



# National Institute for Direct Instruction

## Harmful Effects of Academic Early Education? A Look at the Claims and the Evidence<sup>1</sup>

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Two on-line publications released in May, 2015 warned of the dangers of early childhood education programs that promote academic skills. A group called “Defending the Early Years” released a short document by Nancy Carlsson-Paige and associates titled *Reading Instruction in Kindergarten: Little to Gain and Much to Lose* (Carlsson-Paige, McLaughlin, & Almon, 2015). Shortly thereafter Peter Gray used this information for a blog post on the *Psychology Today* website titled *Early Academic Training Produces Long-Term Harm: Research Reveals Negative Effects of Academic Preschools and Kindergartens* (Gray, 2015). Both postings contend that academic preschools and kindergartens have no lasting effect on students’ later academic success and can even promote long-term harm to children’s social and psychological development. Given the provocative nature of these conclusions, the NIFDI Office of Research and Evaluation was asked to examine their basis. The first section below summarizes misrepresentations in the publications, and the second section briefly examines theoretical assumptions embodied in the discussions and their implications.

### Misrepresentations

The authors cite two research articles to support the conclusion that students attending academic preschools have worse academic, social and psychological outcomes than those who attend other programs (Marcon, 2002; Schweinhart & Weikart, 1997, building on an original article by Schweinhart, Weikart, & Larner, 1986). These works have, however, been heavily criticized within the scholarly community for a wide range of methodological flaws (e.g. Bereiter, 1986; Gersten, 1986; Mills, 2002; Engelmann, 1999 in response to Schweinhart and associates; Lonigan, 2003 in response to Marcon). Other, more carefully designed and methodologically defensible studies have failed to replicate their results (e.g. Evans, 1985; Mills, 2002). *There appears to be no consistent, reliable evidence of a negative impact of academic preschool education on later outcomes.*

Given the logistical difficulties of following young people from their preschool years through late adolescence, as well as the methodological challenges of controlling for the vast array of intervening variables, the literature on long-term outcomes of preschool educational

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programs is small. There is, however, substantial literature regarding the long-term impact of academic kindergartens, especially related to Direct Instruction (DI). Studies from the very large-scale Follow Through project<sup>2</sup> found consistent evidence, replicated over more than a dozen widely disparate settings, that students who were exposed to Direct Instruction in kindergarten outperformed their peers who started the program in first grade (Becker & Engelmann, 1996; Gersten, Darch, & Gleason, 1988). Those with early exposure continued to have higher achievement scores at the end of elementary school (Becker & Gersten, 1982) and were more likely to finish high school and attend college (Gersten, Keating, & Becker, 1988; Meyer, 1984; Stockard, Carnine, et al., 2015). In all of these analyses, both groups of DI students outperformed those using less academically oriented programs, no matter when they began receiving reading instruction. But having DI in kindergarten gave them an extra boost. Recent studies have continued to replicate these results (e.g. Stockard, 2011, Stockard & Engelmann, 2010).

Unfortunately, the authors of the two recent internet posts appear to be unaware of this large literature. Gray claims that there is “consistent” evidence that early gains from academic preschools and kindergarten “wash out within 1 to 3 years and, at least in some studies, are eventually reversed.” The Alliance for Childhood publication states, in bold print, “no research documents long-term gains from learning to read in kindergarten” (page 4).

In addition, the publications’ depictions of academic preschools are quite negative, suggesting that they are virtually devoid of playtime and generate “unhappiness,” by putting “intense academic pressures” on students and forcing them to spend hours on worksheets and drills, for which they are developmentally unprepared. This depiction is directly contrary to the nature of well-run preschools that use a Direct Instruction model.

The Direct Instruction model grew from the pioneering work of Carl Bereiter, Siegfried Engelmann and their colleagues with a small group of preschoolers from high poverty backgrounds in a Midwestern city. Writing in 1966 they described the preschool:

The school runs for two hours a day, five days a week. The typical school day consists of three twenty-minute sessions, one each devoted to language, arithmetic, and reading instruction. These periods are separated by one half-hour period for refreshments and singing and a shorter period of relatively unstructured play activity. For the instructional sessions the children work in groups of four or five. Each subject has its own teacher, who works with each of three groups of children in turns, as in a high school. Groups are constituted on the basis of over-all rate of progress, with children being

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<sup>2</sup> Project Follow Through is the largest educational experiment ever conducted. It continued for more than 10 years, compared 22 different programs, included 180 different sites, and involved tens of thousands of students. Extensive testing and analyses showed that students taught with Direct Instruction had significantly better academic outcomes and self-concepts than those taught with any other approach (Barbash, 2012; Bereiter & Kurland, 1981; Grossen, 1996).

frequently shifted from one group to another as their relative achievement level shifts. (Bereiter, Engelmann, et al, 1966, 2014, p. 119)

Even though the academic content comprised only one hour of the day, the students made rapid academic progress and were well situated to compete with middle class peers in the elementary years (Bereiter & Engelmann, 1966). Videotapes (available online at [nifdi.org/resources/videos](http://nifdi.org/resources/videos)) show the children's accomplishments. They also illustrate the nature of the learning – the fast pace of instruction and, just as important, the children's clear excitement and pride in their achievements. There is no indication of the pressure, drills, and worksheets described in the writings of Gray or Carlsson-Paige and associates.

It should be noted that the citations and description above involve Direct Instruction (so-called "big DI"), the large body of curricular material that grew from the preschool work and has been expanded through the years by Siegfried Engelmann, Wesley Becker, and their colleagues. The DI approach assumes that all children can be taught. If a child is not learning it is the fault of the instruction, not the fault of the child. When instruction is carefully designed – clear, explicit, and logically ordered – children can learn more quickly and progress more rapidly. Decades of research shows that learning with DI programs is effective. Students begin instruction at a level commensurate with their skill level. Students learn more, largely because the material is logically arranged, carefully field-tested, and designed so that students can master each element before proceeding to the next lesson. Students can learn the material more quickly because teaching demonstrations are clear, using only vocabulary that students already know. Teachers do not have to reteach concepts that students have mislearned because of faulty presentations. Students aren't wasting time with irrelevant material or having to relearn or review material they may have forgotten. Research shows that this clear, explicit instruction and rapid learning is rewarding for both students and their teachers. Because students are constantly learning new material they gain more confidence in their ability to learn and are proud of their achievements and abilities. Teachers are also more likely to demonstrate pride in their students' accomplishments (See Barbash, 2012 and Engelmann, 2014 for readable summaries of these characteristics of the program).

While it is possible that the depiction of academic early education given by Gray and Carlsson-Paige and associates may reflect some settings and some curricula, academic early education need not, and should not, produce unhappiness and stress for students or for teachers. Drill, endless worksheets, unhappiness, and a lack of play are, in fact, the antithesis of a well-run DI school at any level. In a well-run program, the joy of learning is manifest. Moreover, because learning is efficient, there is plenty of time for students to play. In a well-run DI school play is not, and should not be, eliminated.

At the same time, the research evidence indicates that having well-structured early academic instruction can provide the basis for continued academic success for students. Very importantly, it can help provide the means for those from disadvantaged backgrounds to compete on the same level as those from more advantaged settings. The next section looks at perspectives on the relationship of poverty and educational achievement in more detail.

### **Common Assumptions but Different Solutions**

The DI literature and the writings of Carlsson-Paige and associates converge in two important basic assumptions regarding factors that influence children's academic futures: the importance of language and the role of poverty. Both recognize the key importance of language development in learning to read and for future success. Both also recognize the vast differences in opportunities experienced by children from more and less advantaged backgrounds. In addition, writers in the two approaches emphasize the crucial role that teachers play in students' development and learning. Yet, the underlying reasoning of their arguments and the solutions proposed diverge markedly.

Carlsson-Paige and associates describe learning as a slow process that occurs as children explore and learn about the world, gradually developing understandings, and a greater ability to use and manipulate symbols, including language, largely through playful interactions with the world around them:

Young children take years to build the foundation they need to be able to make sense of print. An important aspect of this process is being able to understand these abstract symbols. Children learn that real things can be represented by symbols when they play and use hands-on materials....Very slowly, especially in a print-rich environment and with the guidance of a skilled teacher, children begin to find meaningful ways to bring letter symbols into their play scenarios. This progression is gradual...the great many ways that children use symbols in their play with materials builds the strong foundation for understanding the abstract symbols in our print system (Carlsson-Paige, et al, 2015, p. 5)

In this emergent learning perspective early education is seen as helping enhance children's learning by providing

a wide range of life experiences that enrich their understanding of the world and help them comprehend the content of books. For children who have not experienced gardens or farms, forests or parks, supermarkets or a host of other public spaces, references to them in books can be puzzling. But teachers can help children plant seeds and tend them, name animals and care for them, visit parks and streams, and broaden their first-hand knowledge of the world around them. Through classroom activities, projects,

and field trips, teachers strengthen children's background knowledge for making sense of print (Carlsson-Paige, et al, 2015, pp. 5-6)

The assumptions regarding how children learn are the basis for the Alliance writers' criticism of calls for more academic work in the early years. They stress that students need a "slow but solid start in preschool and kindergarten so that a foundation can be laid for a lifelong process of language development and reading" (Carlsson-Paige, et al., 2015, p. 6). They also assert that the standards calling for developing early literacy skills "have hurried the reading process," and are "setting unrealistic reading goals" (p. 7).

While Paige-Carlsson and others who use the emergent learning perspective emphasize the slow pace at which children gradually make sense of the world and learn new things, writers in the Direct Instruction tradition focus on the rapidity of children's learning process, the extent to which children are continually trying to make sense of the world around them, and the enormous capabilities they have to learn. Writers in the DI tradition describe children as active, logical thinkers who can easily absorb new concepts and new ideas when they are presented to them in a logical manner. The limit on children's learning is the extent to which they are adequately taught.

The differences between the two perspectives are especially apparent in their views on the relationship of poverty and educational achievement. The Alliance writers criticize academic standards, such as those in the Common Core, for "ignoring the impact of poverty." The standard that expects that all children will "achieve at the same level by the end of the kindergarten year" is specifically criticized. Noting the large amount of research that documents the strong association of socioeconomic status to student achievement, they suggest that the expectation of high achievement for all is unrealistic and that resources would be better devoted to dealing with poverty and inequality:

Attention to the Common Core is a diversion from addressing the underlying issues of economic inequality that contribute to the achievement gap between low- and high-income students....The adoption of the Common Core State Standards falsely implies that having children achieve these standards will overcome the impact of poverty on development and learning, and will create equal educational opportunity for all children (p. 8).

The implicit message of this analysis is that socioeconomic differences in student achievement cannot be overcome by educational efforts. Instead, their elimination depends upon large-scale economic reforms at a societal level.

Writers in the Direct Instruction approach certainly understand the challenges that children from disadvantaged backgrounds face. Yet, for those in the DI community, the solution is not to wait for economic or political change sometime in the indefinite future. Instead, they have shown how children – like those in the Bereiter-Engelmann preschool – can acquire

academic skills and compete on an equal level with their more advantaged peers. Like those in the emergent perspective, writers in the DI tradition realize the key role of language in learning and how greater exposure to a variety of experiences and a wealth of language opportunities enhances learning (e.g., Engelmann, 1966). Much research has documented the large differences in language development of children from advantaged and disadvantaged backgrounds (e.g. Hart & Risley, 2003), a difference that becomes magnified over the years. Academic preschools address this gap early. As in the Bereiter-Engelmann preschool described above, carefully designed instruction can dramatically enhance children's vocabularies, concept development, and thus their probability of future success. The advantages from this exposure can last through the elementary years and high school (Meyer, 1984; Stockard, 2010; Stockard, et al., 2015).

In short, the emergent learning perspective and the DI approach present very different views of the potential for learners from disadvantaged backgrounds. The DI approach embodies optimism and hope, supported by a half century of research that shows that children from poverty backgrounds can have patterns of achievement that match those of others in the nation. In contrast, the emergent learning perspective appears to embody pessimism and despair, providing little hope that those from disadvantaged backgrounds can succeed. While this view ignores the large body of evidence showing that all children can learn when exposed to appropriate instruction, it also could be seen as disparaging the capabilities of those from disadvantaged backgrounds. One could suggest that these views, as well as the disparagement of academic early education, are, at best, naïve or, at worst, an attempt to further and maintain the privileges of the more advantaged.

## References

- Barbash. S. (2012). *Clear teaching: With Direct Instruction, Siegfried Engelmann discovered a better way of teaching*. Education Consumers Foundation.
- Becker, W. C. & Engelmann, S. (1996). Sponsor findings from Project Follow Through. *Effective School Practices*, 15(1), 33-41.
- Becker, W. C. & Gersten, R. (1982). A follow-up of Follow Through: The later effects of the Direct Instruction model on children in fifth and sixth grades. *American Educational Research Journal*, 19(1), 75-92.
- Bereiter, C. (1986). Does Direct Instruction cause delinquency? *Early Childhood Research Quarterly*, 1(3), 289-292.

Bereiter, C., Engelmann, S., Osborn, J., & Reidford, P. A. (1966). An academically oriented pre-school for culturally deprived children. In F. M. Hechinger (Ed.), *Pre-school education today: New approaches to teaching three-, four-, and five-year olds* (pp. 105-135). (Reprinted from *Engelmann's Direct Instruction: Selected writings from the past half century*, pp. 116-143 by T. Wood, Ed., 2015, Eugene, OR: NIFDI Press).

Bereiter, C. & Kurland, M. (1981). A constructive look at Follow Through results. *Interchange*, 12 (1), 1-22.

Carlsson-Paige, N., McLaughlin, G. B., & Almon, J. W. (2015). *Reading instruction in kindergarten: Little to gain and much to lose*. Alliance for Childhood. Retrieved from: [https://deyproject.files.wordpress.com/2015/01/readinginkindergarten\\_online-1.pdf](https://deyproject.files.wordpress.com/2015/01/readinginkindergarten_online-1.pdf)

Engelmann, S. (2015). *Successful and confident students with Direct Instruction*. Eugene, OR: NIFDI Press.

Engelmann, S. (1966). The structuring of language processes as a tool for thought. In D. Kestel (Ed.), *National Catholic Educational Association Bulletin: Curriculum for renewal*, 63(1), 459-468. (Reprinted from *Engelmann's Direct Instruction: Selected writings from the past half century*, pp. 12-26, T. Wood (Ed.), Eugene, OR: NIFDI Press, 2015).

Engelmann, S. (1999). Response to "The High/Scope preschool curriculum comparison study through age 23." *Effective School Practices*, 17(3), 18-23.

Evans, E. D. (1985). Longitudinal follow-up assessment of differential preschool experience for low income minority group children. *Journal of Educational Research*, 78(4), 197-202.

Gersten, R. (1986). Response to "Consequences of three preschool curriculum models through age 15." *Early Childhood Research Quarterly*, 1(3), 293-302.

Gersten, R., Keating, T., & Becker, W. (1988). The continued impact of the Direct Instruction model: Longitudinal studies of Follow Through students. *Education and Treatment of Children*, 11, 318-327.

Gray, P. (2015). Early academic training produces long-term harm: Research reveals negative effects of academic preschools and kindergartens. *Psychology Today On-Line*, Retrieved from <https://www.psychologytoday.com/blog/freedom-learn/201505/early-academic-training-produces-long-term-harm>.

Grossen, B. (1996). The story behind Project Follow Through. *Effective School Practices*, 15(1), 4-9.

Hart, B. & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore: Paul H. Brookes.

Lonigan, C. J. (2003). Comment on Marcon (ECRP, Vol. 4, NO. 1, Spring 2002): Moving up the grades: Relationship between preschool models and later school success. *Early Childhood Research and Practice*, 5(1).

Marcon, R. A. (2002). Moving up the grades: Relationship between preschool model and later school success. *Early Childhood Research and Practice*, 4(1).

Meyer, L. A. (1984). Long-term academic effects of the Direct Instruction Project Follow Through. *The Elementary School Journal*, 84(4), 380-394.

Mills, P. E., Cole, K. N., Jenkins, J. R., & Dale, P. S. (2002). Early exposure to Direct Instruction and subsequent juvenile delinquency. A prospective examination. *Exceptional Children*, 69, 85-96.

Schweinhart, L. J. & Weikart, D. P. (1997). The High/Scope pre school curriculum comparison study through age 23. *Early Childhood Research Quarterly*, 12, 117-143.

Schweinhart, L. J., Weikart, D. P., & Larner, M.B. (1986). Consequences of three preschool curriculum models through age 15. *Early Childhood Research Quarterly*, 1, 15-45.

Stockard, J. (2010). Promoting reading achievement and countering the “fourth-grade slump”: The impact of Direct Instruction on reading achievement in fifth grade. *Journal of Education for Students Placed at Risk*, 15, 218-240.

Stockard, J. (2011). Increasing reading skills in rural areas: An analysis of three school districts. *Journal of Research in Rural Education*, 26(8).

Stockard, J., Carnine, L., Rasplca, C., Paine, S., & Chaparro, E. (2015). *The long-term impacts of Direct Instruction and the maple model: College preparation and readiness*. NIFDI Technical Report 2015-2. Eugene, OR: National Institute for Direct Instruction.

Stockard, J., & Engelmann, K. (2010). The development of early academic success: The impact of Direct Instruction’s *Reading Mastery*. *Journal of Behavior Assessment & Intervention in Children*, 1(1), 2–24.