

The High/Scope Approach:
Evidence that Participatory Learning in Early Childhood
Contributes to Human Development

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As special education director of the Ypsilanti public school district in the 1960s, David Weikart encountered daily the school failure of children born in poverty. In this time of the civil rights movement and the man-on-the-moon initiative, this was not a fact of life to be endured but a problem to solve. So, with the High/Scope Perry Preschool program that operated from 1962 to 1967, he began the sequence of work that led to his establishment of the High/Scope Educational Research Foundation in 1970. He established the High/Scope Foundation to pursue the vision of a world in which all educational settings use participatory learning so everyone has a chance to succeed in life and contribute to society. He and his colleagues wanted to assist children with the odds against them to use education to rise above the poverty they were born in, to lift their lives through education. Their methods were curriculum development, research, training, publishing, and communication, primarily applied to early childhood programs.

This chapter describes five studies that affirm the importance of participatory learning in early childhood. *The High/Scope Perry Preschool Study* compares the life outcomes of study participants who did and did not participate in such a preschool program. *The High/Scope Preschool Curriculum Comparison Study* compares the life outcomes of study participants who

participated in three types of preschool programs – High/Scope, Direct Instruction, or traditional Nursery School. *The Training for Quality Study* examines the effects of High/Scope training on teacher trainers, teachers, and children. *The Head Start Family and Child Experiences Survey (FACES)*, conducted by a consortium of research organizations other than High/Scope, examines curriculum and child outcomes in a nationally representative sample of Head Start classrooms. *The Preprimary Study of the International Association for the Evaluation of Educational Achievement (IEA)* examines early childhood settings and child outcomes in countries around the world. In addition to their common testimony on the value of participatory learning, these studies also comprise a major portion of the history of the High/Scope Educational Research Foundation.

The High/Scope Model of Preschool Education

The model used in all of these studies but the IEA Preprimary Study was the High/Scope open framework of educational ideas and practices based on the natural development of young children. Drawing on the child development ideas of Jean Piaget, it emphasizes the idea that children are intentional learners, who learn best from activities that they themselves plan, carry out, and review afterwards. Adults introduce new ideas to children through adult-initiated small- and large-group activities. Adults observe, support, and extend the children's play. Adults arrange interest areas in the learning environment; maintain a daily routine that permits children to plan, carry out, and review their own activities; and join in children's activities, asking appropriate questions that extend their plans and help them think about their activities. They add complex language to the discussion to expand the child's vocabulary. Using key experiences derived from child development theory as a framework, adults encourage children to make

choices, solve problems, and engage in activities that contribute to their intellectual, social, and physical development.

While key experiences in child development are used to monitor children's progress, adults do not provide children with prescriptively sequenced lessons that cover a defined subject matter. Instead, they listen closely to children's plans and then actively work with them to extend their activities to challenging levels as appropriate. Adults' questioning style is important, emphasizing questions that initiate conversations with children and drawing out observations and reflections expressed in children's own language. Adults rarely ask questions merely to test children's grasp of letters, numbers, or colors. Instead, they ask for self-generated descriptions or ideas: What happened? How did you make that? Can you show me? Can you help another child? The questioning style permits free conversation between adult and child and serves as a model for conversations among children. This reflective approach permits adults and children to interact as thinkers and doers rather than to assume the traditional school roles of initiating teacher and responding pupil. All are sharing and learning as they work, adults as well as children.

In order to create a setting in which children engage in intentional learning activities, a consistent daily routine is maintained that varies only when the child has fair warning that things will be different the next day. Field trips are not surprises, nor are special visits or events initiated in the classroom on the spur of the moment. This adherence to routine gives the child the control that helps develop a sense of responsibility and offers the enjoyment of being independent. The daily routine includes a plan-do-review sequence, as well as large- and small-group activities. The plan-do-review sequence is the central device that gives children

opportunities to express intentions about their activities and reflect on their experience, while keeping the adult intimately involved in the process.

The High/Scope Perry Preschool Study

David Weikart and his colleagues in the Ypsilanti Michigan school district operated the High/Scope Perry Preschool program for 3- and 4-year-olds living in poverty to help them avoid school failure and related problems. Because people differed on whether such a program actually did help or not, they embedded the program in the High/Scope Perry Preschool study to find out.

Design

To conduct this study, they identified 123 young African American children in Ypsilanti living in poverty and assessed to be at high risk of school failure. They randomly assigned about half of them to a no-program group that received no preschool program and the other half to a program group that received a high quality preschool program for the program group at ages 3 and 4. The project staff collected data on both groups annually from ages 3 through 11 and at ages 14, 15, 19, 27, and now at age 40. After each period of data collection, they analyzed the data and wrote a report of the study (Schweinhart et al., 2005).

Findings

The variety of findings of program effects through age 40 spans the domains of education, economic performance, crime prevention, and family and health. All findings reported herein for this study are statistically significant with a probability of less than .05, using a one-tailed test because the obvious direction of the hypothesis is that the preschool program group is doing better than the no-program group, not vice versa. A path model of the study suggests how preschool experience affects age 40 success. Beginning with preschool experience and children's pre-program intellectual performance, the model traces paths to children's post-program intellectual performance, then to their school achievement and commitment to schooling, then to their educational attainment, then to their adult earnings and lifetime arrests. This model did not differ for males and females. Figure 1 presents group differences for these variables.

More of the program group than the no-program group graduated from high schooling or received a GED (77% vs. 60%). This difference was due to a 42 percentage-point difference between program and no-program females in high school graduation rate (88% vs. 46%). This difference was related to earlier differences between program and no-program females in the rates of treatment for mental impairment (8% vs. 36%) and retention in grade (21% vs. 41%). Earlier, the program group outperformed the no-program group on various intellectual and language tests from their preschool years up to age 7; school achievement tests at 7 to 14; and literacy tests at 19 and 27. The program group had better attitudes towards school than the no-program group as teens, and program-group parents had better attitudes towards their teen children's schooling than did no-program-group parents. The preschool program affected children's performance and attitudes, regardless of their gender, but this common effect seems to have led school staff to track girls, but not boys. As will be seen, however, the program had plenty of long-term effects on boys as well.

More of the program group than the no-program group were employed at 27 (69% vs. 56%) and 40 (76% vs. 62%). The program group had higher median earnings than the no-program group, annually at 27 (\$12,000 vs. \$10,000) and at 40 (\$20,800 vs. \$15,300) and monthly at both ages. More of the program group than the no-program group owned their own homes at 27 (27% vs. 5%) and 40 (37% vs. 28%) rather than paying rent, receiving a subsidy, living with others, or being incarcerated. At 40, program males paid more per month for their dwelling than did no-program males. More of the program group than the no-program group had a car at 27 (73% vs. 59%) and 40 (82% vs. 60%). At 40, significantly more of the program group than the no-program group had a savings account (78% vs. 50%). At 27, fewer in the program group than the no-program group reported receiving social services at some time in the previous

ten years (59% vs. 80%). The group difference at 40 had dropped from 21 percentage-points to 15 percentage points (71% vs. 86%) and was no longer statistically significant.

During their lives, fewer in the program group than the no-program group were arrested 5 or more times (36% vs. 55%) or were arrested for violent, property, or drug crimes. Group differences in various types of crime occurred in adolescence, early adulthood, and midlife. By 40, compared to the no-program group, the program group had fewer of 3 of the 78 types of crimes cited at arrest – dangerous drugs, assault and/or battery, and larceny under \$100. Fewer in the program group were sentenced to time in prison or jail by age 40 (28% vs. 52%), particularly from ages 28 to 40 (19% vs. 43%).

More program than no-program males raised their own children (57% vs. 30%). The two oldest children of the program group did not differ significantly from the two oldest children of the no-program group in education, employment, arrests, or welfare status. At 40, more of the program group than the no-program group said they were getting along very well with their family (75% vs. 64%). Fewer program than no-program males reported using sedatives, sleeping pills, or tranquilizers (17% vs. 43%) or marijuana or hashish (48% vs. 71%).

In constant 2000 dollars discounted at 3%, the economic return to society for the program was \$258,888 per participant on an investment of \$15,166 per participant – \$17.07 per dollar invested. Of that return, 76% went to the general public – \$12.90 per dollar invested, and 24% went to each participant. Of the public return, 86% came from crime savings, and the rest came from education and welfare savings and increased taxes due to higher earnings. A full 92% of the public return was due to males, because of the large program effect of reducing male crime. This finding for males stands in stark contrast to the large program effect on the high school graduation rates of females. Preschool program participants earned 14% more per person than they would have otherwise – \$156,490 more over their lifetimes in undiscounted 2000 dollars.

Male program participants cost the public 41% less in crime costs per person, \$732,894 less in undiscounted 2000 dollars over their lifetimes. This cost–benefit analysis is conservative, in two respects. It omits hard-to-monetize benefits, such as family, health, and wealth benefits; and it makes conservative assumptions about the earnings profiles and the unit costs of crimes, opting for the data source resulting in smaller group differences when multiple data sources were available.

Validity of the Study

The study’s internal validity is strong because of the random assignment of study participants to the program and no-program groups. It is strengthened further by the use of seven covariates representing background characteristics in the age 40 analyses. Additional analyses confirm that major outcomes were not due to placing siblings in the same preschool-experience groups as their older siblings, nor to variations among classes of study participants. The study’s statistical power is somewhat limited by its sample size of 123 study participants, but the sample size was adequate to identify many statistically significant group differences.

The study’s external validity is the extent to which its study participants and program resemble the children and program to which it is generalized. Because this study is rare and relevant to public policy, the demands on its generalizability are great: Head Start, state preschool, and child care programs in the U.S. and early childhood programs throughout the world would like to lay claim to such effects.

The effects found in the study generalize to programs that are reasonably similar to the High/Scope Perry Preschool program – preschool education programs run by teachers with bachelors’ degrees and certification in education, each serving up to 8 children living in low-income families. These programs run two school years at 3 and 4 years of age, use the High/Scope educational model, with daily classes of 2½ hours or more and teachers visiting families at least every two weeks.

Because such evidence is reflected neither in the quantity nor in the quality of existing publicly funded preschool programs, we set about to let as many people as possible know about

this study. We disseminated the study through publications and presentations for national associations of policymakers, scientists, and educators and for conferences of them in most of the states. We even trained groups of speakers in four states – Michigan, Ohio, North Carolina, and South Carolina. We worked with newspapers and media throughout the country to spread the story. With continuing bipartisan support, overall Head Start funding from 1980 to 2003 increased ninefold from \$735 million to \$6.7 billion, and funding per child almost quadrupled, from \$1,953 to \$7,329.

While many of the features of the study have been the subject of some debate in designing preschool programs, a particularly important question is whether a preschool program must use the High/Scope educational model or some other educational model in order for its participants to experience long-term benefits. This question led to the next study.

The High/Scope Preschool Curriculum Comparison Study

The High/Scope Preschool Curriculum Comparison Study (Schweinhart & Weikart, 1997a, 1997b) suggests that curriculum has a lot to do with a preschool program's long-term benefits. This study found that young people born in poverty experience fewer emotional problems and felony arrests if they attended a preschool program that used High/Scope rather than direct instruction.

Design

Since 1967, the study has followed the lives of 68 young people born in poverty who were randomly assigned at ages 3 and 4 to one of three groups, each experiencing a different curriculum model:

- In the **direct instruction model**, teachers followed a script to directly teach children academic skills, rewarding them for correct answers to the teacher's questions.
- In the **High/Scope model**, teachers set up the classroom and the daily routine so children could plan, do, and review their own activities and engage in key active learning experiences.

- In the **traditional nursery school model**, teachers responded to children’s self-initiated play in a loosely structured, socially supportive setting.

Program staff implemented the curriculum models independently and to high standards, in 2½-hour classes held 5 days a week and 1½-hour home visits every two weeks, when children were 3 and 4 years old. Except for the curriculum model, all aspects of the program were nearly identical. The findings presented here are corrected for differences in the gender makeup of the groups.

Findings

Figure 2 present the major findings of this study at age 23. By age 23, the High/Scope and nursery school groups had ten significant advantages over the direct instruction group – both groups had two advantages, the High/Scope group alone had another six advantages, and the nursery school group alone had two additional advantages. However, the High/Scope and nursery school groups, after controlling for gender makeup, did not differ significantly from each other on any outcome variable (Schweinhart & Weikart, 1997b).

By age 23, the High/Scope and nursery school groups both had two significant advantages over the direct instruction group:

- Only 6% of either group needed treatment for emotional impairment or disturbance during their schooling, as compared to 47% of the direct instruction group.
- 43% of the High/Scope group and 44% of the nursery school group had ever done volunteer work, as compared to 11% of the direct instruction group.

The High/Scope group had six additional significant advantages over the direct instruction group:

- Only 10% had ever been arrested for a felony, as compared to 39% of the direct instruction group.
- None had ever been arrested for a property crime, as compared to 38% of the direct instruction group.
- 23% reported at age 15 that they had engaged in 10 or more acts of misconduct, as compared to 56% of the direct instruction group.
- 36% said that various kinds of people gave them a hard time, as compared to 69% of the direct instruction group.
- 31% of the group had married and were living with their spouses, as compared to none of the direct instruction group.
- 70% planned to graduate from college, as compared to 36% of the direct instruction group.

The nursery school group had two additional significant advantages over the direct instruction group:

- Only 9% had been arrested for a felony at ages 22 - 23, as compared to 34% of the direct instruction group.
- None of them had ever been suspended from work, as compared to 27% of the direct instruction group.

Through age 10, the main finding of this study had been that the overall average IQ of the three groups rose 27 points from a borderline impairment level of 78 to a normal level of 105 after one year of their preschool program and subsequently settled in at an average of 95, still at the normal level. The only curriculum group difference through age 10 was measured as the preschool programs ended: the average IQ of the direct instruction group was significantly

higher than the average IQ of the nursery school group (103 vs. 93). Throughout their school years, curriculum groups did not differ significantly in school achievement, nor did their high school graduation rates differ significantly. The conclusion at that time was that well-implemented preschool curriculum models, regardless of their theoretical orientation, had similar effects on children's intellectual and academic performance. Time has proved otherwise. Scripted teacher-directed instruction, touted by some as the surest path to school readiness, seems to purchase a temporary improvement in academic performance at the cost of a missed opportunity for long-term improvement.

The High/Scope educational model was originally called the Cognitively Oriented Curriculum (Weikart et al., 1971) because it focused on cognitive, logical processes identified in Piaget's theory (Piaget & Inhelder, 1969) – such as representation classification, and seriation. Tests of early childhood intellectual performance demonstrably tapped these processes, in both the Perry study and the Curriculum study. So the High/Scope preschool classroom provides a preschool intellectual boost as measured by these tests. It also provides other experiences that facilitate these intellectual processes, such as planning and reviewing one's activities, exploring one's curiosity, and developing a sense of personal control over the events of one's life – what might be called intellectual performance broadly defined. It makes sense to combine or supplement this emphasis on intellectual processes with a focus on early literacy or mathematics skills found to predict later achievement, but it does not make sense to replace the first with the second. To do so runs the risk of sacrificing the known long-term effects on school achievement, high school graduation rate, lifetime earnings, and crime prevention.

The Training for Quality Study

The High/Scope Training for Quality Study (Epstein, 1993, 1999) offers evidence of the effectiveness of the High/Scope preschool education model as practiced throughout the U.S. today. In this multi-study evaluation, we analyzed participant reports of 40 training projects; surveyed 203 certified High/Scope teacher trainers; surveyed and systematically observed the classrooms of 244 High/Scope and 122 comparison teachers; and systematically observed and tested 97 High/Scope and 103 comparison children in these classrooms.

Design

High/Scope trainers identified 244 High/Scope teachers in Michigan, New York, and California who had been employed at their agencies for at least six months, had attended at least four High/Scope workshops, and had received three classroom visits. We selected 122 comparison teachers from lists of licensed child care centers and from agencies nominated by staff or trainers, with efforts to maintain proportions of agency types similar to those of the High/Scope teachers.

The 200 children in the child outcomes study attended preschool programs in 15 agencies in urban, suburban, and rural settings in southeastern Michigan and northwestern Ohio; 46% were in Head Start, 19% in public schools, and 35% in nonprofit centers. Children ranged in age from 2 to 6, average 4.3; 47% were male, 53% female; 43% were white, 32% were African American, 5% were Hispanic American, and 20% were of other ethnic groups. Their fathers and mothers averaged 13.7 years of schooling, identifying these parents as relatively well-educated on the average. In both groups, according to Bureau of Labor Statistics codes, fathers' median occupational level was that of laborer, and mothers' median occupational level was that of service worker. Treatment groups did not significantly differ on any of these characteristics.

Findings

The Registry trainer survey found that half of High/Scope-certified trainers were in Head Start, 27% were in public schools, and 20% were in private child care agencies. Eighty-eight percent had completed college, including 37% with advanced degrees; 70% majored in early childhood. They had a median of 15 years of experience in early childhood. Seventy-eight percent of them were still in the same agency they were in when they received High/Scope certification; 85% had teacher-training responsibility, although they only spent an average of 8 hours a week training teachers. On the average, they made a large-group presentation for 36 staff annually, a hands-on workshop for 15 staff monthly, an observation-and-feedback classroom visit monthly, and an informal classroom visit weekly. The average teacher had attended one presentation and nine workshops and received an observation-and-feedback visit and three informal visits per month.

All the teachers trained had tried out the High/Scope model's room arrangement and daily routine; 91% had tried out the key experiences; 63% had tried out the child observation techniques. Eighty-nine percent of them were comfortable and effective with room arrangement; 80%, with the daily routine; 56%, with the key experiences; and 37%, with the child observation techniques. Trainers said they would show visitors 45% of the classrooms of trained teachers as examples of the High/Scope preschool model, an average of 4 classrooms per trainer.

The High/Scope Registry listed 1,075 early childhood leaders in 34 states and 10 other countries who successfully completed High/Scope's 7-week Trainer Certification Program in the past decade. The average trainer had trained 15 teaching teams, so an estimated 16,125 early childhood teaching teams, including 29% of all Head Start staff, had received High/Scope model training from these trainers. Since trainers regarded 45% of these classrooms as examples of the

High/Scope model, they would nominate an estimated 7,256 early childhood classrooms throughout the U.S. and around the world as examples of the High/Scope model.

The **teacher survey** indicated that both High/Scope and comparison classrooms were of high quality. Both groups had at least ten years of teaching experience. Majorities of both groups had college degrees and early childhood degrees. Both groups had over 40 hours of inservice training annually. In both groups, teachers' annual salaries averaged about \$20,000 a year, considerably higher than the \$9,400 national average for child care teaching staff (Whitebook, Howes, & Phillips, 1989). The few group background differences seemed to compensate for each other: The High/Scope teachers had significantly more teaching experience than comparison teachers (12 vs. 10), but significantly fewer High/Scope teachers had college degrees (63% vs. 79%).

While High/Scope and comparison teachers did not differ significantly in their hours of inservice training per year, more High/Scope teachers received significantly more inservice training involving curriculum and teaching practices (91% vs. 71%), child assessment and evaluation (75% vs. 48%), and professional issues (48% vs. 34%). High/Scope teachers placed significantly more importance on the following topics than did comparison teachers: room arrangement, children choosing their own activities, adults participating in children's activities, ongoing training for adults, supervision and evaluation, multicultural awareness, and parent involvement.

High/Scope and comparison classrooms differed significantly in classroom environment, daily routine, adult-child interaction, and overall implementation, as assessed by the High/Scope Program Implementation Profile (High/Scope, 1989) adapted for generic use. High/Scope advantages in classroom environment involved dividing the classroom into activity areas,

providing adequate work space in each area, arranging and labeling materials, providing enough materials in each area, providing real household and work objects, making materials accessible to children, and providing materials to promote awareness of cultural differences. High/Scope advantages in daily routine involved implementing a consistent daily routine, encouraging children to plan and review activities, and providing opportunities for planning, doing, and reviewing. High/Scope advantages in adult-child interaction differences involved observing and asking questions, participating in children's play, and balancing child and adult talk. Comparison classrooms had no significant advantages over High/Scope classrooms on this instrument. These findings indicate that the High/Scope classrooms were implementing the High/Scope Preschool Curriculum to a significantly greater extent than were the comparison classrooms.

As shown in Figure 3, the children in High/Scope programs significantly outperformed the children in comparison programs in initiative, social relations, music and movement, and overall child development. High/Scope advantages in initiative involved complex play and cooperating in program routines. High/Scope advantages in social relations involved relating to adults and social problem-solving. High/Scope advantages in music and movement included imitating movements to a steady beat.

Significant positive correlations of .39 to .52 were found between classroom daily routine (measuring children's opportunities to plan activities, carry out their ideas, and review what they had done each day) and children's overall development, specifically their development of creative representation, initiative, music and movement abilities, and language and literacy.

The Head Start FACES Study

The Family and Child Experiences Survey (FACES; Zill, Resnick, Kim, O'Donnell, Sorongon, McKey, Pai-Samant, Clark, O'Brien, & D'Elio, 2003) is a study of a national random

sample of Head Start programs. The first cohort of 3,200 children entered Head Start in Fall 1997; the second cohort of 2,800 children entered Head Start in Fall 2000.

General Findings

In Head Start, children improved on important aspects of school readiness, narrowing the gap between them and the general population, but still lagging behind. As shown in Figure 4, relative to national norms, children made significant gains during the Head Start year, particularly in vocabulary and early writing skills. As shown in Figure 5, children in Head Start grew in cooperative classroom behavior – behavior that was helpful, compliant, mature and interactive; and they exhibited less inattentive, hyperactive behavior, especially if they started out more shy, aggressive, or hyperactive. Teachers rated children as inattentive and hyperactive if the children couldn't concentrate or pay attention for long, if they were very restless, fidgeted all the time, or couldn't sit still. The study found that Head Start classrooms were of good quality. Most programs use a specific curriculum, particularly Creative Curriculum and High/Scope. Use of these curricula and higher teacher salaries were related to child outcomes. Teachers' educational credentials were linked to greater gains in early writing skills. In addition, provision of preschool services for a longer period each day was tied to greater cognitive gains. Based on follow-up of the 1997 cohort, Head Start graduates showed further progress toward national averages during kindergarten, with substantial gains in vocabulary, early mathematics, and early writing skills during kindergarten. Most Head Start graduates could identify most or all of the letters of the alphabet by the end of kindergarten and more than half could recognize beginning sounds of words.

High/Scope Findings

Conducted independently of the High/Scope Foundation, the FACES study found that 4-year-olds in Head Start classes that used the High/Scope model improved from fall to spring in letter and word identification skills and cooperative classroom behavior and decreased their behavior problems (Zill et al., 2003), as shown in Figures 4 and 5.

- On a scale of letter and word recognition, children in High/Scope classes registered a highly significant gain ($p < .01$) of 12.6 scale points, significantly more ($p < .05$) than children in classes using Creative Curriculum or other curricula.
- On teacher ratings of cooperative classroom behavior, children in High/Scope classes experienced a highly significant gain ($p < .01$) of half a standard deviation, significantly more ($p < .05$) than children in classes using Creative Curriculum or other curricula.
- On teacher ratings of total behavior problems, particularly problems involving hyperactive behavior, children in High/Scope classes dropped significantly ($p < .05$) during the year, significantly more ($p < .05$) than did children in classes using Creative Curriculum or other curricula.

Of the 91% of the teachers who used one or more curriculum models, 39% used Creative Curriculum, 20% used High/Scope, and 41% used some other curriculum, such as High Reach, Scholastic, or Los Cantos Los Ninos. The quality of Creative Curriculum and High/Scope classes was significantly higher than the quality of classes that used other curricula, particularly with respect to language. On the 7-point Early Childhood Environment Rating Scale (Harms, Clifford, & Cryer, 1998), with 5 identified as good, High/Scope classes averaged 5.04, Creative Curriculum classes averaged 5.02, and classes using other curricula averaged 4.55. On its language items, average scores were slightly higher, but the differences were about the same. On

a quality composite, the average scores for High/Scope and Creative Curriculum were nearly half a standard deviation higher than the average scores for other curricula – clearly an educationally meaningful difference.

The IEA Preprimary Project

The IEA Preprimary Project is a multi-nation study of preprimary care and education sponsored by the International Association for the Evaluation of Educational Achievement (IEA) (Olmsted & Montie, 2001; Weikart, Olmsted & Montie, 2003). High/Scope served as the international coordinating center. Working collaboratively with researchers in 15 countries, High/Scope staff were responsible for sampling, instrument development, data analysis, and the writing of five published reports and one in press. The purpose of the study is to identify how process and structural characteristics of community preprimary settings affect children's language and cognitive development at age 7. The study is unique because many diverse countries participated, using common instruments to measure family background, teachers' characteristics, setting structural characteristics, experiences of children, and children's developmental status.

Design

The study is rooted theoretically in the ecological systems model of human development, which views children's behavior and developmental status as being influenced by multiple levels of the environment, some direct and proximal to the child, such as the child's actual experiences in an education or care setting, and some indirect and distal, such as national policy. The study findings focus on the influence of young children's experiences in community preprimary education and care settings on their language and cognitive development at age 7, controlling for

family and cultural influences. Both proximal and distal variables are examined within that context.

The target population consisted of children in selected community settings who were approximately 4½ years old. Data for the longitudinal project were collected in early childhood care and education settings in 10 countries: Finland, Greece, Hong Kong, Indonesia, Ireland, Italy, Poland, Spain, Thailand, and the U. S. Each country's research team chose to sample settings that were used by large numbers of families in the community or important for public policy reasons. With expert assistance, each country's research team developed a sampling plan, using probability proportional to size to select settings and systematic sampling procedures to select four children within each classroom. The age-4 sample included over 5,000 children in more than 1,800 settings in 15 countries. Ten of the initial 15 countries followed the children to age 7 to collect language and cognitive outcome measures. The median retention rate across countries was 86%, ranging from 41% to 99%. The number of children included in the longitudinal analyses varied from 1,300 to 1,897, depending on the particular analysis.

Working with High/Scope researchers, measures used in the study were developed collaboratively by members of the international team. At age 4, data were collected with three observation systems and three questionnaire/interviews. Children's cognitive and language performance was measured at age 4 and age 7. The observation systems collected time-sampled information about how teachers schedule and manage children's time, what children actually do with their time, and the behaviors teachers use and the nature of their involvement with children.

Interviews were conducted to collect family background information and gather information regarding teachers' and parents' expectations about what is important for preschool-

aged children to learn. A questionnaire that focused on the structural characteristics of the settings was administered to teachers and caregivers.

The children were followed until age 7, an age across countries when they had all entered primary school. At that time, cognitive and language measures developed by an international team were administered to assess developmental status.

Based on the structure of the data, with individual children nested within settings and settings nested within countries, a hierarchical linear modeling approach was used for the analysis. Accurate estimation of impacts for variables at different levels was especially important for this study because effects at two levels – settings and countries – were often confounded with one another. Although the relationship between setting variables and children’s later development was of primary interest, any such findings would have been hard to interpret if country effects had not been accurately estimated and adjusted for. A 3-level approach enabled decomposition of variation of child outcomes into 3 parts – variation among children within settings, among settings within countries, and among countries. As a result, relationships between care setting variables and children’s outcome scores are free of substantial influence from country-level effects.

Selected Findings

Four findings emerged that are consistent across all of the countries included in the data analysis:

- Children’s language performance at age 7 improves as *the predominant types of children’s activities that teachers propose are free rather than personal/social*. From greatest to least contribution, activity types were as follows:
 - Free activities, which teachers let children choose

- Physical/expressive activities (gross- and fine-motor physical activity, dramatic play, arts, crafts, and music)
- Preacademic activities (reading, writing, numbers, mathematics, physical science, and social science)
- Personal/social activities (personal care, group social activities, and discipline)
- Children’s language performance at age 7 improves as *teachers’ years of full-time schooling* increase.
- Children’s cognitive performance at age 7 improves as they spend *less time in whole group activities* (the teacher proposes the same activity for all the children in the class – songs, games, listening to a story, working on a craft, or a preacademic activity).
- Children’s language performance at age 7 improves as *the amount and variety of equipment and materials available to children in preschool settings* increase.

The wide range of environments throughout the world in which young children grow and learn creates challenging questions for everyone concerned with providing high-quality programs for preprimary children. What are the essential program elements that promote optimum child development? How are these elements delivered in various communities? The findings tell us that teaching practices matter; how teachers set up their classrooms and the activities they propose for children make a difference.

Across diverse countries, child-initiated activities and teachers’ education appear to contribute to children’s later language performance; and minimization of whole group activities and a greater number and variety of materials in preschool settings appear to contribute to their later cognitive performance.

Although more research is necessary in the various countries to establish a pattern of cause and effect and explore the learning mechanisms involved, early childhood educators and policy makers can use these findings to examine local policies and practices and consider if changes are advisable.

Summary

Taken together, these studies make a strong case that participatory learning in early childhood contributes greatly to children's development throughout their lives. The High/Scope Perry Preschool Study presents evidence that a preschool program based on participatory learning prepares young children living in poverty for schooling and leads them to greater commitment to school and school achievement. As a result, they achieve a higher level of educational attainment and greater adult earnings and commit fewer crimes. The High/Scope Preschool Curriculum Comparison Study shows that while preschool programs can do a good job of preparing young children living in poverty for school whether they emphasize participatory learning, or direct instruction, participatory learning is the crucial ingredient that prevents later emotional problems and commission of crimes. The Training for Quality Study shows that we can train teacher trainers who can train teachers to implement successful preschool programs based on young children's participatory learning; in other words, these programs can go beyond isolated models to full scale, service programs. Conducted independently of the High/Scope Foundation in typical Head Start classrooms, the Head Start FACES Study shows that Head Start teachers who use the High/Scope model of participatory learning contribute to children's literacy and social skills. The IEA Preprimary Study shows evidence of a few universals in preschool education: children's freely chosen activities, the time they spend in activities other than whole-group activities, the amount and variety of equipment

and materials available to them, and the educational attainment of their teachers all contribute to their intellectual growth.

Participatory Learning

Participatory learning is process, not content. Thus, it is consistent with whatever content is determined to be the appropriate content. Early childhood is a formative period for language, literacy, and mathematics skills. Such content is ideal for participatory learning. As process, participatory learning is distinguished from direct instruction. The attraction and apparent advantage of direct instruction is that it is very efficient, focused precisely on specific learning objectives. However, this advantage is also its disadvantage. Its precise focus limits the generalizability of direct instruction learning to other desirable skills that are not specifically targeted. When direct instruction focuses on language and literacy skills, it does so by eliminating spontaneous conversations between children and adults and among children themselves that give reality to their language development. It eliminates the give-and-take of unscripted interpersonal interaction that gives reality to children's ethical and moral values. There is nothing wrong with direct instruction in early childhood. It's just not enough.

Today in the U.S., early childhood programs are coming of age. They are making the transition from cottage industry (that is, work in homes) to full-fledged public institutionalization. As such, they are entering the domain of the nation's schools – public schools, private schools, elementary, secondary, and higher education schools. The nation's early childhood policy issues are becoming the educational policy issues. Early childhood programs become a key element in addressing the nation's literacy crisis. The question is no longer whether to invest in early childhood programs, but how to do so. What is the best balance of

federal, state, and local funding? Should public funding go to schools and centers or to parents through vouchers?

The purpose of early childhood programs is the most basic issue of all. Should they extend dominant school traditions to younger children? Or should they extend family nurturance upward? Surely the best answer to these questions is that they should find the right balance between academic content demands and child-centered nurturance. A preschool program that emphasizes direct instruction only is heavy on academic content demands and light on child-centered nurturance. The reverse is true for a child care or nursery school emphasis that eschews academic demands. Participatory learning achieves a good balance by integrating academic content demands with child-centered nurturance. One might say that participatory learning is the way to support children's development.

This thinking has clear implications for appropriate assessment of young children. It is easy for early childhood assessment to focus only on academic content demands; indeed, that is its primary purpose for older students. Further, early childhood assessment standards of reliability and validity are most easily met in the assessment of academic content. But if early childhood assessment is to strike a good balance between academic content demands and child-centered nurturance, it must also assess the social and interpersonal aspects of children's behavior, that is to say, it must assess all of children's development.

At this crossroads in the history of early childhood education, three paths extend. One is to continue to pay too little for early childhood programs to maintain high quality and thereby to squander one of our best chances to enable young children to achieve their full potential. A second path is to convert early childhood programs to academically focused, teacher-directed programs that purchase long-term academic success by allowing other aspects of early childhood

development to go wanting. This path has the advantage of proving itself quickly with hard-nosed research. It has the disadvantage of squandering the opportunity to develop children's character, motivation, and social skills. The third path is the middle path – investing enough in early childhood programs to let well-trained early childhood teachers engage in the artistry of early childhood education, educating young children to be whole and balanced high achievers and high producers who care about other people and take initiative and responsibility for the world in which they live. This is really the only path worth taking.

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Figure 1
Major Findings: High/Scope Perry Preschool Study at 40

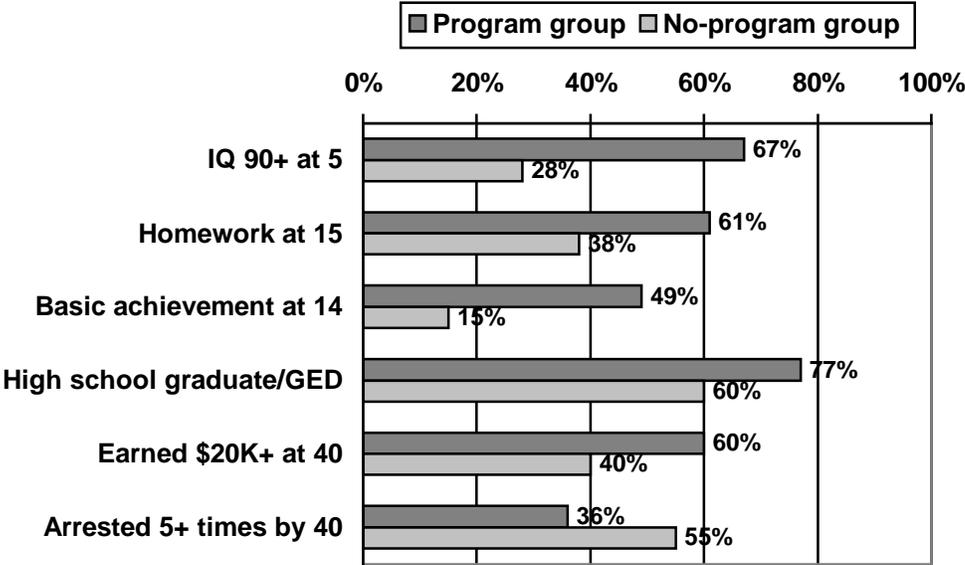


Figure 2
Major Findings: High/Scope Preschool Curriculum Study at 23

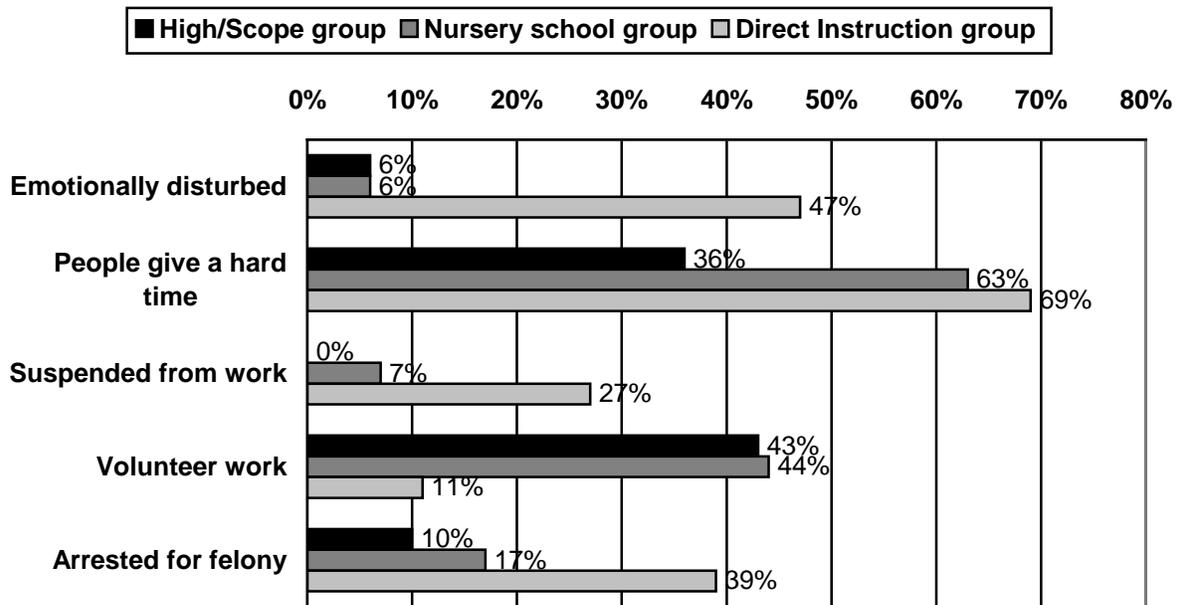


Figure 3
Findings: Training for Quality Children's Study

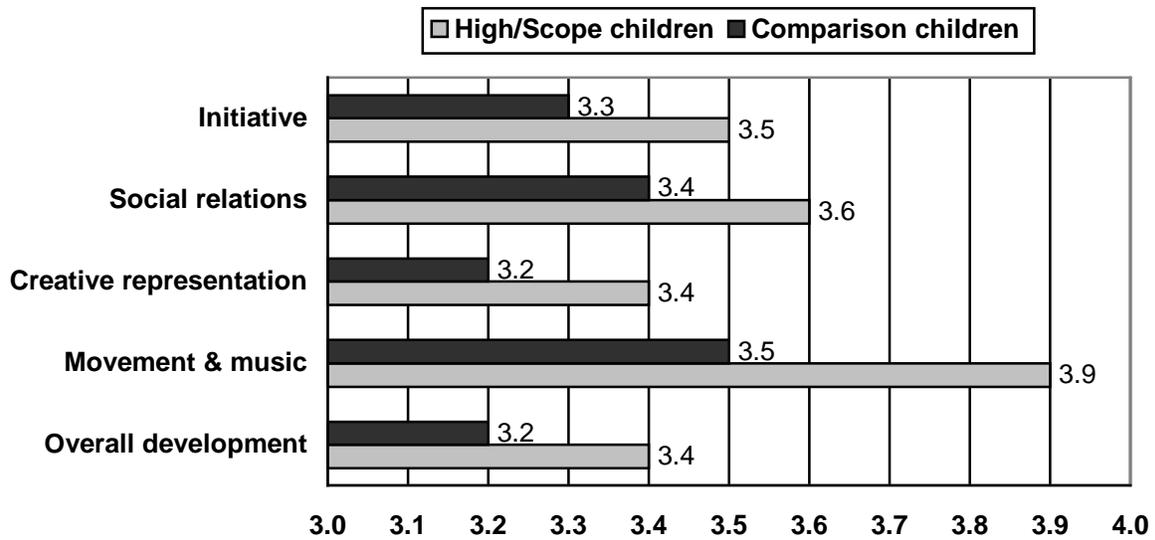


Figure 4
Selected Academic Findings: Head Start FACES Study

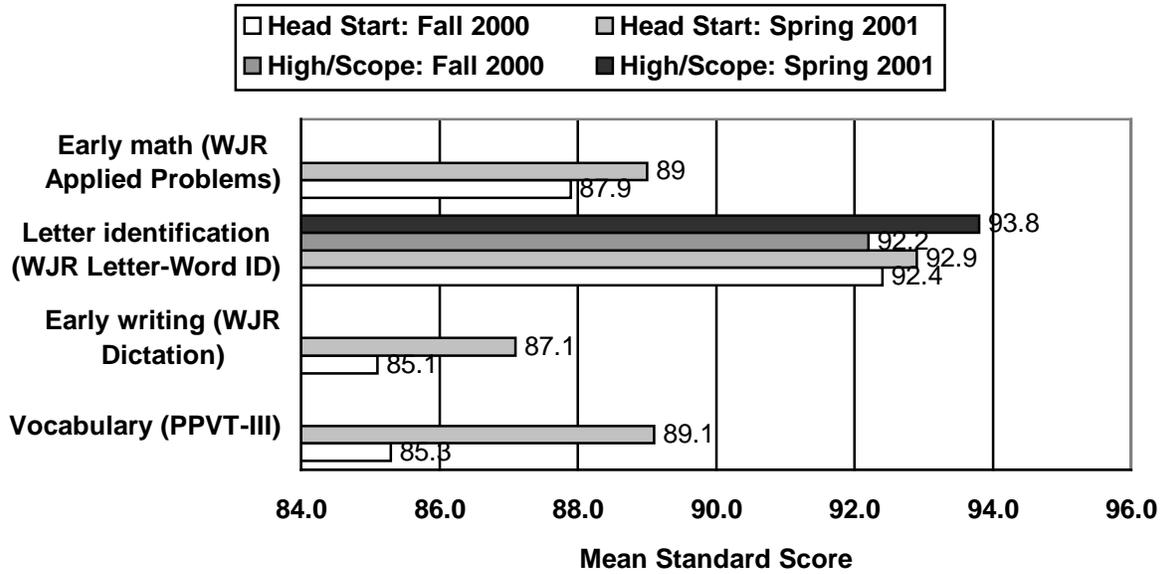


Figure 5
Selected Social Findings: Head Start FACES Study

