Reviews supporting Direct Instruction programs? Kerry Hempenstall

How does one make judgements about which literacy programs/approaches deserve respect and implementation? One can go to the primary sources (original research), though this may be very time-consuming, or one may feel unable to critically evaluate research merit. An alternative is to examine reviews and the findings by respected sources.

One focus involves whether particular programs incorporate the components considered crucial by relevant authorities. That is, is the approach in question theoretically plausible? Does it have the recommended elements to enable it to succeed?

How does Direct Instruction stack up theoretically?

The National Reading Panel (2000) issued a now famous report consequent upon a Congressional mandate to identify skills and methods crucial in reading development. The Panel reviewed more than 100,000 studies focusing on the K-3 research in reading instruction to identify which elements lead to reading success.

From a theoretical perspective, each of the National Reading Panel (2000) recommended foci for reading instruction (phonemic awareness, phonics, fluency, vocabulary, comprehension) is clearly set out and taught in Direct Instruction literacy programs. An examination of the program teaching sequences in, for example, the Reading Mastery and Corrective Reading texts attests to their comprehensive nature.

However, these necessary elements are only the ingredients for success. Having all the right culinary ingredients doesn't guarantee a perfect soufflé. There are other issues, such as what proportion of each ingredient is optimal, when should they be added, how much stirring, heating, cooling is necessary? Getting any of these requirements wrong leads to sub-optimal outcomes.

So, it is with literacy programs. "Yet there is a big difference between a program *based* on such elements and a program that has itself been compared with matched or randomly assigned control groups" (Slavin, 2003). Just because a program has all the elements doesn't mean that it will be effective necessarily. Engelmann (2003) points to the logical error of inferring a whole based upon the presence of some or all of its elements. *If a dog is a Dalmatian, it has spots. Therefore, if a dog has spots, it is a Dalmatian* (Engelmann, 2003). In this simile, the Dalmatian represents programs known to be effective with students. It is possible to analyse these programs, determine their characteristics, and then assume incorrectly that the mere presence of those characteristics is sufficient to ensure effectiveness. Engelmann is thus critical of merely "research-based" programs, that is, programs constructed only to ensure each respected component is somewhere represented. He points out that this does not guarantee effectiveness.

So for a true measure, we must look also for empirical studies to show that a particular combination of theoretically important elements is indeed effective.

The vital question then becomes: Has a particular program demonstrated replicated effectiveness? For what populations?

"The saga of Direct Instruction (DI) is remarkably similar to the story of Lancaster's cure for scurvy. Invented nearly 50 years ago, DI is a scripted, step-by-step approach to teaching that is among the most thoroughly tested and proven in the history of education. It works equally well for general education, gifted students, and the disabled, but surprisingly remains little used.

Stone, J. (2012). Forward. In S. Barbash, *Clear teaching*. Education Consumers Foundation. http://www.education-consumers.org/CT_111811.pdf (p.1).

[&]quot;Hundreds of studies over 40 years have shown DI to be highly beneficial for a broad range of students" (p.9).

Education Consumers Foundation. (2011). Direct Instruction: What the research says. http://www.education-consumers.org/DI_Research.pdf

The three research syntheses below offer strong support for Direct Instruction programs for beginning readers, struggling readers, and secondary school struggling readers.

- Slavin, R.E., Lake, C., Chambers, B., Cheung, A., & Davis, S. (2009, June). *Effective beginning reading programs*. Baltimore, MD: Johns Hopkins University, Center for Data-Driven Reform in Education. http://www.bestevidence.org/reading/begin_read/begin_read.htm
- Slavin, R.E., Lake, C., Davis, S., & Madden, N. (2009, June) *Effective programs for struggling readers: A best evidence synthesis*. Baltimore, MD: Johns Hopkins University, Center for Data-Driven Reform in Education. http://www.bestevidence.org/word/strug read Jul 07 2009.pdf
- Slavin, R.E., Cheung, A., Groff, C., & Lake, C. (2008). Effective reading programs for middle and high schools: A best evidence synthesis. *Reading Research Quarterly*, 43(3), 290-322. www.bestevidence.org/word/mhs_read_Feb_2008_RRO.pdf

Hattie examines meta-analyses of research studies relating to student achievement, and concludes that Direct Instruction is highly effective. No other curricular program showed such consistently strong effects with students of different ability levels, of different ages, and with different subject matters. ...

"One of the common criticisms is that Direct Instruction works with very low-level or specific skills, and with lower ability and the youngest students. These are not the findings from the meta-analyses. The effects of Direct Instruction are similar for regular (d=0.99), and special education and lower ability students (d=0.86), higher for reading (d=0.89) than for mathematics (d=0.50), similar for the more low-level word attack (d=0.64) and also for high-level comprehension (d=0.54), and similar for elementary and high school students. The messages of these meta-analyses on Direction Instruction underline the power of stating the learning intentions and success criteria, and then engaging students in moving towards these. The teacher needs to invite the students to learn, provide much deliberative practice and modeling, and provide appropriate feedback and multiple opportunities to learn. Students need opportunities for independent practice, and then there need to be opportunities to learn the skill or knowledge implicit in the learning intention in contexts other than those directly taught" (pp. 206-7).

Hattie, J. A.C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London and New York: Routledge.

Florida Center on Reading Research: "Direct instruction is appropriate instruction for all learners, all five components of reading, and in all settings (whole group, small group, and one-on-one)." http://www.fcrr.org/Curriculum/curriculum/nstructionFaq1.shtm

Corrective Reading, a remedial small group form of Direct Instruction, has strong evidence of effectiveness (Slavin, 2009, Best Evidence Encyclopedia)

Slavin, R.E., Lake, C., Davis, S., & Madden, N. (2009, June) *Effective programs for struggling readers: A best evidence synthesis*. Baltimore, MD: Johns Hopkins University, Center for Data-Driven Reform in Education. http://www.bestevidence.org/word/strug_read_Jul_07_2009.pdf

Reading First focuses on core reading programs in grades K-3. There are only two programs widely acknowledged to have strong evidence of effectiveness in this area: Success for All and Direct Instruction. Slavin, R.E. (2007). Statement of Robert E. Slavin, Director Center for Data-Driven Reform in Education. Committee on Appropriations Subcommittee on Labor, Health and Human Services, Education, and Related Activities. Hearings on Implementation of No Child Left Behind. March 14, 2007. Retrieved March 16, 2007, from http://www.ednews.org/articles/8996/1/Statement-of-Robert-E-Slavin-Director-Center-for-Data-Driven-Reform-in-Education/Page1.html

"The evidence is pretty much overwhelming," said Prof Steve Dinham, the Australian Council for Educational Research research director for teaching, learning and leadership. "Direct instruction and explicit teaching is two to three times more effective than inquiry-based learning or problem-based learning." Smith, B. (2008). Results back principal's return to instruction. The Age, 10 May, p.8.

"For example, Direct Instruction (DI), a behaviorally oriented teaching procedure based on an explicit step-by-step strategy (ES=.93) is six-and-one-half times more effective than the intuitively appealing modality matched instruction (ES=.14) that attempts to capitalize on learning style differences. Students with Specific Learning Disabilities who are instructed with DI would be better off than 87% of students not receiving DI and would gain over 11 months credit on an achievement measure compared to about one month for modality matched instruction."

Kavale, K. (2005). Effective intervention for students with specific learning disability: The nature of special education. *Learning Disabilities*, *13*(4), 127-138.

Across varying contexts, Direct Instruction, the Comer School Development Program, and Success for All have shown robust results and have shown that, in general, they can be expected to improve students' test scores. These three models stand out from other available comprehensive school reform (CSR) designs by the quantity and generalizability of their outcomes, the reliable positive effects on student achievement, and the overall quality of the evidence. ... These clear, focused, and well-supported school-based models of improvement are in stark contrast to top-down direction and flexibility for educational reform.

Borman, G. (2007). *Taking reform to scale*. Wisconsin Center for Educational Research Retrieved February 4, 2007, from http://www.wcer.wisc.edu/

The American Institutes for Research (2006) reviewed 800 studies of student achievement and of the 22 reform models examined, Direct Instruction and Success for All received the highest rating for quality and effectiveness http://www.air.org/files/csrq.pdf

There is ample empirical evidence that the Direct Instruction programs have succeeded with a wide range of learners. This has been recognised by diverse groups, for example, the US Government's acceptance of the Direct Instruction model as one eligible for funding. The US Department of Education allocates enormous amounts for the implementation of replicable, research based school reform models. Its approved list includes *Direct Instruction* programs. Direct Instruction programs have also been acknowledged as having the exemplary research base required under the recent USA *Reading First Act*, 2001 (Manzo & Robelen, 2002). Manzo, K., & Robelen, E. (2002, May 1). States unclear on ESEA rules about reading. *Education Week online*. Retrieved February 14, 2003. http://www.edweek.org

Major reviews of the primary research can provide additional surety of program value. In a Department of US Education meta-analysis, **Comprehensive School Reform and Student Achievement** (2002, Nov), Direct Instruction was assigned the highest classification: *Strongest Evidence of Effectiveness*, as ascertained by *Quality* of the evidence *Quantity* of the evidence, and *Statistically significant and positive* results. "Its effects are relatively robust and the model can be expected to improve students' test scores. The model certainly deserves continued dissemination and federal support"

Borman, G.D., Hewes, G.M., Overman, L.T., & Brown, S. (2002). Comprehensive School Reform and Student Achievement. http://www.csos.jhu.edu./crespar/techReports/report59.pdf

One relevant meta-analysis of Direct Instruction programs (including versions of *Corrective Reading*) did find support for this instructional method (Borman, Hewes, Overman, & Brown, 2002). Borman, G.D., Hewes, G.M., Overman, L.T., & Brown, S. (2002). *Comprehensive school reform and student*

achievement: A meta-analysis. Report No. 59. Washington, DC: Center for Research on the Education of Students Placed At Risk (CRESPAR), U.S. Department of Education. Retrieved 12/2/03 from http://www.csos.jhu.edu./crespar/techReports/report59.pdf

Reading First focuses on core reading programs in grades K-3. There are only two programs widely acknowledged to have strong evidence of effectiveness in this area: Success for All and Direct Instruction. Slavin, R.E. (2007). Statement of Robert E. Slavin, Director Center for Data-Driven Reform in Education. Committee on Appropriations Subcommittee on Labor, Health and Human Services, Education, and Related Activities. Hearings on Implementation of No Child Left Behind. March 14, 2007. Retrieved March 16, 2007, from http://www.ednews.org/articles/8996/1/Statement-of-Robert-E-Slavin-Director-Center-for-Data-Driven-Reform-in-Education/Page1.html

"By using a Direct Instruction approach to teaching, more children with learning disabilities, who were thought to be unable to improve in any academic area, can make incredible gains in their schooling." Department of Psychology, University of Michigan entitled "Special Needs Education: Direct Instruction and Special Needs": http://sitemaker.umich.edu/delicata.356/direct_instruction_and_special_needs.

A report from **American Institutes for Research** found that Direct Instruction was one of only three programs with adequate evidence for effectiveness in reading instruction. http://www.aasa.org/issues and insights/district organization/Reform/Approach/direct.htm

Power4Kids http://www.haan4kids.org/power4kids/

Following the successful models of rigorous medical science, the Power4Kids reading study will be a landmark in education ~ a large-scale, randomized, controlled, longitudinal field trial. It is the second largest study of its kind ever to be conducted in public schools. It is designed to provide conclusive evidence of the effectiveness of quality remedial reading programs, along with determining common learning profiles of students and the best targeted-intervention for each profile. Regardless of the reason a child struggles to learn to read, Power4Kids will provide the information and winning models of how to close the reading gap in our schools. Four (4) highly effective remedial reading programs have been awarded a position in the study by virtue of their scientifically-based evidence of effectiveness. The programs are:

Corrective Reading, Failure Free Reading, Spell Read P.A.T., Wilson Learning Program

The **Council for Exceptional Children** provides informed judgements regarding professional practices in the field. The Direct Instruction model was judged by the Editorial Committee to be well validated and reliably used. http://dldcec.org/ld%5Fresources/alerts/

Direct Instruction is the only model to be recommended by **American Federation of Teachers** in each of their reviews. Seven Promising Reading and English Language Arts Programs "When this program is faithfully implemented, the results are stunning..." (Seven Promising Reading and English Language Arts Programs, pg. 9). Direct Instruction is also lauded in Three Promising High School Remedial Reading Programs, and Five Promising Remedial Reading Intervention Programs (http://www.aft.org/pubs-reports/downloads/teachers/remedial.pdf). http://www.aft.org/pubs-reports/downloads/teachers/remedial.pdf). http://www.aft.org/pubs-reports/downloads/teachers/remedial.pdf

The report **Bringing Evidence Driven Progress to Education: A Recommended Strategy for the U.S. Department of Education** (2002) nominates Direct Instruction as having strong evidence for effectiveness. http://www.excelgov.org/displayContent.asp?Keyword=prppcEvidence

The Center for Education Reform (2003) nominated DI among its "Best Bets".

"Strong, proven education programs for kids - programs that demonstrate success for more than just a handful of students"

McCluskey, N. (2003). *Best bets: Education curricula that work*. Center for Education Reform. Retrieved 11/5/2004 from http://www.edreform.com/pubs/bestbets.pdf

Better by design: A consumers' guide to schoolwide reform: A report from the Thomas B. Fordham Foundation supports the Direct Instruction model as a viable approach to schoolwide reform http://www.edexcellence.net/library/bbd/better-by-design.html

Reading Programs that Work: A Review of Programs for Pre-Kindergarten to 4th Grade
This independent review included Direct Instruction among six school-wide effective reading models
(Schacter, 1999)http://www.mff.org/edtech/publication.taf? function=detail&Content_uid1=279

Corrective Reading: Decoding and Corrective Reading: Comprehension are among the programs adopted by the California State Board of Education in 1999, after it abandoned the Whole Language model. http://www.cde.ca.gov/cdepress/lang_arts.pdf

Task Force on Improving Low-Performing Schools (American Federations of Teachers, 1999) named Corrective Reading as one of five effective remedial reading interventions

Marilyn Jager Adams, author of a major text on reading: "Beginning to read: Thinking and learning about print" commented on Direct Instruction thus "The research is irrefutable."

The two best known examples of sound research-based practices coming to scale are Direct Instruction (Carnine, Silbert, & Kameenui, 1997) and Success for All (Slavin, Madden, Dolan, & Wasik, 1996). Foorman, B.R., & Moats, L.C. (2004). Conditions for sustaining research-based practices in early reading instruction. *Remedial and Special Education*, 25, 51-60.

From renowned researcher on effective teaching, **Barak Rosenshine**, "Reading Mastery is an extremely effective program for teaching decoding to all children. The mean score for 171 students across six DI schools, who began the program in kindergarten and who remained in the program for four years was at the 49th percentile. I think this is a wonderful finding" (Rosenshine, 2002).

A study conducted by researchers at the Florida Center for Reading Research and Florida State University compared *Reading Mastery* and several other core reading programs (Open Court, Harcourt, Houghton Mifflin, Scott Foresman, Success for All). In the study, *Examining the core: Relations among reading curricula, poverty, and first through third grade reading achievement* (2009), the authors tracked the performance of 30,000 Florida students in first through third grades. "Overall, students in the Reading Mastery curriculum demonstrated generally greater overall ORF growth than students in other curricula. Also, they more frequently met or exceeded benchmarks for adequate achievement in first, second, and third grade. In first grade, regardless of SES status, students generally met adequate achievement benchmarks. Among second graders, on average, only students using Reading Mastery and Success for All met benchmarks, while the lowest scores for students were among those using Houghton Mifflin. In third grade, on average, students did not reach the adequate achievement benchmark. However, Reading Mastery students came closest to the benchmarks because scores among these students were the highest across curricula" (p. 209).

Coyne Crowea, E., Connora, C.M., & Petschera, Y. (2009). Examining the core: Relations among reading curricula, poverty, and first through third grade reading achievement. *Journal of School Psychology*, 47(3), 187–214.

Adams & Englemann' (1996) meta-analysis resulted in an effect size of 0.69 for the 44 acceptable comparisons involving the Direct Instruction program Reading Mastery. Across DI programs, the average

effect size for 173 comparisons was 0.87. In White's 1988 DI meta-analysis involved learning disabled, intellectually disabled, and reading disabled students, the average effect size for Direct Instruction programs was .84. A similar meta-analysis of the effectiveness of the whole language approach to reading found an effect size of only 0.09 (Stahl & Miller, 1989). An effect size of 1 means a gain of 1 standard deviation - equivalent of a year's progress (0.8 is a large effect size, 0.5-0.8 is a medium effect size, and less than .5 is a small effect size).

2004 Florida Center for Reading Research aims to disseminate information about research-based practices related to literacy instruction and assessment for children in pre-school through 12th grade. Its Director is well known researcher, Joe Torgesen.

"The instructional content and design of *Corrective Reading* is consistent with scientifically based reading research" (p.4).

Torgesen, J. (2004). *SRA Corrective Reading*. Florida Center for Reading Research. Retrieved 16/1/2005 from http://www.fcrr.org/FCRRReports/PDF/corrective_reading_final.pdf

Sally Shaywitz does recommend the REACH System (Corrective Reading, Spelling Through Morphographs, and R&W) for "dyslexic" children in her much publicised book *The Brain and Dyslexia*.

In the *Oregon Reading First Center* Review of 9 Comprehensive Programs 2004 Reading Mastery was ranked number 1.

http://reading.uoregon.edu/curricula/core_report_amended_3-04.pdf

To be considered comprehensive, a program had to (a) include materials for all grades from K through 3; and (b) comprehensively address the five essential components of the Reading First legislation.

Program Title

1 Reading Mastery Plus 2002

2 Houghton Mifflin The Nation's Choice 2003

3 Open Court 2002

Others:

Harcourt School Publishers Trophies 2003

Macmillan/McGraw-Hill Reading 2003

Scott Foresman Reading 2004

Success For All Foundation Success for All

Wright Group Literacy 2002

Rigby Literacy 2000

Curriculum Review Panel. (2004). *Review of Comprehensive Programs*. Oregon Reading First Center. Retrieved 16/1/2005 from http://reading.uoregon.edu/curricula/core_report_amended_3-04.pdf

DI for English language learners

The beginning reading programs with the strongest evidence of effectiveness in this review made use of systematic phonics - such as Success for All, Direct Instruction, and Jolly Phonics (Slavin & Cheung, 2003)

Slavin, R.E., & Cheung, A. (2003). *Effective reading programs for English language learners: A best-evidence synthesis*. Center for Research on the Education of Students Placed at Risk. www.csos.jhu.edu/crespar/techReports/Report66.pdf

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Recently revived interest:

Torgesen (2003) suggests there is now a consensus on the most important instructional features for interventions:

- Provide ample opportunities for guided practice of new skills
- Provide a significant increase in intensity of instruction
- Provide systematic cueing of appropriate strategies in context
- Interventions are more effective when they provide appropriate levels of scaffolding as children learn to apply new skills
- Provide systematic and explicit instruction on whatever component skills are deficient: e.g., in reading phonemic awareness, phonics, fluency, vocabulary, reading comprehension strategies (Torgesen, 2003)

Torgesen, J. (2003). *Using science, energy, patience, consistency, and leadership to reduce the number of children left behind in reading*. Barksdale Reading Institute, Florida. Retrieved 3/5/2004 from http://www.fcrr.org/staffpresentations/Joe/NA/mississippi_03.ppt

The 2000 report to the Department for Education and Employment in Great Britain (McBer: A model of teacher effectiveness) reached similar conclusions about the value of this approach.

DI was originally designed to assist disadvantaged students

But, its emphasis on analysing task characteristics and effective teaching principles transcends learner characteristics

DI programs have been shown to be effective for:

Slow learners Disadvantaged Intellectual disability Gifted Learning disability Indigenous Acquired brain injury Language disability Deaf Behavioural disorder Autism spectrum ADHD English language learners

Many DI programs have been shown effective in:

Basic skills: reading, spelling, maths, language, writing

Higher order skills: literary analysis, logic, chemistry, critical reading, geometry, history and social studies **Computer-assisted instruction:** Funnix beginning reading program, videodisc courseware in science and maths.

The combination of effectiveness across learner types and across curriculum areas provides credibility that the model itself is very well founded. Further it demonstrates that effective instruction transcends learner characteristics.

2005 STUDY RATES 22 WIDELY USED COMPREHENSIVE SCHOOL REFORM MODELS

http://www.air.org/news/documents/Release200511csr.htm

WASHINGTON, D.C. - A new guide using strict scientific criteria to evaluate the quality and effectiveness of 22 widely adopted comprehensive elementary school reform models rates 15 as "limited" to "moderately strong" in demonstrating positive effects on student achievement.

The American Institutes for Research (AIR) report was produced by AIR's Comprehensive School Reform Quality (CSRQ) Center, a multi-year project funded by a grant from the U.S. Department of Education. The CSRQ Center Report on Elementary School CSR Models builds on AIR's pioneering work in conducting consumer-friendly research reviews, including An Educators' Guide to Schoolwide Reform issued in 1999, and its current work for the What Works Clearinghouse.

"Our purpose in providing ratings is not to pick winners and losers but rather to clarify options for decision-makers," said Steve Fleischman, a managing director for AIR who oversaw the study. "This report is being issued in the hopes that the information and analysis it provides contributes to making research relevant in improving education."

Collectively, the reform models reviewed serve thousands of mostly high-poverty, low-performing schools nationwide. The review includes such well known models as Success for All, Accelerated Schools, Core Knowledge, America's Choice, Direct Instruction, School Renaissance, and the School Development Program.

AIR researchers conducted extensive reviews of about 800 studies and other publicly available information to rate the models in five categories of quality and effectiveness, including their ability to improve student achievement and to provide support to schools that allowed the model to be fully implemented. The CSRQ Center review framework was developed in consultation with an Advisory Group composed of leading education experts and researchers, and is closely aligned with the requirement for scientifically based evidence that is part of the federal No Child Left Behind Act.

Of the 22 reform models examined, Direct Instruction (Full Immersion Model), based in Eugene, Ore., and Success for All, located in Baltimore, Md., received a "moderately strong" rating in "Category 1: Evidence of Positive Effects on Student Achievement."

Five models met the standards for the "moderate" rating in Category 1: Accelerated Schools PLUS, in Storrs, Conn.; America's Choice School Design, based in Washington, D.C.; Core Knowledge, located in Charlottesville, Va.; School Renaissance in Madison, Wis.; and the School Development Project, based in New Haven, Conn. Models receiving a "moderate" rating may still show notable evidence of positive outcomes, but this evidence is not as strong as those models receiving a "moderately strong" or "very strong" rating.

Eight models earned a "limited" rating in Category 1: ATLAS Communities and Co-nect, both in Cambridge, Mass.; Different Ways of Knowing, located in Santa Monica, Calif.; Integrated Thematic Instruction, based in Covington, Wash,; Literacy Collaborative, from Columbus, Ohio; National Writing Project, in Berkeley, Calif.; Modern Red Schoolhouse, based in Nashville, Tenn.; and Ventures Initiative Focus System, located in New York, N.Y. The "limited" rating indicates that while the CSRQ Center found some evidence of positive effects on student achievement, much more rigorous research and evidence needs to be presented on the model to fully support its effectiveness.

Seven CSR models received a "zero" rating in Category 1: Breakthrough to Literacy, from Coralville, Iowa; Comprehensive Early Literacy Learning, in Redlands, Calif.; Community for Learning, based in Philadelphia, Pa.; Coalition of Essential Schools, located in Oakland, Calif.; Expeditionary Learning, based in Garrison, N.Y.; First Steps, in Salem, Mass.; and Onward to Excellence II, located in Portland, Ore. A rating of "zero" means that evidence was found to provide a rating for this category, but none was of sufficient quality to be counted as reliable evidence.

None of the 22 models earned a "no" or "negative" rating, which indicate that a model has no evidence available for review, or strong evidence demonstrating negative effects in a given category or subcategory, respectively.

Consumers can visit the CSRQ Center's Web site (http://www.csrq.org/reports.asp) to download the entire report, individual model profiles, or to search the online database to perform side-by-side comparisons of the models reviewed by the CSRQ Center.

About CSRQ Center

The Comprehensive School Reform Quality Center (CSRQ Center, www.csrq.org) is funded by the U.S. Department of Education's Office of Elementary and Secondary Education, through a Comprehensive School Reform Quality Initiative Grant (S222B030012), and is operated by the American Institutes for Research (AIR, www.air.org).