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Freedom to Learn

Research Reveals Long-Term Harm of State Pre-K Program

In this first-ever controlled study of public pre-K, the control group did best.

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If there was ever a time to attend seriously to research concerning effects of early childhood education, this is it. If

have previously summarized several well-controlled studies showing that academic training in preschool or in kindergarten, while improving test scores in the short term, causes long-term harm (here). One of those, which bears reviewing here before I move on to the recent study in Tennessee, was a government-sponsored study conducted in Germany in the 1970s (described by Darling-Hammond & Snyder, 1992).

The German government was trying to decide whether it would be a good idea, or not, to start teaching academic skills in kindergarten rather than maintain kindergarten as purely a place for play, stories, singing, and the like, as it had always been before. So, they conducted a controlled experiment involving 100 kindergarten classrooms. They introduced some academic training into 50 of them and not into the other 50.

The graduates of academic kindergartens performed better on academic tests in first grade than the others, but the difference subsequently faded, and by fourth grade they were performing worse than the others on every measure in the study. Specifically, they scored more poorly on tests of reading and arithmetic and were less well-adjusted socially and emotionally than the controls.

The Germans, unlike we Americans, paid attention to the science. They followed the data and abandoned plans for academic training in kindergarten. They have stuck with that decision ever since. For one parent's comparison of German kindergartens to US kindergartens, see here. Today we have much more evidence of long-term harm of early academic

try. Worse, we now even teach academics in many if not most preschools! As a people, we are pretty good at putting our heads in the sand to avoid looking at data that run counter to our prejudices.

Now I turn to newly reported findings from the first well-controlled long-term study that has ever been conducted of a state-wide publicly supported preschool program in the United States—the Tennessee Pre-K Program (Durkin et al., 2022). If this study doesn't put the nail in the coffin of academic training to little children, it's hard to imagine what will.

Description of the Tennessee Pre-K Program

The purpose of the program was to provide free, "high quality" preschool for children whose family income was below the poverty level. Great effort went into designing the program. Unlike in many other pre-K programs, the teachers would all have at least a bachelor's degree plus early childhood certification and would be paid on a par with elementary school teachers and have the same benefits. The National Institute for Early Education Research (NIEER) evaluated the curriculum early on and judged it to be among the best.

Based on the prejudice that early academic training would give the children a boost for their subsequent schooling, the program was heavy on academics. The researchers who studied it describe it as follows (Durkin et al., 2022): “The program provides a minimum of 5.5 hours of instructional time per day, five days per week. Classes have a maximum of 20 students and are taught by state-licensed teachers using one of 22 curricula approved by the Tennessee Department of Education.” (I can’t help but insert here that this may have looked good to the NIEER, but to me it looks like torture. *Five and a half hours of instruction per day for 4-year-olds!* I hope the term "instructional time" is being used here loosely and does not mean, literally, that instruction was occurring all that time.)

How Researchers at Vanderbilt University Studied the Program

The long-term study of the program was conducted by researchers at Vanderbilt University, including Kelley Durkin, Mark Lipsey, Dale Farran, and Sarah Wiesen, who were all authors of the recent report. For purposes of the study, they focused only on those preschool centers where more families who met the poverty criterion wanted to enroll their child than could be accommodated. In those areas, a random procedure was used to determine which children could enroll and which could not. Those who, by what was essentially a flip of the coin, could not enroll constituted the control group. So, this was a randomized controlled experiment—the queen of methodologies.

the experimental group, those chosen for the program had to follow up by enrolling and then going on to a public elementary school in Tennessee. In all, nearly 3,000 children met these criteria and provided the samples used for data analysis. The procedure was a bit more complicated than I am describing here, but what I want to emphasize is that this is a very well-controlled study of large samples of children. The data for the study came from assessments made at various times in the children's school career, from kindergarten through sixth grade.

What the Researchers Found: Pre-K Worsened Academic Performance and Comportment in Later Grades

The results from following the children through third grade were reported in a previous article (Lipsey et al, 2018), which I summarized in a previous post. In brief, the Pre-K group performed better than the control group on all academic measures at the beginning of kindergarten, but the control group soon caught up and, by third grade, the control group performed better on all academic measures than the pre-K group. Moreover, by third grade those in the pre-K group were significantly more likely to have been diagnosed with a learning disorder and had a higher rate of school rule violations than those in the control group.

The new report reveals that the advantages to the control group were even greater in sixth grade than in third grade. Here is a **summary of the sixth-grade findings**:

• On all the **achievement tests**—which were in reading, math, and science—the control group scored higher than the pre-K group. The differences in means were small to moderate in size, but in every case the advantage to the control group was highly significant statistically and the differences were all larger in sixth grade than they had been in third grade.

• By 6th grade, 14.6% of the children in the pre-K group, compared to 8.4% in the control group, had been diagnosed as having a **learning disorder** sufficient to require an IEP (Individualized Education Program). Stated differently, those in the pre-K group were 74% more likely to have been diagnosed with a learning disorder than those in the control group. (Parenthetically, I note that the researchers also used a different way of analyzing the results, in which the observed percentages were weighted to account for differences in the demographic profiles of those in the experiment and those in the full state-wide program. When this was done, the difference was even greater: The pre-K graduates were a bit more than twice as likely to have been diagnosed as learning disordered compared to the controls.)

• By 6th grade, 27.3% of the pre-K group, compared to 18.5% of the controls, had a record of at least one school **rule viola-**

as fighting or bringing a weapon to school). Stated differently, by both indices, those in the pre-K group were 48% more likely to have committed a behavioral offense at school than those in the control group.

What Could Explain the Harmful Effects of the Pre-K Program?

So, the major findings of the study are that this expensive, carefully planned pre-K program caused, by 6th grade, reduced performance on all academic achievement tests, a sharp increase in learning disorders, and much more rule violation and behavioral offenses than occurred in the control group.

It is worth noting that, according to the best estimates available to the researchers, 63% of those in the control group were cared for just at home prior to kindergarten, 13% attended Head Start, 16% enrolled in a private childcare center, 5% had a combination of Head Start and private childcare, and 3% were unaccounted for. It would be interesting to

those data are not available. Remember, these were all families living below the poverty line, the very families that, according to common prejudices, are least equipped to provide a good learning environment for children.

The most striking finding in the study, to me, is the large increase in diagnosed learning disorders in the pre-K group. It seems possible that this increase is the central finding, though the authors of the report don't make that claim. Previously I've discussed evidence that learning disorders can be produced by early academic pressure (here) and evidence that being labeled with a learning disorder can, through various means, become a self-fulfilling prophesy and result in poorer academic performance than would have occurred without the diagnosis (here). It would be interesting to know if the deficit in achievement test scores was entirely the result of poor performance by those diagnosed with a learning disorder.

A related possibility is that the early academic training resulted in shallow learning of the skills, sufficient to pass the pre-K and kindergarten tests but which interfered with subsequent deeper learning (an idea I discussed here). That could account for the finding that the deficit produced by pre-K grew over the years. As years go on, success on tests may depend increasingly on real understanding, so anything that blocks such understanding might show up more in later grades than earlier ones.

Another possibility is that the pre-K academic grind and pressure caused children to develop a hatred and rebellious atti-

they went through elementary school. The same rebelliousness might also have caused the children to take their lessons less seriously, which could, over the years, result in an ever-greater gap between them and the controls in test scores.

Still another possibility is that the deficit shown by the pre-K group was caused not so much by what was done in pre-K as by what did not happen there. Four-year-olds need lots of time to play, create, socialize, take initiative, figure things out on their own, and learn to manage themselves. The time spent in academic training is time that they cannot spend on learning the much more important skills that come from self-directed activities. Perhaps the pre-K children were less prepared for school, especially the later grades of school, because they had not had the usual opportunities to learn how to manage themselves before starting school. This suggestion is consistent with previous research showing better long-term outcomes for play-based preschools and kindergartens than for those that have an academic component (here).

or causes of the long-term harm of pre-K. Regardless of the mechanism, it is now abundantly clear that we should stop even thinking about teaching academics to tots. We should finally make the decision that the Germans made half a century ago and stop formal academic training for children below age 6.

Some children, on their own, become skilled at reading or with numbers well before 6, but that's because it was their own decision to do so and they did so largely through their own efforts (here). There is a huge difference between self-chosen learning and that which is forced.

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References

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About the Author

Peter Gray, Ph.D., is a research professor at Boston College, author of Free to Learn and the textbook Psychology (now in 8th edition), and founding member of the nonprofit Let Grow.