

Review of Hart and Risley's
*Meaningful Differences in the Everyday
Experience of Young American Children*

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Meaningful Differences in the Everyday Experience of Young American Children presents a long-term study of the early, parentally supplied verbal environment of children and its association with a child's daily vocabulary and with later test scores. As such it provides a detailed and direct assessment of the effects of specific family interactions, especially those concerned with language development. In an introduction to the book, Lois Bloom termed Hart and Risley's effort "heroic," and indeed it seems so. Approximately 1,300 hour-long observations were painstakingly recorded, codified, and analyzed over the course of the study.¹

Authors Betty Hart and Todd Risley are well known to the field of behavior analysis and single-subject design. Their book reports on a study of a different sort and of a type atypical of behavior analysis. Employing both descriptive and inferential statistical analyses of longitudinal data, the study could aptly be termed *actuarial*. In this sense it is more typical of traditional developmental psychological research that entails longitudinal study of children's natural environments. Finally, the study is exemplary as a model of this type of research because of its

scope and detail. However, it also contains several differences from earlier developmental work in which children's language was the focus. The authors note that other studies had been more interested than they were in the "children's developing knowledge of the meanings of rules of the language" (p. 49, footnote 1). The present volume also confronts the issue of reliable measurement in several ways. This occurs initially in training the observers, and in simultaneously adjusting and refining the coding of the observations (pp. 26–27). This is augmented by extensive cross checking during the study proper (p. 51, endnote 11). In addition, Hart and Risley employ various methods of sampling recordings to obtain measures of interobserver reliability for number of utterances, quality of interaction variables, word types, and sentence structure (p. 121). Finally, more conventional statistical correlations for split half reliability are applied to each quality feature of parent language which are reported in an appendix. Similar measures were taken for the children's accomplishments. Lois Bloom, a well-known and established developmental psycholinguist, in her introduction to the book notes that she knows of "no one else who has done what Hart and Risley have done" (p. xxi).

As a result Hart and Risley have dramatic things to say in at least two areas: the value of specific experience in the area of intelligence testing and a strong counterargument against the assertion that direct parental intervention is unimportant in language, as championed by Pinker (1994) and others. Hart and Risley present several mea-

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

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¹ A copy of the complete observational coding protocol is available from the authors (see p. 51, endnote 9). In addition, the study is being prepared for inclusion in the CHILDES database (MacWhinney, 1995).

tures of parental style (e.g., “floor holding”—talking that does not afford the child a turn) that may directly affect language acquisition.

The Juniper Gardens Project

Hart and Risley begin their narrative with an account of their early collaboration at Turner House preschool, a part of the Juniper Gardens project arising during the 1960s war on poverty, which was concerned with raising the competence of children from families of lower socioeconomic status (SES). Here they began to establish reliable observation methods for everyday speech in order to measure the effects of interventions. Because they were unsure which verbal skills would benefit the project’s children, they decided to also study the language of the children of university professionals at the University of Kansas laboratory preschool. Their observations at the laboratory preschool were incorporated in the form of target behaviors for interventions with the children of Turner House. Their efforts were aimed at increasing the frequency and detail of the children’s verbalizations and generalizing this to other Turner House activities. Their procedures, called *incidental learning*, appeared to be initially effective. The results of their teaching were comparable in frequency and detail to the vocabulary skills of the children of the professionals in this setting. Nevertheless, the latter still “seemed to know more about everything.” After a year of spontaneous speech recordings and increases in the vocabularies of both groups, the laboratory preschool children’s vocabularies continued to increase at a faster rate than those of the Turner House children. The book’s first graph indicates clearly “the widening gap” between the two groups, despite the authors’ apparently successful efforts. Hart and Risley concluded that “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” (p. 15). At the beginning of the next chapter (p. 21), the authors mention two possibilities for their failure to make permanent changes in the growth “trajectory” of the children’s vocabulary. One is that they started too late (at the age of four years); second, the children’s everyday conversations did not require them to use an enriched vocabulary.

Planning the Study

Chapter 2 details the planning and preparation of the resulting longitudinal study of 42 children and their families. Participating families from three distinct SES categories (labeled *professional*, *working*, and *welfare*) were recruited and selected. They describe the training of the observers, the maintenance of interobserver reliability, and their painstaking transcription and coding of each hour-long observation of the interactions of the children and their families. One hour each month from the time the child began saying words (at approximately 1 year old) was recorded, along with concurrent written observations of a trained observer. The monthly recordings continued for 2.5 years, with the same observer in all but a few cases. Much of the narrative to this point attempts to supply critical numerical details mixed with less formal observations. A description of family life and interactions between the children and the children’s families is intermixed with the details of the major variables, their transcription, and coding. This informal style continues through the remainder of the book and may divert some readers from the copious data that are presented. These details may be more easily sorted out by a close study of the tables and figures that are contained throughout the book.

Hart and Risley were able to see the first results following 6 years of effort. The vocabulary growth of the children by groups, from the inception of the

study to the age of 3 years is graphed, and displays the same widening gaps as the earlier data from the Turner House and laboratory preschool children, with the middle group (working) intermediate between professional and welfare.

Family Interaction and SES

Chapter 3 gives some sample details of the actual family interactions and the impact of such factors as family size and social isolation. Important here is the authors' method for classifying subjects with respect to socioeconomic status. For some analyses, socioeconomic status as a grouping variable (yielding the categories *professional*, *working*, and *welfare*) was used. For other analyses, socioeconomic index (SEI) as a continuous variable was used. Some confusion may be engendered by the frequent changes in the classification of the participants throughout the book, sometimes as a group value (on the order of low, medium, and high) and at other times as a continuous value (SEI). Line graphs first present the sizable average differences seen between SES membership and amount of time spent by the parent in interacting with the infant over the entire period. Scattergrams further show two measures of each parent's amount of interaction. Throughout the chapter, multiple views of the data, using both scattergrams and line graphs, relate SES or SEI to time spent with the infant and the number of words used by the parents. These data clearly point to strong average trends relating parent interactions and the social and economic status of the family.

Styles of Interacting: Quality Features

Chapter 4 discusses, from examples, some of the interaction styles of the parents as a prelude to quantifying these styles as "quality features" of the interactions. Hart and Risley noted that parents in all SES groups engaged in the various types of interaction. However, as later data indicate, some

styles of interaction are more typical of each group than others. The authors suggest that these styles of interaction, positive or not, seem to be transmitted across generations.

The following chapter supplies the rationale for coding and quantifying the quality aspects of parental language used in interactions. Quality features of the parental language included both vocabulary and sentence formation and also the parent's active listening, tone of voice, initiation, style of correction, and prompting. Occasionally the meaning of some categories chosen by the authors is not immediately obvious. For example, among the interaction qualities were those referred to as *adjacency* conditions, which reflected whether the parent's utterance to the child was initiated in response to the child's speech and occurred within 5 seconds or whether it constituted "floor holding." *Valence* included the emotional tone of prohibitions, approval, and repetitions (expansions and extensions, etc.). Valence and the adjacency conditions seemed to supply the major descriptions of direct contingencies operating within parent-child interactions.

Having defined quality features in the preceding chapter, chapter 6 describes two measures of each quality feature: amount as average per hour (e.g., number of nouns per hour), and richness, as the number of that quality feature per utterance (e.g., nouns) in the parent's utterance. An appendix contains a two-page summary of all 42 children, in which families are ranked according to their SEI. The appendix also presents the quality features of the parent's language and parent-child interactions and the relation of these to the children's vocabulary growth, vocabulary use, and IQ scores. Summary values are provided by the correlation coefficients for each quality feature.

In chapter 6, the amount and richness of these quality features are graphically presented for each of the SES groupings. Total amounts of nouns, modifiers, responses, auxiliary-

fronted yes-no questions, and affirmatives were clearly used more often by the professional parents than by the working parents and were used more often by the working parents than by the welfare parents. Interestingly, other features (e.g., initiations and imperatives) were more evenly distributed across SES groupings. The data illustrate that whereas the children of professionals clearly received more affirmatives, the children of welfare parents encountered more prohibitions. A further interesting comment, and perhaps a leading theme of the book's findings, annotates the data on quality features by estimating the total number of words heard by a child in the average professional family (30 million) versus the average working family (20 million) and average welfare family (10 million) in the first 3 years (p. 132).

Children's Accomplishments

In chapter 7 the accomplishments of the 42 children at the end of the 2 years are presented. The relationships between the family interaction variables and these accomplishments are presented in the form of correlation coefficients (r) and references are made to the actual magnitude as r^2 , sometimes referred to as an index of determination or goodness of fit. Correlation coefficients can be contrasted with significance tests (and confidence intervals), which make statements about reliability but not magnitude. It is welcome practice to present both, as the authors have done in the narrative and the tables.

At the age of 3 years, children's accomplishments were measured by vocabulary growth, vocabulary use, and IQ test scores (Stanford-Binet). Of these, vocabulary use was the most highly and consistently correlated with the various measures of parental interactions. Vocabulary use was measured "as the number of different words a child used per hour averaged at 34–36 months of age" (p. 143). These vocabulary data were compiled as an indi-

vidual dictionary for each child, with new entries added at each observation.

The results indicated that the quality features of the parents' interactions that had the greatest positive association with all three measures of children's accomplishments were the amounts of different words of all types used by the parents, and the individual subdivisions of total words (the number of different nouns, the number of different modifiers [adjectives and adverbs], the number of different verbs, and the number of different functors²). The authors also call attention to the fairly strong negative correlations between parent initiations, imperatives, and prohibitions and child performance, indicating that decreased accomplishments by the child are associated with greater number of parental initiations, imperatives, and prohibitions (p. 147). As expected, SES shows a reliable relation with later performance, but all particulars of the parents' language (quality features) show higher correlations. This seems to confirm that SES is an imperfect measure for characterizing environmental variables. Other measures presented in the chapter as scattergrams include a composite measure of language diversity (nouns, adjectives, etc.) and other derived measures such as feedback tone, symbolic emphasis, guidance style and responsiveness, each plotted against SEI. A summary score combining all the above and called parenting is presented as a function of IQ for each child.

Follow-Up Study

Twenty-nine of the children were available for additional measures at the ages of 9 and 10 (third grade). Scores on the PPVT-R (Peabody Picture Vocabulary Test), the TOLD (Test of Language Development), the OLSAT (Otis Lennon Ability Test), the WRAT-R

² Examples of functors are given by Brown (1973) as inflections, auxiliary verbs, articles, prepositions, and conjunctions.

(for spelling achievement), and the CTBS (test of reading, writing, and arithmetic) were collected. Of these, only the PPVT-R and the TOLD are depicted. The PPVT showed correlation coefficients of .59, .64, and .77 with, respectively, feedback tone, symbolic emphasis, and guidance style; the TOLD revealed coefficients of .64, .70, and .71 on the same measures of early parental interactions. The other tests (OLSAT, WRAT-R, and CTBS) did not show any strong correlations with the earlier parenting behavior. The authors indicate that "We saw no association between rate of vocabulary growth and the children's third-grade scores in . . . reading, writing, spelling and arithmetic" (p. 161).

That no spelling, arithmetic, or other basic skills scores were affected is a bit curious but may be due to one of several factors. The first is the authors' requirements for reporting significant correlations, which are justified by the number of comparisons they made. They report values only for those r s that are different from zero at the level of $p < .001$ and report as nonsignificant those values at $p < .01$. The smaller number of subjects (29 vs. 42) also accounts for more correlation coefficients failing to reach criterion.

The contents of the final two chapters are aptly described by their titles. Chapter 8 covers what the authors consider the importance of the "First 3 Years of Family Experience." Due to their earlier failure to influence, in a lasting way, the 4-year-old children of Turner House, their conclusions are heavily weighted with the importance of very early intervention. They provide three reasons for this. First is the incontestable dependency of children during the first 2 to 3 years of life, and second is the possibility of a neurological critical period. Somewhat independent of the first two reasons is a third, which could be described as a sort of behavioral inertia, a cumulative effect sometimes characterized as "them that has, gets." This last is descriptively free of the implications of critical pe-

riods and is probably less assailable for that reason. It simply describes the failure of their Turner House experience. Gains were made and documented but failed to survive under other conditions. As a practical matter, all three explanations argue forcefully for early intervention with the best technology available.

The final chapter, titled "Equalizing Early Experience," in addition to reviving some of the previous arguments about the importance of the early years, contains a plea for greater emphasis on early education. Enthusiasm for the prospect of erasing deficiencies with a renewed emphasis on employing effective intervention technologies sometimes alternates with a certain pessimism over the prospects of support. Furthermore, there is the implication that intervention should encourage those behaviors displayed by the professional parents in their study. They cite the decline of blue-collar jobs and present a miniature "megatrends" view about the importance of preparing children for a world in which most work will consist of analytic, problem-solving jobs. The problem with that statement in the present context is that *analytic* and *problem solving* are equated with skills like vocabulary growth and use and not with the traditional skilled crafts (e.g., engineering). A nation of "wordsmiths" gives pause.

The final pages offer suggestions that could be implemented on a local level, as well as more widely, to aid parents in the daunting area of parenting young children so that "differences never become so great as to be intractable to even the most effective intervention" (p. 212). Parent aides, mentors, high-quality child care by trained professionals, and parent training are all presented, with appeals to consider child rearing and education a national resource. It is hard to argue with this last plea.

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