Meaningful Differences

in the Everyday Experience of Young American Children

Betty Hart & Todd R. Risley

Foreword by Lois Bloom

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This book is dedicated with fondness and admiration to the parents and their children.

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About the Authors

Betty Hart, Ph.D., and Todd R. Risley, Ph.D., began their careers in the early 1960s at the Institute for Child Development at the University of Washington, where they participated in the original demonstrations of the power of learning principles in influencing young children. With Montrose Wolf they introduced the basic procedures of *adult attention* and *time-out* now routinely taught and used in teaching and parenting. They also introduced the procedures for *shaping speech and language* widely used in special education.

In 1965, Hart and Risley began more than 35 years of collaborative work at The University of Kansas, when they established preschool intervention programs in poverty neighborhoods in Kansas City. Their study of what children actually do and say in day care and preschool and their publications on *incidental teaching* form the empirical base for contemporary child-centered teaching practices in preschool and special education.

Dr. Hart is now Professor Emeritus of Human Development at The University of Kansas, and Dr. Risley is Professor Emeritus of Psychology at the University of Alaska. Both are Senior Scientists at the Schiefelbusch Institute for Life Span Studies at The University of Kansas.

Dr. Risley's other work has been on abnormal development and behavioral treatments. He has served on many national boards and commissions, as Editor of the *Journal of Applied Behavior Analysis*, as President of the Association for Advancement of Behavior Therapy and of the behavioral division of the American Psychological

Association, and as Alaska's Director of Mental Health and Developmental Disabilities. Dr. Hart has remained focused on the language development of preschool children.

Four years after the publication of *Meaningful Differences,* Drs. Hart and Risley again blended their significant talents to write *The Social World of Children Learning to Talk* (Brookes Publishing Co., 1999). Charting the month-to-month growth in children's vocabulary, utterances, and changing patterns of parent–child interaction, this book reveals the "social dance" of children learning to talk with their families.

CHAPTER ONE

Intergenerational Transmission of Competence

America in the 1960s found a cause worth committing to: the War on Poverty. The aim was to interrupt the cycle of poverty—the economic disadvantages arising from employment disadvantages, which had their sources in the educational disadvantages that resulted from growing up in poverty. An attack was mounted on two fronts: breaking down barriers to the advantages mainstream society enjoyed, and providing a boost up through job training and early education. Desegregation laws removed barriers to jobs, housing, and educational institutions. Job training programs and early education programs provided a boost up into the job market and the school system.

Because poverty was differentially prevalent among minorities, racial discrimination had to be targeted. But race, rather than the cycle of poverty, was a central issue only in designing strategies to preserve cultural identity within mainstream society. Early education programs such as Head Start were funded to serve African American children in inner-city ghettos, Native American

children isolated on reservations, and white children in rural Appalachia. All across the country, experts in early childhood education designed intervention programs to give children isolated in poverty the social and cognitive experiences that underlay the academic success of advantaged children.[1] It was thought the War on Poverty could change children's lives within a generation.

Events continue to remind us that the War on Poverty did not succeed. After barriers were removed and a boost up was provided, the people who had the knowledge and skills that could influence and motivate the next generation of children moved away and left those less competent isolated in communities riddled with drugs, crime, unemployment, and despair. Like most wars, the War on Poverty was more successful in destroying the past than in creating the future, the competencies for participating in an increasingly technological society.

Competence as a social problem is still with us. American society still sees many of its children enter school ill-prepared to benefit from education. Too many children drop out of school and follow their parents into unemployment or onto welfare, where they raise their children in a culture of poverty. The boost up from early intervention during the War on Poverty did not solve the problem of giving children the competencies they need to succeed in school. We recognize now that by the time children are 4 years old, intervention programs come too late and can provide too little experience to make up for the past.

Early Intervention Programs

The intervention programs of the War on Poverty, the first efforts, were modeled on the booster shot. It was

assumed that a concentrated dose of mainstream culture would be enough to raise intellectual performance and lead to success in mainstream schools. Children disadvantaged from living in isolated areas were brought into preschool programs similar to those advantaged children attended. The programs offered the enriched materials and activities available in such preschools, but replaced the traditional emphasis on social development with an emphasis on compensatory education, especially language and cognitive development.

Innovative curricula were designed and field tested. The content and objectives of the curricula were selected to teach in the preschool the competencies advantaged children apparently acquired at home. All of these curricula programmed successive educational experiences using materials especially designed to help children master basic academic skills in the style originated by Montessori for teaching poor children in Italy. DARCEE of Gray and Klaus, Karnes's GOAL, DISTAR of Bereiter and Englemann, and others are examples of the language and cognitive development curricula that were designed during the War on Poverty.[2]

Programs differed in emphasis and teaching methods, depending on theoretical orientation. Psychodynamic theory led to an emphasis on motivation and self-concept in the Bank Street program. In the Perry Preschool Project, the program, derived mainly from Piagetian theory, emphasized learning through activities and experiences to stimulate children to construct concepts and develop logical modes of thought. The behavioral orientation of the Bereiter-Englemann program emphasized highly structured direct instruction, including pattern drill.

Major improvements in language and cognitive performance were often immediate and large and were not

unique to any particular curriculum or theoretical approach. The improvements in performance were apparent in the preschool and carried over into the home. Although parents did not necessarily appreciate the changes in their children's behavior, they accepted the increases in activity and curiosity that resulted from the enriched experiences. Lateral and horizontal diffusion of the curricula content spread the effects beyond the child into the family and community. Head Start is still in existence because long-term benefits did accrue from early intervention programs; the children did adapt better to school and many stayed through school into adulthood with their age-mates.

But the academic headstart was temporary. In kindergarten, children who had not attended preschool programs caught up with the children who had. By the third grade the effects of the boost had washed out, and there was little difference in academic performance between children who had and had not taken part in early intervention programs. Scholastic achievement scores were similar to those before the War on Poverty. By the 1970s, intervention experts were wondering how they could possibly have believed that a single shot of mainstream culture would be sufficient to make substantial changes in intellectual performance in all or most children raised in poverty.

Intervention at the Turner House Preschool

Early in the War on Poverty, civic leaders in an African American community, the impoverished Juniper Gardens area of Kansas City, Kansas, joined representatives of the Bureau of Child Research at The University of Kansas in Lawrence to develop a community-based

program of research designed to improve the educational and developmental experiences of the neighborhood children. They persuaded the Episcopal Diocese of Kansas to tear down a church in Juniper Gardens and build a community center, Turner House, and then called in a cadre of applied psychologists expert in remediating and generalizing behavior. We (the authors) brought our experience with clinical language intervention to design a half-day program for the Turner House Preschool. Instead of focusing on a theory-based curriculum designed to affect a hypothetical construct we could measure or estimate only from tests, we designed an intervention focused on the everyday language the children were using.

We focused on children's spontaneous speech as the best dynamic measure of cognitive functioning and as the behavior most likely to influence the educational value of people's responses.[3] Rather than evaluate the results of an intervention program by how children performed on IQ tests administered outside the intervention setting, we looked for improvements in how the children functioned in their daily activities in the preschool. We wanted the children to know more, but we also wanted to see them applying that knowledge, using language to elicit information and learning opportunities from their teachers in the preschool. We watched what the children were doing to guide what we were doing.

We developed reliable recording methods so that we could sample each child's spontaneous speech during preschool free play every day, recording all the utterances the child produced during a 15-minute observation. When data from a particular child were processed by computer, for each observation a list was derived of each different word encountered in the data; that list

was compared to the master list of all the different words so far recorded for that child, and any word not already on the list was added. In this way an individual dictionary was compiled for each child that contained all the different words the child produced during the observation. We used this dictionary as a measure of the child's vocabulary.

Vocabulary Growth

A vocabulary is the stock of words (or signs) available to a person or a language community. The vocabulary comprises all the words a person "knows," both those a person can understand and those a person can use appropriately. New experiences add new words to the vocabulary and refine or elaborate the meanings of known words. Unlike other aspects of language, vocabulary continues to grow throughout life, increasing with each gain in experience and understanding. Because the vocabulary that individuals can command reflects so well their intellectual resources, we still have oral examinations, and vocabulary plays a major role in tests of intelligence.

We used vocabulary growth rather than IQ test scores as our measure of accumulated experience. This had several advantages. This measure was culturally unbiased: any word could increment total vocabulary resources, rather than solely words from a circumscribed set standard in mainstream culture. We could obtain repeated measures without the child memorizing a test, and we could infer from the child's use of a word in context what the child took to be the meaning of the word. The records of the words said in spontaneous speech during the varied activities and contexts of preschool free

play gave us repeated samples of each child's vocabulary resources.

From the repeated samples of a child's vocabulary resources we could draw a developmental trajectory of vocabulary growth.[4] After we had recorded enough samples so that all the high-frequency words (articles, pronouns, verbs such as "get" and "go," nouns such as "mom" and "teacher") were listed in a child's individual dictionary, we could look at growth, the developmental trajectory formed by adding words to the dictionary, as a child either drew words from known vocabulary into daily use or learned new words from experiences such as those presented in intervention. The data from successive observations were displayed for each child as a developmental trajectory, or a cumulative vocabulary growth curve.

Intervention on Spontaneous Speech

Our interventions focused on designing effective teaching strategies. Rather than design a curriculum, we replicated the laboratory model of the University of Washington where we had been trained; we used its curriculum content and objectives to teach children the necessary preacademic competencies. We concentrated our efforts on developing strategies that would encourage children to display and elaborate in their everyday language what they learned from the planned experiences of the curriculum. We used our spontaneous speech samples to measure improvements and evaluate the effectiveness of the teaching procedures.

We designed strategies to teach children to imitate complex sentence constructions and to attend to topic words in others' speech.[5] We designed the procedures for

directed discussion to teach children to notice and comment on more and more varied features of stories and pictures. We designed the procedures for narration training to help children sequence and relate the features they described. To encourage the children to display and extend what they learned from small-group sessions into the everyday play activities of the preschool, we designed incidental teaching. Incidental teaching focused teachers' attention during free play on active listening preparatory to selecting responses that would both appreciate what a child said and show enthusiastic interest in hearing still more. Every time a child initiated talk to a teacher, the teacher confirmed the child's topic and asked the child to elaborate; if necessary, the teacher modeled an elaboration, asked the child to imitate, and then confirmed the child's response.

As we developed effective teaching procedures and reliable methods for recording and analyzing children's spontaneous speech, we found ourselves confronting more and more often the assumption underlying intervention. Undertaking to remediate, improve, or add to present skill levels assumes the existence of some "difference," "delay," or "deficit" relative to a norm. But when we listened to the Turner House Preschool children talk during free play, they seemed fully competent to us, well able to explain and elaborate the topics typical in preschool interactions. We became increasingly uncertain about which language skills we should be undertaking to improve. We decided we needed to know, not from our textbooks, but from advantaged children, what skilled spontaneous speech at age 4 is in terms of grammar and content. We felt naively confident that if we knew what the skills were, we could teach them to the Turner House children.

Comparing Language Use

The Laboratory Preschool at The University of Kansas provided us a setting and program very similar to that at the Turner House Preschool. The children at the Laboratory Preschool, though, were primarily professors' children; from these advantaged children we might learn the upper boundaries of skill in spontaneous speech at age 4. We began to record in each setting, each week over a preschool year, identical samples of the children's spontaneous speech during preschool free play. Although at the time (1968) all the children at the Turner House Preschool were African American, and all the children at the Laboratory Preschool were white, we referred to them as children from families in poverty and professors' children to remind ourselves of the critical difference between them: the advantages available to professors' families, regardless of race, and the disadvantages experienced by families caught in the cycle of poverty.

We learned from the computer processing of the data that in similar activity settings the children in the two preschools talked about much the same things in much the same ways. Although the specific words were sometimes different, the functions of language were the same. In both settings the children asked questions, made demands, and described what they were doing. The difference was in how much talking went on. Most of the professors' children talked at least twice as much as the Turner House children. They talked about more different aspects of what they were doing; they asked more questions about how things worked and why.

We intervened with incidental teaching at the Turner House Preschool and easily increased the amount of talking that went on among the children during

preschool free play. All the children began to talk more, both to teachers and among themselves. The spontaneous speech samples showed that when the Turner House children talked as much as the professors' children, they also asked as many questions and used as many different words as those children did.[6]

We had expected the vocabulary resources of the professors' children to be greater than those of children from families in poverty, and our estimates from the spontaneous speech samples showed just that. What surprised us, though, was the richness of the vocabulary in the everyday speech of the professors' children. We were so used to the appropriateness of what the Turner House children said during free play that we did not realize how extensive were the topics and how varied were the comments 4-year-olds could display in casual conversation. The difference in the extent of the vocabulary resources the Turner House children were drawing on became even more apparent after the children began to talk as much as the professors' children and to use as many different words during free play. The professors' children simply seemed to know more about everything.

Comparing Vocabulary Growth

We were less concerned with the smaller vocabularies, though, than with the flatter growth curves we saw. For the Turner House children, the rate of adding words to the dictionary in daily use was markedly slower than the rate at which the professors' children were adding words as is shown in Figure 1. We saw slower growth in the past, resulting in a smaller vocabulary at age 4, and slower growth continuing in the children's present interactions with experience. Projecting the developmental

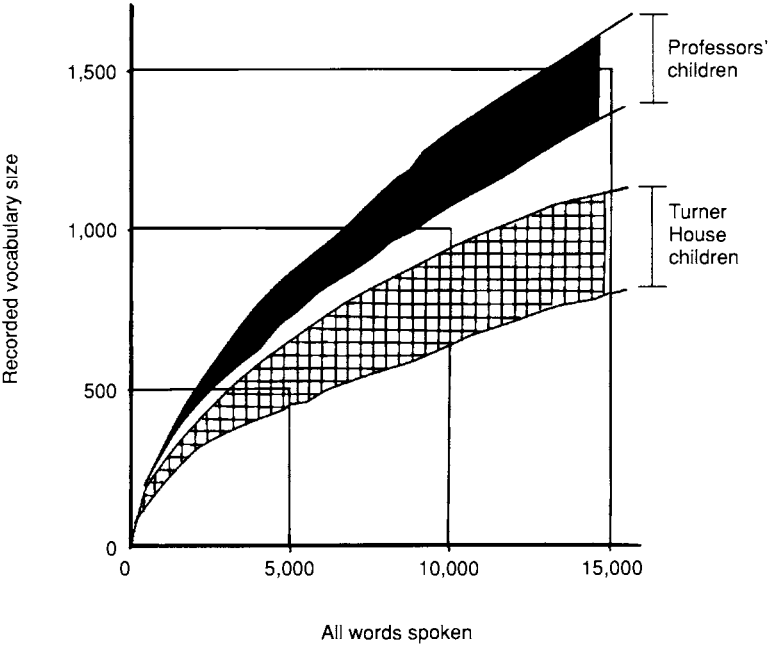

Figure 1. The widening gap found between the vocabulary growth curves of the professors' children and the Turner House Preschool children. (See Appendix B for a detailed explanation of this figure.) (Adapted from Hart & Risley, 1981.)

trajectories of the growth curves into the future, we could see an ever-widening gap between the vocabulary resources the Turner House children and the professors' children would bring to school. This seemed to predict the reality of the findings of school research: that in high school many children from families in poverty lack the vocabulary used in more advanced textbooks.[7]

The vocabulary growth rates were strongly associated with rates of cognitive growth: The differences in the size of the children's recorded vocabularies in the

two preschool groups were of the same magnitude as the differences in the children's scores on the Peabody Picture Vocabulary Test.[8] Clearly, the children enrolled in the Turner House Preschool were learning more slowly than the professors' children; what we knew of their families suggested that the children were not dissimilar from their parents and siblings. We could not reject heredity as an explanation for the differences we saw. But neither could we yield without asking whether the gap in rates of vocabulary growth was related to the immense gulf in the amount and richness of daily experience we saw separating the advantaged children of professors and the children from families in poverty.

Intervention on Vocabulary Growth Rate

We knew what the goal of our intervention needed to be: changing the developmental trajectory. We needed to accelerate the rate at which the Turner House children added words to their dictionaries in daily use. We considered possible sources of the differences we saw in vocabulary growth rates and proposed three hypotheses for investigation. The first hypothesis concerned cultural differences, the second experience, and the third mediated experience. We randomly assigned the Turner House children to experimental and control groups to test each hypothesis in turn.[9]

The first hypothesis proposed that the vocabulary growth curves drawn from the spontaneous speech data were not measuring the true extent of the children's vocabulary resources, because a preschool setting designed for advantaged white children did not call upon African American children from families in poverty to use the vocabulary resources they actually had in their interac-

tions with materials and people. One of our African American teachers was immersed in studying her culture; she arranged for the experimental-group children a preschool setting that duplicated the living room in most of the children's homes. The room had a carpet, sofa, and television set; there were magazines, dolls, battery-operated toys, household utensils, clothing, and linens. As the children engaged in familiar activities with these materials, the teachers talked with them just as always. Over the 8 months of study, the vocabulary growth curves drawn from the spontaneous speech data recorded for the children in the home-like setting showed no acceleration relative to the curves of the control-group children in the traditional preschool setting. In both contexts the children were drawing equally on their vocabulary resources.

The second hypothesis proposed that the slower vocabulary growth of the Turner House children was due to a lack of the extensive and varied experiences available to advantaged children. We arranged for the experimental-group children a series of field trips to enrich the experiences they had to talk about during preschool free play. After 6 months of weekly field trips, we did not see any acceleration in vocabulary growth curves. But the experimental-group children did not talk about the field trip experiences after they returned to the preschool; they, like the control-group children, talked about what they were doing at the moment during free play.

The third hypothesis proposed that the slower vocabulary growth of the Turner House children was due not merely to a lack of the extensive and varied experiences of advantaged children, but to a lack of adult mediation. Teachers needed to mediate field trip experiences by directing children's attention, and describing and ex-

plaining, so that the children could relate each experience to what they already knew. For the next year we arranged a new series of field trip experiences in which all the children in the preschool participated. But only the experimental-group children had small-group discussions before and after each field trip.

Before the group went on a field trip to a bank, for example, the teacher and the experimental-group children talked about and handled money, discussed reasons for wanting to save money and what people bought with savings (cars, stereos, toys), the need for a secure place to put money, and how people put money into banks, kept track of it while it was there, and took it out again when they wanted to buy something. On the field trip the teachers deposited and withdrew money from a bank account, explaining each step to the watching children. After returning from the field trip, the teacher and the experimental-group children sat down to talk about what they had seen; they reviewed all the steps in depositing and withdrawing money, using vocabulary words such as "teller," "deposit slip," and "checking account." They talked about who worked in a bank and what jobs people did there as the teacher encouraged children to comment and ask questions.

Following each field trip the teachers set up a free-play area in the preschool with all the materials needed to role play the experience. The area gave children an opportunity to use the vocabulary they had been exposed to on the field trip and prompted talking about the experience during preschool free play when samples of their spontaneous speech were being recorded. For example, teachers set up a banking area where children could role play depositing and withdrawing play money using checkbooks, deposit slips, and savings books.

All the children eagerly engaged with all the new materials and activities introduced in the preschool. The spontaneous speech data showed a spurt of new vocabulary words added to the dictionaries of all the children and an abrupt acceleration in their cumulative vocabulary growth curves. But just as in other early intervention programs, the increases were temporary. The faster growth rates did not continue once the new vocabulary appropriate to the novel preschool materials had been drawn into use.

An End and a Beginning

We found we could easily increase the size of the children's vocabularies by teaching them new words. But we could not accelerate the rate of vocabulary growth so that it would continue beyond direct teaching; we could not change the developmental trajectory. However many new words we taught the children in the preschool, it was clear that a year later, when the children were in kindergarten, the effects of the boost in vocabulary resources would have washed out. The children's developmental trajectories of vocabulary growth would continue to point to vocabulary sizes in the future that were increasingly discrepant from those of the professors' children.

We learned the universal lesson of the War on Poverty: Removing barriers and offering opportunities and incentives is not enough to overcome the past, the transmission across generations of a culture of poverty. Like our contemporaries in this war, we had put our best efforts and all our accumulated knowledge into our interventions. We had been so sure that mediated experience would change how the children responded to the world.

But we saw that by the age of 4, when the children had become competent users of the syntax and pragmatic functions of their language, patterns of vocabulary growth were already established and intractable. We saw increasing disparity between the extremes—the fast vocabulary growth of the professors' children and the slow vocabulary growth of the Turner House children. Again we contemplated the power of heredity to explain the differences; again we decided against ceding the field before we fully understood the developmental trajectories we saw.

The Meaning of Vocabulary Growth Curves

The one clear success of our interventions was the choice to focus on vocabulary use as a dynamic measure of cognitive functioning. The differences in vocabulary size we saw at age 4 were undoubtedly influenced by inherited differences in cognitive capacity. But the *influence of differences in demands for cognitive functioning,* as evidenced in vocabulary use during children's everyday experiences at home, remained unknown. We had, however, the measure we needed in order to examine that unknown.

A vocabulary growth curve provides a direct and continuous measure of a child's intellectual functioning that does not require the hypothetical constructs and statistical assumptions of an IQ test. The growth of the vocabulary in use directly reflects the increasing complexity of the symbols a child learns to manipulate relative to everyday experience. We did not need to infer cognitive growth from monitoring a child's periodic performance on a small set of standardized test items: We could measure learning while it was happening.

But if we were to understand how and when differences in developmental trajectories began, we needed to see what was happening to children at home at the very beginning of their vocabulary growth. We needed to know what an average vocabulary growth rate is in order to ask whether children who learn vocabulary faster have parents who regularly provide those children something different or something more than the parents of children who have average vocabulary growth rates. We did not even know exactly what the parents of children with average vocabulary growth rates were doing on a daily basis that might influence the complexity of the symbols their children were manipulating. Before we surrendered to the power of heredity and accepted vocabulary growth as part of an instinctive response to exposure to language, we needed to find out whether or not parents actually *do* anything during their everyday interactions with their children that makes a lasting difference in how fast their children's vocabularies grow.

Endnotes

1. For a historical perspective, see the report from a symposium concerned with early intervention programs and the issues as seen in the 1960s (Brottman, 1968).
2. The work of Montessori (1912) is interesting because her goal was to provide basic educational experience to poor children viewed at the time not as "disadvantaged" but in need of the kinds of experiences other children routinely got at home.

   Among the preschool curricula designed were DARCEE (Gray & Klaus, 1968), GOAL (Karnes, Hodgins, Stoneburner, Studley, & Teska, 1968), and DISTAR (Bereiter & Englemann, 1966). Specified curricula, not formally named, were designed for the Milwaukee Project (Garber, 1988), the Bank Street program (Deutsch, 1967), and the Perry Preschool Project (Weikart, Bond, & McNeil, 1978). Weikart (1972) reported a planned comparison of three curricula; children learned equally well in all three as long as each was well and enthusiastically implemented by the teachers.

   A brief and especially perceptive discussion of the issues as perceived in 1971 is found in Stanley (1972).

   A report on how the children turned out, plus a review of the early programs, is the integrative study of Lazar and Darlington (1982).

   That the issues are still very much with us, and how they are perceived in 1991, may be seen in Huston (1991).
3. For an overview of our approach, see Risley, Hart, and Doke (1971); the observation system used during preschool free play is described in Hart (1983).
4. We described the rationale for and discussed the significance of the cumulative vocabulary growth curve as a developmental trajectory in Hart and Risley (1981).
5. Teaching procedures we developed and tested were Imitation training (Risley & Reynolds, 1970), Directed discus-

sion/Narration training (Risley, 1977b), and Incidental teaching (Hart & Risley, 1975, 1978, 1982).

6. The measures and outcomes from this comparison of professors' and Turner House children's language are reported in Hart and Risley (1980).
7. The results of years of intervention in public school classrooms was reported in Becker (1977); interventions brought children's academic performance up to grade level in all areas except vocabulary, and Becker recommended direct vocabulary instruction in later grades.
8. The Peabody Picture Vocabulary Test (Dunn, 1965) was administered to each child at the end of the preschool year.
9. This research is described more fully in Hart (1982).