word. So it is not surprising that when teachers tell students they want them all to answer together, students slow down so everyone can say it all together. But we do *not* want answers that are droned out slowly. Why? Not just because it is annoying and boring. There is another much more important reason that allowing students to give slow, drawn out answers is not good. It becomes much easier for students who did not know the answer to chime in and answer along with the group if the

1 Occasionally teachers will say, "I need everyone to answer together!" and then go on to a new item, "What's eight times three?" instead of repeating the previous item (8 x 7). Often, one of those students, who is used to parroting the answer everyone else just said, will chime in (nice and loudly too) with the answer "Fifty-six!" to the previous question. That tells you that your immediately repeated questions are just getting parroted answers.

answer is coming out slowly. Teachers can then be led to believe that all their students know the answer when in fact a large number do not. We recently proved this in a professional development day. We demonstrated that the half of the room that could not see the name of the month being indicated was able to answer along with the half who could see it when we allowed drony responses. After the first part of the name of the month came out the other half of the room joined in and it sounded like everyone knew the name of the month to which we were pointing.

Solution: Tell students you want them to answer "normally," or "quickly," or "like we talk." Call on one or two or three students to model answering "like we talk." Then have a row do the same thing. Then have the whole class answer "like we talk." Praise this and insist on it. Set a brisk pace by clapping for each word in a sentence answer. Repeat any item where the students begin to drone. (This is a compliance problem, so this is the correct response). Be consistent and you can fix this problem quickly. It is important because you are losing valuable information about the level of mastery in your class by letting your students give slow and drony answers.

8. **Allowing students to answer before the signal or "signal jump."** Some students answer before the signal. If the teacher has a clear signal, uses a voice cue, and has a consistent pause before the snap or hand drop, then there is only one reason students answer before the signal. The reason is that they want attention or recognition for being smarter than the other students. They are hoping that by answering ahead of the signal, the teacher will see that they are smarter than the other students. So the worst thing a teacher can say in this circumstance is, "You're so smart. You answered before everyone else. But I want you to wait for my signal."

Solution: Give absolutely no attention to a signal jumper. Don't even look their way. Praise, give eye contact and attention to students who answered appropriately by saying, "Samantha, you answered exactly on my signal. You are so-o-o-o smart to be able to answer on signal!" Then wait for the signal jumper to answer on signal and give him or her praise for answering on signal. Another useful technique is to say, "I'm going to try to trick you!" give unpredictably more think time on an item, then praise students who weren't tricked and answered on signal. As long as you give the voice cue and the consistent pause before the snap or hand drop, students can hold an answer a long time. Be sure to treat waiting for the signal to answer as the smartest behavior possible.

9. **Failing to catch and stop "coat-tailing."** The term coat-tailing indicates that students are answering on the coattails of another student or students. When students are coat-tailing they are not generating their own answers. You don't know if they know the material—but most likely they don't know it, or they need more think time. If you have been allowing signal jumping, drony responses, or shouting of answers it will be difficult to catch coat-tailing. Those problems have to be fixed so you can tell if some students are coat-tailing. If no students are shouting, none are jumping the signal, and all the students are giving crisp, quick answers, you may then be able to hear if some students are coat-tailing. There is one sure-fire way to know that you have coat-tailing in a group. If you ever have even one instance where all of the students make the same mistake, you know beyond the shadow of a doubt that your group has been coat-tailing one student. That is really bad. Your students haven't been learning; they haven't been thinking and generating their own answers. They've just been copying your leader.

****Immediate Solution: Take your leader or leaders out of the group for the day, ask them to not answer for a few items or move them to a different group. Then give a lot more think time (perhaps even use "Thumbs up when you know") before you signal for answers. Give tons of very enthusiastic praise to the ones who answer on signal. You have to change some habits. You need to get those coat-tailers to generate their own answers and then motivate them to continue to do so.*

Long term solution: You are going to have to make sure all parts of your signal are in place and that you are giving enough think time. Err on the side of too much think time until you get everyone to answer on signal. Fix problems of signal jumping, shouting, or drony responses if you have them. Use the techniques for when students aren't answering at all—make them accountable to answer and answer on signal. Fix poor choral responses by having the students do it again, but in a delayed test, so they have to be thinking. In short, you'll need to implement everything in this article to fix problems of coat-tailing! ADI


Direct Instruction News
ADI Effective School Practices
DON CRAWFORD and RANDI SAUTER, Editors
Old DI Advice Still Rings True
Fall 2012, Volume 11, Number 2
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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 Randi Saulter, **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! *—Randi, editor*

CAITLIN RASPLICA, Assistant Director of Research, NIFDI

Results of the National Institute for Direct Instruction's (NIFDI) Researcher Survey

The National Institute for Direct Instruction (NIFDI) recently asked Direct Instruction (DI) researchers and those interested in research to complete a brief survey regarding their experience and interests surrounding DI. The primary purpose of the survey was to connect researchers and promote collaboration within the field. Therefore, the survey asked respondents questions regarding their background, current research projects, courses and grade levels taught, and the extent to which they would like to be involved in building this research community.

To date, 40 DI enthusiasts have responded to the survey, all with varying backgrounds and interests. The majority of respondents gained experience with Direct Instruction through research; however, many also have experience teaching at all levels from elementary to the collegiate level. About one-third of survey respondents have experience with DI through consultation or coaching.

The respondents have a range of interests, from DI at the preschool level to the high school level, as well as interests in all subject areas including reading, math, language, writing, spelling, and science. However, over three-fourths of the respondents agreed on one area of interest in particular: special education.

Respondents also indicated a variety of educational experiences and employment statuses. Many of these fell under the fields of special education and educational leadership. Two-thirds said they were currently employed by a college or university. However, a large number also noted that they were affiliated with or have been affiliated with a consulting firm or nonprofit organization. The DI researchers represented many different professions including professors, special education teachers, literacy coaches, curriculum specialists, research scientists, and educational consultants.

Over four-fifths of the respondents indicated that they were interested in collaborating with others on DI research projects. NIFDI is helping to facilitate communication and collaboration through distributing a directory to those who have indicated interest. Researchers who would like to be included in these communications can join the list by visiting the NIFDI website at www.nifdi.org/15/research and following the link on the right hand side of the page. NIFDI will update its directory of researchers regularly. Researchers and others interested in research on DI may contact NIFDI's Department of Evaluation and Research at 877.485.1973 or research@nifdi.org. ADI

BARAK ROSENSHINE, Emeritus Professor of Educational Psychology, University of Illinois at Urbana-Champaign

Principles of Instruction: Research-Based Strategies That All Teachers Should Know

This article presents 10 research-based principles of instruction, along with suggestions for classroom practice. These principles come from three sources: (a) research in cognitive science, (b) research on master teachers, and (c) research on cognitive supports. Each is briefly explained below.

A. *Research in cognitive science:* This research focuses on how our brains acquire and use information. This cognitive research also provides suggestions on how we might overcome the limitations of our working memory (i.e., the mental "space" in which thinking occurs) when learning new material.

B. *Research on the classroom practices of master teachers:* Master teachers are those teachers whose classrooms made the highest gains on achievement tests. In a series of studies, a wide range of teachers were observed as they taught, and the investigators coded how they presented new material, how and whether they checked for student understanding, the types of support they provided to their students, and a number of other instructional activities. By also gathering student achievement data, researchers were able to identify the ways in which the more and less effective teachers differed.

C. *Research on cognitive supports to help students learn complex tasks:* Effective instructional procedures—such as thinking aloud, providing students with scaffolds, and providing students with models—come from this research.

Even though these are three very different bodies of research, there is *no conflict at all* between the instructional suggestions that come from each of these three sources. In other words, these three sources supplement and complement each other. The fact that the instructional ideas from three different sources supplement and complement each other gives us faith in the validity of these findings.

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Education involves helping a novice develop strong, readily accessible background knowledge. It's important that background knowledge be readily accessible, and this occurs when knowledge is well rehearsed and tied to other knowledge. The most effective teachers ensured that their students efficiently acquired, rehearsed, and connected background knowledge by providing a good deal of instructional support. They provided this support by teaching new material in manageable amounts, modeling, guiding student practice, helping students when they made errors, and providing for sufficient practice and review. Many of these teachers also went on to experiential, hands-on activities, but they always did the experiential activities *after*, not before, the basic material was learned.

The following is a list of some of the instructional principles that have come from these three sources. These ideas will be described and discussed in this article:

- Begin a lesson with a short review of previous learning.[1]
- Present new material in small steps with student practice after each step.[2]
- Ask a large number of questions and check the responses of all students.[3]
- Provide models.[4]
- Guide student practice.[5]
- Check for student understanding.[6]
- Obtain a high success rate.[7]
- Provide scaffolds for difficult tasks.[8]
- Require and monitor independent practice.[9]
- Engage students in weekly and monthly review. [10]

1. Begin a lesson with a short review of previous learning: Daily review can strengthen previous learning and can lead to fluent recall.

Research findings

Daily review is an important component of instruction. Review can help us strengthen the connections among the material we have learned. The review of previous learning can help us recall words, concepts, and procedures effortlessly and automatically when we need this material to solve problems or to understand new material. The development of expertise requires thousands of hours of practice, and daily review is one component of this practice.

For example, daily review was part of a successful experiment in elementary school mathematics. Teachers in the experiment were taught to spend eight minutes every day on review. Teachers used this time to check the homework, go over problems where there were errors, and practice the concepts and skills that needed to become automatic. As a result, students in these classrooms had higher achievement scores than did students in other classrooms.

Daily review is an important component of instruction. Review can help us strengthen the connections among the material we have learned.

In the classroom

The most effective teachers in the studies of classroom instruction understood the importance of practice, and they began their lessons with a five- to eight-minute review of previously covered material. Some teachers reviewed vocabulary, formulae, events, or previously learned concepts. These teachers provided additional practice on facts and skills that were needed for recall to become automatic.

Effective teacher activities also included reviewing the concepts and skills that were necessary to do the homework, having students correct each others' papers, and asking about points on which the students had difficulty or made errors. These reviews ensured that the students had a firm grasp of the skills and concepts that would be needed for the day's lesson.

Effective teachers also reviewed the knowledge and concepts that were relevant for that day's lesson. It is important for a teacher to help students recall the concepts and vocabulary that will be relevant for the day's lesson because our working memory is very limited. If we do not review previous learning, then we will have to make a special effort to recall old material while learning new material, and this makes it difficult for us to learn the new material.

Daily review is particularly important for teaching material that will be used in subsequent learning. Examples include reading sight words (i.e., any word that is known by a reader automatically), grammar, math facts, math computation, math factoring, and chemical equations.

When planning for review, teachers might want to consider which words, math facts, procedures, and concepts need to become automatic, and which words, vocabulary, or ideas need to be reviewed before the lesson begins.

In addition, teachers might consider doing the following during their daily review:

- Correct homework.
- Review the concepts and skills that were practiced as part of the homework.
- Ask students about points where they had difficulties or made errors.
- Review material where errors were made.
- Review material that needs overlearning (i.e., newly acquired skills should be practiced well beyond the point of initial mastery, leading to automaticity).

2. Present new material in small steps with student practice after each step: Only present small amounts of new material at any

time, and then assist students as they practice this material.

Research findings

Our working memory, the place where we process information, is small. It can only handle a few bits of information at once—too much information swamps our working memory. Presenting too much material at once may confuse students because their working memory will be unable to process it.

Therefore, the more effective teachers do not overwhelm their students by presenting too much new material at once. Rather, these teachers only present small amounts of new material at any time, and then assist the students as they practice this material. Only after the students have mastered the first step do teachers proceed to the next step.

The procedure of first teaching in small steps and then guiding student practice represents an appropriate way of dealing with the limitation of our working memory.

In the classroom

The more successful teachers did not overwhelm their students by presenting too much new material at once. Rather, they presented only small amounts of new material at one time, and they taught in such a way that each point was mastered before the next point was introduced. They checked their students' understanding on each point and retaught material when necessary.

Some successful teachers taught by giving a series of short presentations using many examples. The examples provided concrete learning and elaboration that were useful for processing new material.

Teaching in small steps requires time, and the more effective teachers spent more time presenting new material and guiding student practice than did the less effective teachers. In a study of mathematics instruction, for instance, the most effective mathematics teachers spent about 23 minutes of a 40-minute period in lecture, demonstration, questioning, and working examples. In contrast, the least effective teachers spent only 11 minutes presenting new material. The more effective teachers used this extra time to provide additional explanations, give many examples, check for student understanding, and provide sufficient instruction so that the students could learn to work independently without difficulty. In one study, the least effective teachers asked only nine questions in a 40-minute period. Compared with the successful teachers, the less effective teachers gave much shorter presentations and explanations, and then passed out worksheets and told students to solve the problems. The less successful teachers were then observed going from student to student and having to explain the material again.

Questions allow a teacher to determine how well the material has been learned and whether there is a need for additional instruction.

Similarly, when students were taught a strategy for summarizing a paragraph, an effective teacher taught the strategy using small steps. First, the teacher modeled and thought aloud as she identified the topic of a paragraph. Then, she led practice on identifying the topics of new paragraphs. Then, she taught students to identify the main idea of a paragraph. The teacher modeled this step and then supervised the students as they practiced both finding the topic and locating the main idea. Following this, the teacher taught the students to identify the supporting details in a paragraph. The teacher modeled and thought aloud, and then the students practiced. Finally, the students practiced carrying out all three steps of this strategy. Thus, the strategy of summarizing a paragraph was divided into smaller steps, and there was modeling and practice at each step.

3. Ask a large number of questions and check the responses of all students: Questions help students practice new information and connect new material to their prior learning.

Research findings

Students need to practice new material. The teacher's questions and student discussion are a major way of providing this necessary practice. The most successful teachers in these studies spent more than half of the class time lecturing, demonstrating, and asking questions.

Questions allow a teacher to determine how well the material has been learned and whether there is a need for additional instruction. The most effective teachers also ask students to explain the process they used to answer the question, to explain how the answer was found. Less successful teachers ask fewer questions and almost no process questions.

In the classroom

In one classroom-based experimental study, one group of teachers was taught to follow the presentation of new material with lots of questions.[11] They were taught to increase the number of factual questions and process questions they asked during this guided practice. Test results showed that their students achieved higher scores than did students whose teachers did not receive the training.

Imaginative teachers have found ways to involve all students in answering questions. Examples include having all students:

- Tell the answer to a neighbor.
- Summarize the main idea in one or two sentences, writing the summary on a piece of paper and sharing this with a neighbor, or repeating the procedures to a neighbor.

- Write the answer on a card and then hold it up.
- Raise their hands if they know the answer (thereby allowing the teacher to check the entire class).
- Raise their hands if they agree with the answer that someone else has given.

Across the classrooms that researchers observed, the purpose of all these procedures was to provide active participation for the students and also to allow the teacher to see how many students were correct and confident. The teacher may then reteach some material when it was considered necessary. An alternative was for students to write their answers and then trade papers with each other.

Other teachers used choral responses to provide sufficient practice when teaching new vocabulary or lists of items. This made the practice seem more like a game. To be effective, however, all students needed to start together, on a signal. When students did not start together, only the faster students answered.

In addition to asking questions, the more effective teachers facilitated their students' rehearsal by providing explanations, giving more examples, and supervising students as they practiced the new material.

The following is a series of stems[12] for questions that teachers might ask when teaching literature, social science content, or science content to their students. Sometimes, students may also develop questions from these stems to ask questions of each other .

How are _____and_____alike?

What is the main idea of _____?

What are the strengths and weaknesses of _____?

In what way is_____related to _____?

Compare_____and_____with regard to _____.

What do you think causes _____?

How does _____tie in with what we have learned before?

Which one is the best _____, and why?

What are some possible solutions for the problem of _____?

Do you agree or disagree with this statement: _____?

What do you still not understand about _____?

4. Provide models: Providing students with models and worked examples can help them learn to solve problems faster.

Students need cognitive support to help them learn to solve problems.

Research findings

Students need cognitive support to help them learn to solve problems. The teachers modeling and thinking aloud while demonstrating how to solve a problem are examples of effective cognitive support. Worked examples (such as a math problem for which the teacher not only has provided the solution but has clearly laid out each step) are another form of modeling that has been developed by researchers. Worked examples allow students to focus on the specific steps to solve problems and thus reduce the cognitive load on their working memory. Modeling and worked examples have been used successfully in mathematics, science, writing, and reading comprehension.

In the classroom

Many of the skills that are taught in classrooms can be conveyed by providing prompts, modeling use of the prompt, and then guiding students as they develop independence. When teaching reading comprehension strategies, for example, effective teachers provided students with prompts that the students could use to ask themselves questions about a short passage. In one class, students were given words such as "who," "where," "why," and "how" to help them begin a question. Then, everyone read a passage and the teacher modeled how to use these words to ask questions. Many examples were given.

Next, during guided practice, the teacher helped the students practice asking questions by helping them select a prompt and develop a question that began with that prompt. The students practiced this step many times with lots of support from the teacher.

Then, the students read new passages and practiced asking questions on their own, with support from the teacher when needed. Finally, students were given short passages followed by questions, and the teacher expressed an opinion about the quality of the students' questions.

This same procedure—providing a prompt, modeling, guiding practice, and supervising independent practice—can be used for many tasks. When teaching students to write an essay, for example, an effective teacher first modeled how to write each paragraph, then the students and teacher worked together on two or more new essays, and finally students worked on their own with supervision from the teacher.

Worked examples are another form of modeling that has been used to help students learn how to solve problems in mathematics and science. A worked example is a step-by-step demonstration of how to perform a task or how to solve a problem. The presentation of worked examples begins with the teacher modeling and explaining the steps that can be taken to solve a specific problem. The teacher also identifies and explains the underlying principles for these steps.

Usually, students are then given a series of problems to complete at their desks as independent practice. But in research carried out in Australia, students were given a mixture of prob-

lems to solve and worked examples. So, during independent practice, students first studied a worked example, then they solved a problem; then they studied another worked example and solved another problem. In this way, the worked examples showed students how to focus on the essential parts of the problems. Of course, not all students studied the worked examples. To correct this problem, the Australian researchers also presented partially completed problems in which students had to complete the missing steps and thus pay more attention to the worked example.

5. Guide student practice: Successful teachers spend more time guiding students' practice of new material.

Research findings

It is not enough simply to present students with new material, because the material will be forgotten unless there is sufficient rehearsal. An important finding from information-processing research is that students need to spend additional time rephrasing, elaborating, and summarizing new material in order to store this material in their long-term memory. When there has been sufficient rehearsal, the students are able to retrieve this material easily and thus are able to make use of this material to foster new learning and aid in problem solving. But when the rehearsal time is too short, students are less able to store, remember, or use the material. As we know, it is relatively easy to place something in a filing cabinet, but it can be very difficult to recall where exactly we filed it. Rehearsal helps us remember where we filed it so we can access it with ease when needed.

A teacher can facilitate this rehearsal process by asking questions; good questions require students to process and rehearse the material. Rehearsal is also enhanced when students are asked to summarize the main points, and when they are supervised as they practice new steps in a skill. The quality of storage in long-term memory will be weak if students only skim the material and do not engage in it. It is also important that all students process the new material and receive feedback, so they do not inadvertently store partial information or a misconception in long-term memory.

In the classroom

In one study, the more successful teachers of mathematics spent more time presenting new material and guiding practice. The more successful teachers used this extra time to provide additional explanations, give many examples, check for student understanding, and provide sufficient instruction so that the students could learn to work independently without difficulty. In contrast, the less successful teachers gave much shorter presentations and explanations, and then they passed out worksheets and told students to work on the problems. Under these conditions, the students made too many errors and had to be retaught the lesson.

It is not enough simply to present students with new material, because the material will be forgotten unless there is sufficient rehearsal.

The most successful teachers presented only small amounts of material at a time. After this short presentation, these teachers then guided student practice. This guidance often consisted of the teacher working the first problems at the blackboard and explaining the reason for each step, which served as a model for the students. The guidance also included asking students to come to the blackboard to work out problems and discuss their procedures. Through this process, the students seated in the classroom saw additional models.

Although most teachers provided some guided practice, the most successful teachers spent more time in guided practice, more time asking questions, more time checking for understanding, more time correcting errors, and more time having students work out problems with teacher guidance.

Teachers who spent more time in guided practice and had higher success rates also had students who were more engaged during individual work at their desks. This finding suggests that when teachers provided sufficient instruction during guided practice, the students were better prepared for the independent practice (e.g., seatwork and homework activities), but when the guided practice was too short, the students were not prepared for the seatwork and made more errors during independent practice.

6. Check for student understanding: Checking for student understanding at each point can help students learn the material with fewer errors.

Research findings

The more effective teachers frequently checked to see if all the students were learning the new material. These checks provided some of the processing needed to move new learning into longterm memory. These checks also let teachers know if students were developing misconceptions.

In the classroom

Effective teachers also stopped to check for student understanding. They checked for understanding by asking questions, by asking students to summarize the presentation up to that point or to repeat directions or procedures, or by asking students whether they agreed or disagreed with other students' answers. This checking has two purposes: (a) answering the questions might cause the students to elaborate on the material they have learned and augment connections to other learning in their long-term memory, and (b) alerting the teacher to when parts of the material need to be retaught.

17 Principles of Effective Instruction

The following list of 17 principles emerges from the research discussed in the main article. It overlaps with and offers slightly more detail than the 10 principles used to organize that article.

- Begin a lesson with a short review of previous learning.
- Present new material in small steps with student practice after each step.
- Limit the amount of material students receive at one time.
- Give clear and detailed instructions and explanations.
- Ask a large number of questions and check for understanding.
- Provide a high level of active practice for all students.
- Guide students as they begin to practice.
- Think aloud and model steps.
- Provide models of worked-out problems.
- Ask students to explain what they have learned.
- Check the responses of all students.
- Provide systematic feedback and corrections.
- Use more time to provide explanations.
- Provide many examples.
- Reteach material when necessary.
- Prepare students for independent practice.
- Monitor students when they begin independent practice.

-Barak Rosenshine

In contrast, the less effective teachers simply asked, "Are there any questions?" and, if there were no questions, they assumed the students had learned the material and proceeded to pass out worksheets for students to complete on their own.

Another way to check for understanding is to ask students to think aloud as they work to solve mathematical problems, plan an essay, or identify the main idea in a paragraph. Yet another check is to ask students to explain or defend their position to others. Having to explain a position may help students integrate and elaborate their knowledge in new ways, or may help identify gaps in their understanding.

Another reason for the importance of teaching in small steps, guiding practice, and checking for understanding (as well as obtaining a high success rate, which we'll explore in principle 7) comes from the fact that we all construct and reconstruct knowledge as we learn and use what we have learned. We cannot simply repeat what we hear word for word. Rather, we connect our understanding of the new information to our existing concepts or "schema," and we then construct a mental summary (i.e., the gist of what we have heard). However, when left on their own, many students make errors in the process of constructing this mental summary. These errors occur, particularly, when the information is new and the student does not have adequate or well-formed background knowledge. These constructions are not errors so much as attempts by the students to be logical in an area where their background knowledge is weak. These errors are so common that there is a research literature on the development and correction of student misconceptions in science. Providing guided practice after teaching small amounts of new material, and checking for student understanding, can help limit the development of misconceptions.

7. Obtain a high success rate: It is important for students to achieve a high success rate during classroom instruction.

Research findings

In two of the major studies on the impact of teachers, the investigators found that students in classrooms with more effective teachers had a higher success rate, as judged by the quality of their oral responses during guided practice and their individual work. In a study of fourth-grade mathematics, it was found that 82 percent of students' answers were correct in the classrooms of the most successful teachers, but the least successful teachers had a success rate of only 73 percent. A high success rate during guided practice also leads to a higher success rate when students are working on problems on their own.

The research also suggests that the optimal success rate for fostering student achievement appears to be about 80 percent. A success rate of 80 percent shows that students are learning the material, and it also shows that the students are challenged.

In the classroom

The most effective teachers obtained this success level by teaching in small steps (i.e., by combining short presentations with supervised student practice), and by giving sufficient practice on each part before proceeding to the next step. These teachers frequently checked for understanding and required responses from all students.

It is important that students achieve a high success rate during instruction and on their practice activities. Practice, we are told, makes perfect, but practice can be a disaster if students are practicing errors! If the practice does not have a high success level, there is a chance that students are practicing and learning errors. Once errors have been learned, they are very difficult to overcome.

As discussed in the previous section, when we learn new material, we construct a gist of this material in our long-term memory. However, many students make errors in the process of constructing this mental summary. These errors can occur when the information is new and the student

did not have adequate or well-formed background knowledge. These constructions are not errors so much as attempts by the students to be logical in an area where their background knowledge is weak. But students are more likely to develop misconceptions if too much material is presented at once, and if teachers do not check for student understanding. Providing guided practice after teaching small amounts of new material, and checking for student understanding, can help limit the development of misconceptions.

I once observed a class where an effective teacher was going from desk to desk during independent practice and suddenly realized that the students were having difficulty. She stopped the work, told the students not to do the problems for homework, and said she would reteach this material the next day. She stopped the work because she did not want the students to practice errors.

Unless all students have mastered the first set of lessons, there is a danger that the slower students will fall further behind when the next set of lessons is taught. So there is a need for a high success rate for all students. "Mastery learning" is a form of instruction where lessons are organized into short units and all students are required to master one set of lessons before they proceed to the next set. In mastery learning, tutoring by other students or by teachers is provided to help students master each unit. Variations of this approach, particularly the tutoring, might be useful in many classroom settings.

8. Provide scaffolds for difficult tasks: The teacher provides students with temporary supports and scaffolds to assist them when they learn difficult tasks.

Research findings

Investigators have successfully provided students with scaffolds, or instructional supports, to help them learn difficult tasks. A scaffold is a temporary support that is used to assist a learner. These scaffolds are gradually withdrawn as learners become more competent, although students may continue to rely on scaffolds when they encounter particularly difficult problems. Providing scaffolds is a form of guided practice.

Scaffolds include modeling the steps by the teacher, or thinking aloud by the teacher as he or she solves the problem. Scaffolds also may be tools, such as cue cards or checklists, that complete part of the task for the students, or a model of the completed task against which students can compare their own work.

One characteristic of effective teachers is their ability to anticipate students' errors and warn them about possible errors some of them are likely to make.

The process of helping students solve difficult problems by modeling and providing scaffolds has been called "cognitive apprenticeship." Students learn strategies and content during this apprenticeship that enable them to become competent readers, writers, and problem solvers. They are aided by a master who models, coaches, provides supports, and scaffolds them as they become independent.

In the classroom

One form of scaffolding is to give students prompts for steps they might use. Prompts such as "who," "why," and "how" have helped students learn to ask questions while they read. Teaching students to ask questions has been shown to help students' reading comprehension.

Similarly, one researcher developed the following prompt to help students organize material.[13]

Draw a central box and write the title of the article in it.

Skim the article to find four to six main ideas.

Write each main idea in a box below the central box.

Find and write two to four important details to list under each main idea.

Another form of scaffolding is thinking aloud by the teacher. For example, teachers might think aloud as they try to summarize a paragraph. They would show the thought processes they go through as they determine the topic of the paragraph and then use the topic to generate a summary sentence. Teachers might think aloud while solving a scientific equation or writing an essay, and at the same time provide labels for their mental processes. Such thinking aloud provides novice learners with a way to observe "expert thinking" that is usually hidden from the student. Teachers also can study their students' thought processes by asking them to think aloud during problem solving.

One characteristic of effective teachers is their ability to anticipate students' errors and warn them about possible errors some of them are likely to make. For example, a teacher might have students read a passage and then give them a poorly written topic sentence to correct. In teaching division or subtraction, the teacher may show and discuss with students the mistakes other students have frequently made.

In some of the studies, students were given a checklist to evaluate their work. Checklist items included "Have I found the most important information that tells me more about the main idea?" and "Does every sentence start with a capital letter?" The teacher then modeled use of the checklist.

In some studies, students were provided with expert models with which they could compare their work. For example, when students were taught to generate questions, they could compare their questions with those generated by the teacher. Similarly, when learning to write summaries, students could compare their summaries on a

passage with those generated by an expert.

9. Require and monitor independent practice: Students need extensive, successful, independent practice in order for skills and knowledge to become automatic.

Research findings

In a typical teacher-led classroom, guided practice is followed by independent practice—by students working alone and practicing the new material. This independent practice is necessary because a good deal of practice (overlearning) is needed in order to become fluent and automatic in a skill. When material is overlearned, it can be recalled automatically and doesn't take up any space in working memory. When students become automatic in an area, they can then devote more of their attention to comprehension and application.

Independent practice provides students with the additional review and elaboration they need to become fluent. This need for fluency applies to facts, concepts, and discriminations that must be used in subsequent learning. Fluency is also needed in operations, such as dividing decimals, conjugating a regular verb in a foreign language, or completing and balancing a chemical equation.

In the classroom

The more successful teachers provided for extensive and successful practice, both in the classroom and after class. Independent practice should involve the same material as the guided practice. If guided practice deals with identifying types of sentences, for example, then independent practice should deal with the same topic or, perhaps, with a slight variation, like creating individual compound and complex sentences. It would be inappropriate if the independent practice asked the students to do an activity such as "Write a paragraph using two compound and two complex sentences," however, because the students have not been adequately prepared for such an activity.

Students need to be fully prepared for their independent practice. Sometimes, it may be appropriate for a teacher to practice some of the seatwork problems with the entire class before students begin independent practice.

Research has found that students were more engaged when their teacher circulated around the room, and monitored and supervised their seatwork. The optimal time for these contacts was 30 seconds or less. Classrooms where the teachers had to stop at students' desks and provide a great deal of explanation during seatwork were the classrooms where students were making errors. These errors occurred because the guided practice was not sufficient for students to engage productively in independent practice. This reiterates the importance of adequately preparing students before they begin their independent practice.

Some investigators[14] have developed procedures, such as cooperative learning, during which students help each other as they study. Research has shown that all students tend to achieve more in these settings than do students in regular settings. Presumably, some of the advantage comes from having to explain the material to someone else and/or having someone else (other than the teacher) explain the material to the student. Cooperative learning offers an opportunity for students to get feedback from their peers about correct as well as incorrect responses, which promotes both engagement and learning. These cooperative/ competitive settings are also valuable for helping slower students in a class by providing extra instruction for them.

10. Engage students in weekly and monthly review: Students need to be involved in extensive practice in order to develop well-connected and automatic knowledge.

Research findings

Students need extensive and broad reading, and extensive practice in order to develop well-connected networks of ideas (schemas) in their long-term memory. When one's knowledge on a particular topic is large and well connected, it is easier to learn new information and prior knowledge is more readily available for use. The more one rehearses and reviews information, the stronger these interconnections become. It is also easier to solve new problems when one has a rich, well-connected body of knowledge and strong ties among the connections. One of the goals of education is to help students develop extensive and available background knowledge.

Knowledge (even very extensive knowledge) stored in long-term memory that is organized into patterns only occupies a tiny amount of space in our limited working memory. So having larger and better-connected patterns of knowledge frees up space in our working memory. This available space can be used for reflecting on new information and for problem solving. The development of well-connected patterns (also called "unitization" and "chunking") and the freeing of space in the working memory is one of the hallmarks of an expert in a field.

Thus, research on cognitive processing supports the need for a teacher to assist students by providing for extensive reading of a variety of materials, frequent review, and discussion and application activities. The research on cognitive processing suggests that these classroom activities help students increase the number of pieces of information in their long-term memory and organize this information into patterns and chunks.

The more one rehearses and reviews information, the stronger the interconnections between the materials become. Review also helps students develop their new knowledge into patterns, and it helps them acquire the ability to recall past learning automatically.

The best way to become an expert is through practice—thousands of hours of practice. The more the practice, the better the performance.

In the classroom

Many successful programs, especially in the elementary grades, provided for extensive review. One way of achieving this goal is to review the previous week's work every Monday and the previous month's work every fourth Monday. Some effective teachers also gave tests after their reviews. Research has found that even at the secondary level, classes that had weekly quizzes scored better on final exams than did classes with only one or two quizzes during the term. These reviews and tests provided the additional practice students needed to become skilled, successful performers who could apply their knowledge and skills in new areas.

Teachers face a difficult problem when they need to cover a lot of material and don't feel they have the time for sufficient review. But the research states (and we all know from personal experience) that material that is not adequately practiced and reviewed is easily forgotten.

Review also helps students develop their new knowledge into patterns, and it helps them acquire the ability to recall past learning automatically.

The 10 principles in this article come from three different sources: research on how the mind acquires and uses information, the instructional procedures that are used by the most successful teachers, and the procedures invented by researchers to help students learn difficult tasks. The research from each of these three sources has implications for classroom instruction, and these implications are described in each of these 10 principles.

Even though these principles come from three different sources, the instructional procedures that are taken from one source do not conflict with the instructional procedures that are taken from another source. Instead, the ideas from each of the sources overlap and add to each other. This overlap gives us faith that we are developing a valid and research-based understanding of the art of teaching. ADI

Endnotes

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CHRISTINA COX, Public Relations and Marketing Manager, National Institute for Direct Instruction

Zig Engelmann: More than a Teacher's Guide

Anyone familiar with Direct Instruction (DI) usually knows Zig. For readers of DI News, you most likely know immediately to whom I am referring when I say "Zig" – Siegfried "Zig" Engelmann – and you know he is the creator of DI and the senior author of DI programs. You may even know at least some of the history of bringing DI to life and, if you're lucky, to a school near you! But, alas, not everyone knows Zig's story from advertising executive to educational genius.

At 80 years old, Zig still writes away each day, like clockwork, in a modest office tucked away in the basement of an old building in the middle of Eugene, Oregon. With sincere focus on writing curriculum designed to provide all children an opportunity to learn and be successful, Zig works relentlessly to produce tools to help teachers and administrators ensure that all children learn.

Jon Palfreman and crew with the Palfreman Film Group captured Zig's story of trials and tribulations in bringing DI to life in a video biography released earlier this summer. Check it out for yourself. It's a treasure with many surprises in store for you. See it now at www.zigsite.com. ADI

MARTIN KOZLOFF, University of North Carolina

Martin's Musings

The Road to Teaching Proficiency

Every effort to improve the outcomes of public education has been a flop. Consider the achievement gap. It's been an achievement chasm for 30 years, and it's growing wider. Yet in some places, schools with a high proportion of minority and poor kids have the highest achievement scores. How come? There are several reasons—none pretty.

First, *persons and groups that tout one or another "reform" appear not to see interconnections among the elements of the education enterprise*. When you stand back from all the "reforms," it's tempting to see them as a comic endeavor.

> **"Let's hold (teachers, schools, districts) accountable for student outcomes**. It's not clear how making teachers feel more vulnerable will produce higher student achievement. But who said we were rational?"
>
> **"Let's revise the state curriculum every couple of years.** We'll throw in so many new standards that teachers will spend all year on phonemic awareness alone."
>
> "What's the first sound in dumb? What's the middle sound in nuts? What's the last sound in fail?"
>
> "How's this? **We'll give kids end of grade and end of course tests.** The tests won't have much to do with the curriculum materials that teachers use. This violates the core principle of validity ('Tests should measure what they are supposed to measure'), but we don't know what validity means! The idea of testing is just SO compelling. Then, when teachers teach 'to the test,' we'll get on their case for that, too.

"Sure, schools could use *curriculum-based mastery tests* throughout the year and at the end. These tests would have face validity AND they would say exactly what the students learned and didn't learn. But can we really trust teachers to make valid mastery tests?"

"Here's a hot idea. **We'll have schools infuse their curricula with globalism**. It'll be 'global citizenship,' 'global understanding,' 'global economy,' and 'global awareness' 24/7. Of course, we'll pay no attention to the pathological patriarchies that systematically exploit and victimize and children, the genocides that have been going on for decades, nuclear weapons in the hands of madmen, or the kleptocracies that sustain control via torture and murder. After all, who are we to judge? We wouldn't want to offend. And we need the oil. So what if kids can't read or think, as long as they believe the world will be fine if they sing 'Kumbaya'?"

"Teacher assessment! That's the ticket. Our inventories of proficiencies will include almost **nothing** of what teachers need to KNOW in order to design and deliver effective instruction. The definitions of 'proficiencies' will be subjective, vague, conflated, and grandiose. Measurement will be via pseudo-ordinal scales that don't represent actual levels of anything. Measure will **not** be of activities (e.g., how teachers plan lessons or evaluate and improve material) but on minutia that don't add up to any whole. And of course, teachers will be subject to aversive consequences depending on our subjective judgments."

Second, *the field of education has no shared stock of knowledge* from which one can derive well-designed curricula, curriculum materials, instructional methods, teacher preparation, and in-service training. Instead, the field of education has

1. *A shared stock of empirically-empty jargon*—"best practices," "holistic," "authentic," "empowerment," "democratic," "research-based"—that is used to promote and justify whatever the advocates of one or another "pedagogy" or "practice" dream up.

2. *Endless "innovative methods" based on level 1 research*—small samples, unvalidated measurement, no reliability checks, no comparison groups, no replication. Are teachers supposed to read all this and synthesize it into effective curricula and instruction?

3. *A split between groups that advocate with equal passion* (1) systematic, explicit, focused (direct) instruction, vs. (2) inquiry, discovery (constructivist) instruction. The two could be integrated in 15 minutes if it were understood that:

   a. All learning is done through inductive reasoning, and all application of knowledge is done through deductive reasoning.

   b. The best way to design teacher-student and student-student communication and instructional materials (example, projects) depends NOT on anyone's philosophy, but on (1) the nature of the knowledge system taught (e.g., beginning reading vs. poetry), (2) the phase of instruction (acquisition of knowledge vs. independent or group application of knowledge), and (3) student characteristics—how much background knowledge students have, how many examples students need to induce (or construct) the right generalization, how much practice students need for fluency and retention, how small the steps (e.g., in a math routine) must be for students to "get it."

I don't expect that representatives of all components of public education (departments of public instruction, curriculum organizations, schools of education, curriculum designers, certifying organizations, and consumer groups) will get together with the good of the whole in mind. Nor do I think that leaders of "instructivism" and "constructivism" will get together and integrate their principles and methods. After all, the main lessons of history are that *human nature doesn't change; human beings are fatheads; everyone is certain that the other guys are the fatheads; human beings use their big brains to develop preposterous, idiotic, delusional and phantasmagorical visions for which they are ever*

Everyone likes getting mail…

ADI maintains a listserv discussion group called DI. This free service allows you to send a message out to all subscribers to the list just by sending one message. By subscribing to the DI list, you will be able to participate in discussions of topics of interest to DI users around the world. There are currently 500+ subscribers. You will automatically receive in your email box all messages that are sent to the list. This is a great place to ask for technical assistance, opinions on curricula, and hear about successes and pitfalls related to DI.

To subscribe to the list, send the following message from your email account:

To: majordomo@lists.uoregon.edu

In the message portion of the email simply type:

subscribe di

(Don't add *Please* or any other words to your message. It will only cause errors. majordomo is a computer, not a person. No one reads your subscription request.)

You send your news and views out to the list subscribers, like this:

To: di@lists.uoregon.edu

Subject: *Whatever describes your topic.*

Message: *Whatever you want to say.*

The list is retro-moderated, which means that some messages may not be posted if they are inappropriate. For the most part inappropriate messages are ones that contain offensive language or are off-topic solicitations.

ready to defend to the death—often someone else's.

This paper is not an effort to solve any problems or to provide a vision of comprehensive school reform. It's simply my effort to bring together the best of what I've learned from persons a whole lot smarter than I am. Maybe it will be of use to someone.

It seems wise to start at the end. What do proficient teachers do? And then use **knowledge analysis** of those activities to develop a logical progression by which teachers become proficient at those activities.

What Do Proficient Teachers Do? Four Activities

These four activities are about 90 percent of teaching. [See Part III at the end.]

1. Planning instruction and teaching daily lessons from textbooks and supplementary materials (such as internet documents) to use in their curriculum.
2. Evaluating, improving, and teaching from programmed curriculum materials, which (in contrast to textbooks) are a set of pre-written lessons in, for instance, beginning reading, arithmetic, and spelling.
3. Planning, teaching, and evaluating a semester or a year-long curriculum for (a) a grade level (such as grade 4) in elementary school, or (b) a subject (such as algebra or history) in middle or high school.
4. Planning and running the class as a social group.

As I see it, becoming a skilled teacher (at the four activities) involves integrating knowledge elements into larger wholes. What knowledge?

Part I. How Human Beings Construct and Organize Knowledge.

Teachers don't simply pass on knowledge to students—as if teachers were like pipelines connecting textbooks to students' brains. No, it's much more than that. Teachers help students to USE textbooks, demonstrations, lectures, lesson-based programs, original documents, discussions, the internet, and their own inquiry to develop a **conception of reality**—what's out there, what's going on, how things are connected, how things change—so that students can participate competently in society, make rational decisions, and pass on the best of their culture to the next generation. When teachers design a **curriculum** (what to teach and the sequence in which they will teach new knowledge) and **instruction** (how they will communicate with students), teachers are being ***applied philosophers***. They are using principles of logic to make it easy for students to "get" and apply knowledge. The first part of the route to proficiency is knowledge and how humans get it and use it.

Part II. Using Principles of Knowledge [from Part I] and More Ideas to Design Curriculum [What to Teach] and Instruction [How to Teach]

Part I shows the logical routines that humans use to construct knowledge (inductive reasoning) and to apply, test, and revise knowledge (deductive reasoning). It makes sense to design curriculum and instruction so that it's easy for students' "learning mechanism" (Engelmann, S. and Carnine, D. 1991. *Theory of Instruction*. ADI Press.) to perform the logical routines of inductive and deductive reasoning—in the same way that it makes sense to design a physical fitness program that is consistent with how the body moves and develops. Otherwise—in the case of education, physical fitness, and any other activity—you will produce injuries, errors, and confusion.

Part III. Destination: Proficiency at Four Main Teaching Activities.

A rational teacher preparation program would systematically help candidates to integrate knowledge identified in Parts I and II into the four activities that are most of what teachers do.

Part 1

How Human Beings Construct and Organize Knowledge

1. What is Reality, or Nature? It is indepen-dent of what or how we think of it.

→

2. Knowledge is a representation of Reality, or Nature, constructed by human beings.

→

3. How do humans construct knowledge—a representation **of reality?**

Humans use:

a. Inductive reasoning to acquire new knowledge.

b. Deductive reasoning to apply, test, and revise knowledge.

→

4. There are only five kinds of knowledge in our representation of reality.

a. We know that a thing exists.

b. We know the features of things. [Fact knowledge]

c. We invent classes or categories of things that have common features. [Concept knowledge]

d. We discover how classes of things are related to each other. [Rule or proposition knowledge]

e. We know that performing a sequence of steps has an outcome. [Routine or strategy knowledge]

There is an effective procedure for teaching each kind of knowledge.

→

5. Humans construct, save, store, and communicate knowledge (our representation of reality) with language and other forms of communication, such as music, dance, painting, and sculpture.

→

6. Humans organize knowledge into knowledge systems, such as math, science, history, religion, economics, literature, farming, building, medicine, law, education, many others.

→

7. Some ways of acquiring (constructing) and applying knowledge are logical, and lead to valid beliefs (sound reasoning).

Other ways of acquiring (constructing) and applying knowledge are illogical, and lead to invalid and false beliefs (fallacious reasoning). Teachers need to know this and teach it to their students.

Likewise, a rational system of teacher assessment and support would BEGIN by examining (with teachers) their performance of the four activities, and would identify the stronger and weaker knowledge elements (from Parts I and II). This information would be used to assist the teacher—and collectively the whole school—to achieve greater proficiency.

The diagrams below show how the more elemental knowledge about knowledge (Part I) can be integrated into a body of knowledge on curriculum and instruction (Part II) that can be integrated into the four teaching activities (Part III). ADI

Part 2

Using Principles Of Knowledge [Part I] and More Ideas To Design Curriculum [What To Teach] and Instruction [How To Teach]

→

Principles of Well-designed Curriculum

1. What is a curriculum? What is taught and the sequence in which it is taught.
2. Some curricula teach tool skills (reading, math, language, and reasoning). Other curricula teach content or subject matter knowledge systems (literature, history).
3. Develop a curriculum by considering:
   a. Scientific research, experts in the subject, and your own knowledge.
   b. Curriculum strands main kinds of knowledge to be taught; e.g., in literature, poems, plays, religious writing, and fiction of different periods.
   d. The sample of knowledge to be taught in each strand.
   e. Curriculum standards, goals, or objectives—and the knowledge students need to achieve the objectives—for (1) the whole curriculum, (2) units (sequences of lessons) in the curriculum, (3) lessons, and (4) short tasks in each lesson.
   f. Use knowledge analysis to identify all the elementary (component) skills in a complex skill.
   e. Teach in a logically progressive sequence in which:
      (1) Component skills or elements (pre-skills) are taught before teaching complex skills that USE these elements.
      (2) Big ideas (e.g., theory of revolution) are taught first and future instruction shows the big idea in, for instance, a sequence of historical events. (deductive sequence).
      (3) Students are taught the routines of inductive reasoning (inquiry, knowledge construction). Then student are taught or find facts. Then students apply inductive reasoning to the facts and draw conclusions. (inductive sequence)

→

Principles of Well-designed Instruction

1. When and how to use (1) explicit, systematic, focused, teacher-directed instruction; and (2) discussion, inquiry, and independent student learning and application.
2. How to collect information from student performance (assessment), and use it to make decisions about curriculum and instruction.
3. How to use the proper for procedure for teaching the different kinds of knowledge: facts, concepts, rules, routines.
4. How to work systematically on all five phases of learning: (a) acquisition of new knowledge; (b) generalization of knowledge to new examples and materials; (c) fluent use of knowledge; (d) strategic integration of knowledge elements into larger wholes: (e)) retention of knowledge.
5. How to correct errors, firm up weak knowledge elements, reteach as needed, and provide intensive instruction as needed.
6. How to design lessons as a sequence of logically progressive tasks, each serving a clear instructional function: review and firming, acquisition, expansion (more examples), generalization, fluency, integration.
7. How to teach at a brisk pace.
8. How to give frequent opportunities for group (choral) and individual responses to test/check learning.
9. How to use pre-corrections, or reminders, to prevent errors.

Part 3

Destination—Four Teaching Activities

1. Planning instruction and teaching daily lessons from textbooks and other materials, such as internet documents.

This is a routine that consists of the following steps.

1. Develop clear and concrete course objectives using state curriculum, research, and teacher's own knowledge.
2. Improve textbooks with supplements, glossaries, outlines, big ideas, and guided notes.
3. Divide materials into units (sequences of lessons on a topic).
4. Identify exactly what you want students to learn in each unit (terminal objectives).
5. Divide each unit into a logical sequence of lessons based on the principles of (1) teaching pre-skill elements first and strategically integrating elements into wholes (e.g., descriptions, explanations, analyses); (2) teaching big ideas and then examining materials that reveal the big idea; (3) teach students to apply inductive reasoning to facts, and to discover (construct) generalizations.
6. Plan exactly how to communicate TO students (instruction), and how to help students THEMSELVES to get and apply knowledge.
7. Plan how to work on all phases of learning: acquisition of new knowledge, generalization of knowledge to new examples, fluent use of knowledge, integration of knowledge, and retention of knowledge
8. Plan assessment of student learning and instruction at the end of lessons and unit using, for instance, curriculum-based mastery tests. Use assessment to firm weak knowledge elements, reteach, provide intensive instruction, obtain more supplemental material, improve details of instruction (e.g., proper formats for teaching concepts, rules, and routines).

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2. Evaluating, improving, and teaching from programs.

Programs are curriculum materials that are **already** organized into a sequence of lessons. Programs might be for teaching beginning reading, math, spelling, remedial reading, and writing (tool skills). However, many programs are **poorly designed**. Therefore, skilled teachers carefully examine how the programs are designed; they find the strong and weak features; they decide if the programs are good enough to use at all; and then they use knowledge of good design to make pretty good or very good programs more effective for all students. Specifically, skilled teachers:

1. Determine whether programs (a) are consistent with scientific research on instruction (this is called "research based"); and (b) have been field tested and shown to be effective with scientific research (this is called "evaluation research." Level 3 is preferred).
2. Determine whether programs provide a comprehensive and varied sample of knowledge (e.g., equations to solve, poems to analyze, words to decode).

   The sample should be adequate to permit generalization to new examples.
3. Determine whether programs have scope and sequence charts (or at least subject matter outlines) showing how knowledge is organized—what is covered, and when.
4. Determine whether lessons are built consistently from knowledge items selected from important strands (groups of knowledge) as suggested by scientific research and expert opinion.
5. Determine whether lessons and tasks in lessons focus instruction on specific objectives— what students will do.
6. Determine whether programs teach knowledge items in a logical sequence. Specifically,
   a. The materials teach elements or parts (necessary pre-skills and background knowledge) before teaching new material that requires skill with the parts.
   b. Pre-skills and background knowledge are taught early enough and continually, so that students are firm.
   c. What is more general and more frequent is taught before what is irregular or uncommon.
   d. Instruction on similar and confusing knowledge items is separated.
   e. What is more useful is taught before what is less useful.
   f. Complex skills (e.g., math routines) are taught with a sequence of procedures or formats from more to less scaffolded and from more to less teacher directed.
7. Determine whether lessons are organized as a series of smaller, knowledge-rich units (chunks), such as tasks. Each chunk serves a clear instructional function.
   a. Teach something new (facts, concepts, rules, cognitive routines). [acquisition]
   b. Summarize.

continued on next page

Part 3, continued

Destination—Four Teaching Activities

c. Build fluency.

d. Review and probes/tests (retention).

e. Expand—add more to existing facts, examples, concepts.

f. Generalize knowledge to new examples.

g. Strategically integrate—combine information into a larger whole, such as an explanatory essay, or a research project.

8. Determine whether programs teach essential knowledge (e.g., pre-skills needed for future learning) in a systematic and explicit (focused) way. Specifically, lessons

   a. Review and firm prior knowledge, or pre-skills.

   b. Regarding new knowledge, gain attention, frame new task, model, lead, test/check, verification; correct errors; more examples; delayed acquisition test.

   c. Review and firm what was just taught.

9. Determine whether programs adequately cover (teach, assess) all phases of mastery: acquisition, generalization, fluency, integration, retention.

   For each phase, there are stated objectives, instructional procedures, assessment of progress, and suggested remediation (if there is too little progress) based on assessment data.

10. Determine whether programs provide scaffolding; i.e., various kinds of assistance to help teachers communicate information, and to help students acquire, organize, retrieve, and apply information/knowledge.

    Examples are stated objectives, highlighting, reminders and hints, wait time, big ideas, advance organizers (lesson and unit outlines, guided notes, concept/proposition maps), summaries, glossaries.

11. Determine whether programs have periodic mastery tests or check-outs (e.g., every 10 lessons in a reading program; after every new skill in a math program) to assess acquisition, fluency, generalization, and retention. Materials also provide guidelines for deciding when students' performance on assessment means that they (1) are firm and can move ahead; (2) need firming on certain knowledge; (3) need re-teaching; or (4) need intensive instruction. Materials also provide plans and procedures for such remediation.

3. Planning, teaching, and evaluating a semester or a year-long curriculum.

In elementary schools, or in special education classes, the curriculum is many subjects. In secondary schools, the curriculum is usually one subject. Either way, a proficient teacher:

1. Identifies what the state curriculum, district curriculum, and scientific research say students should learn (curriculum objectives, or standards).
2. Determines what students should DO at the end (final objectives) that shows whether the learned.
3. Identifies exactly what to teach in each subject of the curriculum. Displays this with a curriculum map.
4. Determines whether textbooks, programs, and supplemental materials contain the knowledge students need to learn. Supplements as needed.
5. Organizes the knowledge in textbooks, programs, and supplements into a logical sequence of units and lessons within units.
6. Plans to use the proper procedures for teaching students to acquire the knowledge during each lesson (instruction), depending on the kind of knowledge.
7. Assesses student learning and the adequacy of curriculum and instruction with immediate and delayed acquisition tests (within lessons) and periodic curriculum based mastery tests. Uses assessment to improve curriculum, materials, and instruction if students are not learning easily or quickly enough (remediation).

4. Planning and running the class as a social group.

The teacher turns a number of individuals into a team or "learning community," who are **fluent** (accurate and fast) at doing the class business (getting ready to learn, doing and handing in assignments, taking notes) by:

1. Communicating high expectations.
2. Always correcting errors, firming knowledge, and reteaching until students reach (and see that they reach) proficiency.
3. Providing frequent opportunities for students to show off class and individual achievement.
4. Establishing and sustaining (by reminders and verification/reinforcement) rules and procedures of civility and responsibility (ready to learn, turn taking, voice, comments, property).
5. Teaching and sustaining routines for quality, timeliness, and handing in assignments

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Copies of the opening remarks by Zig Engelmann, the opening keynote by Eric Mahmoud, and Zig's closing keynote are available from ADI on DVD.

Mr. Mahmoud is Founder and CEO of 4 schools that are grounded in Direct Instruction programs: Seed Academy, Harvest Preparatory School, Best Academy, and Sister Academy. Under his leadership, Harvest Preparatory and Best Academy are two of the best schools in the state of Minnesota at closing the academic achievement gap between white and African American children. In 2011, Harvest Preparatory School was recognized by the Star Tribune as the number one school in the state of Minnesota that is "Beating the Odds." Best Academy 8th grade all-boys program tied for first place in the state for 8th grade reading. Best Academy 3rd grade all-boys program tied for first place in the state of Minnesota for 3rd grade math. In 2011, Best Academy all-boys program closed the achievement gap by outperforming the state white student average in reading and math.

Mr. Mahmoud has recently developed "The Five-Gap Analysis," which parses the achievement gap into five gaps that schools must address in order to close the education gap. He has also developed the "Gap-Closing Framework," which provides a coherent and aligned educational model to accelerate student learning.

His inspiring presentation discusses his history of educational success, as well as how the "Five-Gap Analysis" and the "Gap-Closing Framework" can be used to change the odds for traditionally underserved children.

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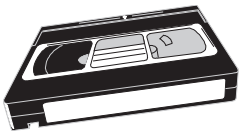

Videotapes on the Direct Instruction Model

ADI has an extensive collection of videos on Direct Instruction. These videos are categorized as informational, training, or motivational in nature. The informational tapes are either of historical interest or were produced to describe Direct Instruction. The training tapes have been designed to be either stand-alone training or used to supplement and reinforce live training. The motivational tapes are keynote presentations from past years of the National Direct Instruction Conference.

Informational Tapes

Where It All Started—45 minutes. Zig teaching kindergarten children for the Engelmann-Bereiter pre-school in the 60s. These minority children demonstrate mathematical understanding far beyond normal developmental expectations. This acceleration came through expert teaching from the man who is now regarded as the "Father of Direct Instruction," Zig Engelmann. Price: $10.00 (includes copying costs only).

Challenge of the 90s: Higher-Order thinking—45 minutes, 1990. Overview and rationale for Direct Instruction strategies. Includes home-video footage and Follow Through. Price: $10.00 (includes copying costs only).

Follow Through: A Bridge to the Future—22 minutes, 1992. Direct Instruction Dissemination Center, Wesley Elementary School in Houston, Texas, demonstrates approach. Principal, Thaddeus Lott, and teachers are interviewed and classroom footage is shown. Created by Houston Independent School District in collaborative partnership with Project Follow Through. Price: $10.00 (includes copying costs only).

Direct Instruction—black and white, 1 hour, 1978. Overview and rationale for Direct Instruction compiled by Haddox for University of Oregon College of Education from footage of Project Follow Through and Eugene Classrooms. Price: $10.00 (includes copying costs only).

Training DVDs

The Elements of Effective Coaching—3 hours, 1998. Content in *The Elements of Effective Coaching* was developed by Ed Schaefer and Molly Blakely. The video includes scenarios showing 27 common teaching problems, with demonstrations of coaching interventions for each problem. A common intervention format is utilized in all scenarios. Print material that details each teaching problem and the rationale for correcting the problem is provided. This product should be to used to supplement live DI coaching training and is ideal for Coaches, Teachers, Trainers. Price…$395.00 Member Price…$316.00

Reading Mastery 1, 2, 3 and Fast-Cycle Preservice and Inservice Training—The first videos of the Level I and Level II series present intensive preservice training on basic Direct Instruction teaching techniques and classroom management strategies used in *Reading Mastery* and the equivalent lesson in *Fast-Cycle*. Rationale is explained. Critical techniques are presented and demonstrated. Participants are led through practical exercises. Classroom teaching demonstrations with students are shown. The remaining videos are designed to be used during the school year as inservice training. The DVDs are divided into segments, which present teaching techniques for a set of of upcoming lessons. Price: $229.00.

Conference Keynotes

These videos are keynotes from the National Direct Instruction Conference in Eugene. These videos are professional quality, two-camera productions suitable for use in meetings and trainings.

Keynotes From the 2005 National DI Conference, July 2005, Eugene, Oregon

Carefully Designed Curriculum: A Key to Success. For the past 31 years Zig Engelmann has delivered the opening keynote of the National DI Conference, and this year was no exception. Zig focuses on the careful design of the Direct Instruction programs that make them effective in the classroom versus other programs that have some of the component design elements, but not all and are therefore less effective than DI. Pioneering author Doug Carnine describes some of the challenges we face in educating our children to compete on a world class level. Doug also goes into detail of how to create a school improvement plan and how to implement it. As a bonus, the conference closing is included. Price: Videotape $30.00, DVD $40.00

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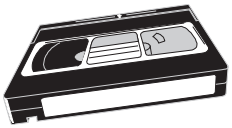

Videotapes on the Direct Instruction Model...continued

Keynotes From the 2004 National DI Conference, July 2004, Eugene, Oregon—Conference attendees rated the keynotes from the 30th National Direct Instruction Conference and Institutes as one of the best features of the 2004 conference. Chris Doherty, Director of Reading First from the U.S. Office of Elementary and Secondary Education in Washington, DC, delivered a humorous, informative, and motivating presentation. Chris has been an advocate of Direct Instruction for many years. In his capacity with the federal government he has pushed for rules that insist on states following through with the mandate to use programs with a proven track record. The way he relates his role as a spouse and parent to his professional life would make this an ideal video for those both new to DI as well as veteran users. In the second opening keynote, Zig Engelmann outlines common misconceptions that teachers have about teaching and learning. Once made aware of common pitfalls, it is easier to avoid them, thereby increasing teacher effectiveness and student performance. Price: $30.00

To the Top of the Mountain—Giving Kids the Education They Deserve—75 minutes. Milt Thompson, Principal of 21st Century Preparatory School in Racine, Wisconsin gives a very motivational presentation of his quest to dramatically change the lives of all children and give them the education they deserve. Starting with a clear vision of his goal, Thompson describes his journey that turned the lowest performing school in Kenosha, Wisconsin into a model of excellence. In his keynote, Senior Direct Instruction developer Zig Engelmann focuses on the four things you have to do to have an effective Direct Instruction implementation. These are: work hard, pay attention to detail, treat problems as information, and recognize that it takes time. He provides concrete examples of the ingredients that go into Direct Instruction implementations as well as an interesting historical perspective. Price: $30.00

No Excuses in Portland Elementary, The Right Choice Isn't Always the Easiest, and Where Does the Buck Stop? 2 tapes, 1 hour, 30 minutes total. Ernest Smith is Principal of Portland Elementary in Portland, Arkansas. The February 2002 issue of *Reader's Digest* featured Portland Elementary in an article about schools that outperformed expectations. Smith gives huge credit to the implementation of DI as the key to his student's and teacher's success. In his opening remarks, Zig Engelmann gives a summary of the Project Follow Through results and how these results translate into current educational practices. Also included are Zig's closing remarks. Price: $30.00

Lesson Learned...The Story of City Springs, Reaching for Effective Teaching, and Which Path to Success? 2 tapes, 2 hours total. In the fall of 2000 a documentary was aired on PBS showing the journey of City Springs Elementary in Baltimore from a place of hopelessness to a place of hope. The principal of City Springs, Bernice Whelchel, addressed the 2001 National DI Conference with an update on her school and delivered a truly inspiring keynote. She describes the determination of her staff and students to reach the excellence she knew they were capable of. Through this hard work City Springs went from being one of the 20 lowest schools in the Baltimore City Schools system to one of the top 20 schools. This keynote also includes a 10-minute video updating viewers on the progress at City Springs in the 2000–2001 school year. In the second keynote Zig Engelmann elaborates on the features of successful implementations such as City Springs. Also included are Zig's closing remarks. Price: $30.00

Successful Schools...How We Do It—35 minutes. Eric Mahmoud, Co-founder and CEO of Seed Academy/Harvest Preparatory School in Minneapolis, Minnesota presented the lead keynote for the 1998 National Direct Instruction Conference. His talk was rated as one of the best features of the conference. Eric focused on the challenges of educating our inner city youth and the high expectations we must communicate to our children and teachers if we are to succeed in raising student performance in our schools. Also included on this video is a welcome by Siegfried Engelmann, Senior Author and Developer of Direct Instruction Programs. Price: $15.00

Commitment to Children—Commitment to Excellence and How Did We Get Here...Where are We Going?—95 minutes. These keynotes bring two of the biggest names in Direct Instruction together. The first presentation is by Thaddeus Lott, Senior. Dr. Lott was principal at Wesley Elementary in Houston, Texas from 1974 until 1995. During that time he turned the school into one of the best in the nation, despite demographics that would predict failure. He is an inspiration to thousands across the country. The second presentation by Siegfried Engelmann continues on the theme that we know all we need to know about how to teach—we just need to get out there and do it. This tape also includes Engelmann's closing remarks. Price: $30.00

State of the Art & Science of Teaching and Higher Profile, Greater Risks—50 minutes. This tape is the opening addresses from the 1999 National Direct Instruction Conference at Eugene. In the first talk Steve Kukic, former Director of Special Education for the state of Utah, reflects on the trend towards using research based educational methods and research validated materials. In the second presentation, ***Higher Profile, Greater Risks,*** Siegfried Engelmann reflects on the past of Direct Instruction and what has to be done to ensure successful implementation of DI. Price: $30.00

Fads, Fashions, & Follies—Linking Research to Practice—25 minutes. Dr. Kevin Feldman, Director of Reading and Early Intervention for the Sonoma County Office of Education in Santa Rosa, California presents on the need to apply research findings to educational practices. He supplies a definition of what research is and is not, with examples of each. His style is very entertaining and holds interest quite well. Price: $15.00

Aren't You Special—25 minutes. Motivational talk by Linda Gibson, Principal at a school in Columbus, Ohio, successful with DI, in spite of minimal support. Keynote from 1997 National DI Conference. Price: $15.00

Effective Teaching: It's in the Nature of the Task—25 minutes. Bob Stevens, expert in cooperative learning from Penn State University, describes how the type of task to be taught impacts the instructional delivery method. Keynote from 1997 National DI Conference. Price: $15.00

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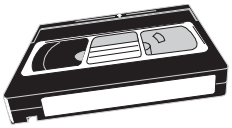

Videotapes on the Direct Instruction Model...continued

Moving from Better to the Best—20 minutes. Closing keynote from the National DI Conference. Classic Zig Engelmann doing one of the many things he does well…motivating teaching professionals to go out into the field and work with kids in a sensible and sensitive manner, paying attention to the details of instruction, making sure that excellence instead of "pretty good" is the standard we strive for and other topics that have been the constant theme of his work over the years. Price $15.00

One More Time—20 minutes. Closing from 1997 National DI Conference. One of Engelmann's best motivational talks. Good for those already using DI, this is sure to make them know what they are doing is the right choice for teachers, students, and our future. Price: $15.00

An Evening of Tribute to Siegfried Engelmann—2.5 hours. On July 26, 1995, 400 of Zig Engelmann's friends, admirers, colleagues, and protégés assembled to pay tribute to the "Father of Direct Instruction." The Tribute tape features Carl Bereiter, Wes Becker, Barbara Bateman, Cookie Bruner, Doug Carnine, and Jean Osborn—the pioneers of Direct Instruction—and many other program authors, paying tribute to Zig. Price: $25.00

Keynotes from 22nd National DI Conference—2 hours. Ed Schaefer speaks on "DI—What It Is and Why It Works," an excellent introductory talk on the efficiency of DI and the sensibility of research based programs. Doug Carnine's talk "Get it Straight, Do it Right, and Keep it Straight" is a call for people to do what they already know works, and not to abandon sensible approaches in favor of "innovations" that are recycled fads. Siegfried Engelmann delivers the closing "Words vs. Deeds" in his usual inspirational manner, with a plea to teachers not to get worn down by the weight of a system that at times does not reward excellence as it should. Price: $25.00

Keynotes from the 1995 Conference—2 hours. Titles and speakers include: Anita Archer, Professor Emeritus, San Diego State University, speaking on "The Time Is Now" (An overview of key features of DI); Rob Horner, Professor, University of Oregon, speaking on "Effective Instruction for All Learners"; Zig Engelmann, Professor, University of Oregon, speaking on "Truth or Consequences." Price: $25.00

Keynote Presentations from the 1994 20th Anniversary Conference—2 hours. Titles and speakers include: Jean Osborn, Associate Director for the Center for the Study of Reading, University of Illinois, speaking on "Direct Instruction: Past, Present & Future"; Sara Tarver, Professor, University of Wisconsin, Madison, speaking on "I Have a Dream That Someday We Will Teach All Children"; Zig Engelmann, Professor, University of Oregon, speaking on "So Who Needs Standards?" Price: $25.00

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ADI Books Price List

The Association for Direct Instruction distributes the following Direct Instruction materials. Members of ADI receive a 20% discount on these materials. To join ADI and take advantage of this discount, simply fill out the form and include your annual dues with your order.

Title & Author	Member Price	List Price	Quantity	Total
Preventing Failure in the Primary Grades (1969 & 1997) Siegfried Engelmann	$19.95	$24.95		
Theory of Instruction (1991) Siegfried Engelmann & Douglas Carnine	$32.00	$40.00		
Teach Your Child to Read in 100 Easy Lessons (1983) Siegfried Engelmann, Phyllis Haddox, & Elaine Bruner	$17.50	$22.00		
Structuring Classrooms for Academic Success (1983) S. Paine, J. Radicchi, L. Rosellini, L. Deutchman, & C. Darch	$14.50	$18.00		
War Against the Schools' Academic Child Abuse (1992) Siegfried Engelmann	$14.95	$17.95		
Research on Direct Instruction (1996) Gary Adams & Siegfried Engelmann	$24.95	$29.95		
Managing the Cycle of Acting-Out Behavior in the Classroom Geoff Colvin	$24.00	$28.00		
Rubric for Identifying Authentic Direct Instruction Programs Siegfried Engelmann & Geoff Colvin	$12.00	$15.00		
Teaching Needy Kids in Our Backward System Siegfried Engelmann	$25.00	$32.00		
Corrective Reading Sounds DVD	$5.00	$7.00		

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What is ADI, the Association for Direct Instruction?

ADI is a nonprofit organization dedicated primarily to providing support for teachers and other educators who use Direct Instruction programs. That support includes conferences on how to use Direct Instruction programs, publication of *The Journal of Direct Instruction (JODI)*, *Direct Instruction News (DI News)*, and the sale of various products of interest to our members.

Who Should Belong to ADI?

Most of our members use Direct Instruction programs, or have a strong interest in using those programs. Many people who do not use Direct Instruction programs have joined ADI due to their interest in receiving our semiannual publications, *The Journal of Direct Instruction* and *Direct Instruction News*. *JODI* is a peer-reviewed professional publication containing new and reprinted research related to effective instruction. *Direct Instruction News* focuses on success stories, news and reviews of new programs and materials and information on using DI more effectively.

Membership Options

☐ $60.00 ***Regular Membership*** (includes one year subscription to ADI publications, a 20% discount on ADI sponsored events and on materials sold by ADI).

☐ $40.00 ***Student Membership*** (includes one year subscription to ADI publications, and a 40% discount on ADI sponsored events and a 20% discount on materials sold by ADI).

☐ $100.00 ***Sustaining Membership*** (includes Regular membership privileges and recognition of your support in *Direct Instruction News*).

☐ $200.00 ***Institutional Membership*** (includes 5 subscriptions to ADI publications and regular membership privileges for 5 staff people).

✔ Canadian addresses add $10.00 US to above prices.

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- Comprehension Questions
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- Looping for Sound-It-Out Words
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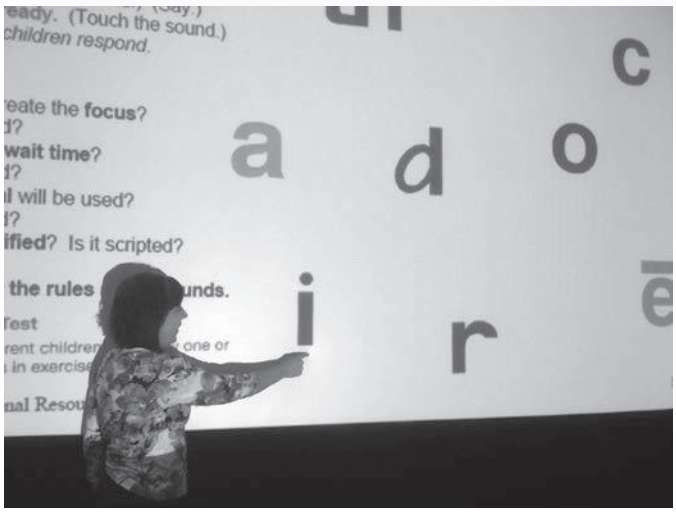

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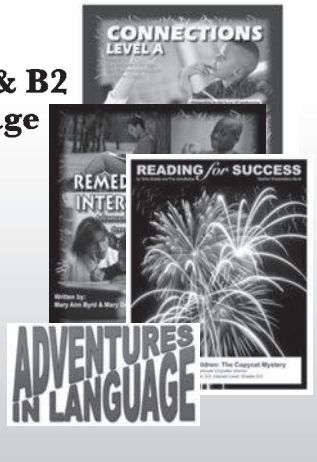

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