Language Acquisition and the Child: Developmental and Theoretical Tensions.

Keynote Address on the Occasion of the 25th Anniversary of the
Boston University Conference on Language Development

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ABSTRACT

The inquiry into children’s language acquisition has shifted in the past 25 years in ways both profound and, perhaps, not so profound, yielding several themes that dominate current thinking about the enterprise. These themes have to do with the CHILD who is acquiring the language, THEORY about the language the child acquires, and the ESSENTIAL TENSION that is necessary for development of both the child and theory.

The BU conference was born, 25 years ago, out of the renaissance in child language research and theory that had begun in the decade before. Boston in the 60s was a place and a time of action and interaction aimed at understanding the age-old question: How do children learn to talk? And now, in the year 2000, the study of language acquisition has an intellectual, social, and institutional history that is epitomized by all of us, assembled here in Boston once more, where we are still asking the question: Indeed, how do children learn to talk?

Over the last 25 years, many of us have chipped away at the answer to that question. In my own work, I published a number of studies, with colleagues and students, in which we looked for the answer in the words children learn, how children learn to combine words—verbs, in particular—in phrase structures for the arguments expressed in simple sentences, and how language develops in its complexity to include the forms and functions of negation, questions, and complex sentences that express causality, temporal contingencies, and other relationships (e.g., Bloom, 1991; Bloom, 1993).

Several themes that came out of that research now dominate my thinking about the enterprise of studying language acquisition. These themes have to do with the CHILD who is acquiring the language; THEORY about the child, and about acquisition of language by the child; and the ESSENTIAL TENSION that is necessary for development of both the child and theory. I suspect that my own response to these themes may not be entirely compatible with other views represented in this weekend’s program. And for that reason, I am particularly pleased, at the beginning of the next 25 years, to have this opportunity to share my perspective on these three themes.

FIRST, THE CHILD. I’ve been increasingly concerned about what has become ‘the phantom child’ in studies of acquisition. No one, to be sure, denies that there is a child behind the words and sentences that we study, but that child is too often forgotten, too often taken for granted. With advances in technology, we’ve come to watch words appear on computer monitors, and the child has become increasingly removed from the words and sentences that we study. The words and sentences often assume a life of their own, apart from the child who produced them, and apart from the situations in which the child said them (or signed them).

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To be sure, knowledge of language is one of the child’s goals in development. And how the child achieves that goal is what we, as researchers, are after. We do, certainly, need to look at one or another aspect of language, isolate it, manipulate it—in order to study it. But we also need to consider what it means when we’ve taken the units of language out of the very fabric of the child’s life in which they are necessarily embedded. When we do separate the units and procedures of the language from the so-called extraneous variables of performance, then the language the child is learning becomes disembodied and decontextualized. Somehow, the child has to be kept in the picture, as the major player and, indeed, as the agent of the acquisition process. Giving the child’s language both an embodiment, and a context, is my primary goal in this presentation.

To begin with, a language will never be acquired without the child’s ENGAGEMENT in a world of persons, objects, and events. Engagement is a child reaching out to other people; reaching out to express, and thereby to share, the contents of mind; reaching out to understand what others do and what they say; reaching out to be a part of the social world; and reaching out to embrace the language that expresses and interprets the social world.

Children are learning the forms of language in acts of interpretation and expression. However, the cognitive and affective resources of the young language learning child are essentially limited and expression, interpretation, and learning words and procedures for sentences put demands on those resources. Moreover, because language is only one aspect of a child’s development, whatever cognitive and affective resources are available for expression, interpretation, and language learning must be distributed among, for example, the child’s emotional responses and expression, learning about objects and object relationships, and responding to other people and what they say in conversation, among other things. Thus, other developmental demands compete for the limited cognitive and affective resources of the young language-learning child. As a result, language acquisition requires EFFORT, it isn’t easy.

The LANGUAGE is the target for the child, and knowledge of language is what we, as researchers, try to explain. The interaction between Language, Engagement, and Effort brings the child, and the rest of the child’s development, into the language acquisition process. These are the three components of my Intentionality Model of Language Acquisition (Bloom, 1993; Bloom & Tinker, 2001), and at its heart is the model of language content, form, and use that Peg Lahey and I introduced in Bloom and Lahey (1978).

Language is, necessarily, the convergence of content, form, and use: All three are required. Including language content and language use in a model of language in addition to the forms of language assures that what the child knows and is learning about language, at any point in time, remains connected to what else the child knows and is learning about the world of persons, objects, and events—the world that language is about and in which it is used.

Including Engagement in a model of language acquisition embraces the part played by a child’s social and emotional development. Hearing words and sentences from other persons is required in anybody’s theory, and words and sentences have to be presented in a personal and interpersonal context. But missing in most theories of acquisition is the part played by affect and emotion: the value of the child’s affective response to persons and objects, the child’s affective investment in the individuals and in the situation with which they experience language, and affective investment in the task of its acquisition.
And the component of Effort in the model brings in the child’s cognitive development. Cognition for language includes the time-bound thinking, in real time, that is the child’s intentionality—the dynamic representations in consciousness that are expressed by language and that are set up by interpreting the language of others. And the cognition required for language also includes the timeless products of past thinking, in memory, that are the child’s concepts, conceptual structure, and knowledge more generally. All these developments for language—in cognition, social connectedness, and emotionality—compete for scarce resources with each other and with still other aspects of the child’s learning and development.

MY SECOND THEME IS THEORY. The evolution of theory depends on what Thomas Kuhn called “an essential tension”: The practice of science, according to Kuhn, is, necessarily, a “highly convergent activity” deeply rooted in a consensus of beliefs and technique. However, when traditional techniques and beliefs fail to account for new observations, the result is, in his words, a “crisis,” with an attendant “revolution” that brings about a new "paradigm" or theory (Kuhn, 1962, 1977).

Thus, new theory comes out of the tension that is inevitable when certain observations, certain phenomena, certain facts are discrepant—that is, inconsistent or incompatible or otherwise not accounted for—by existing theory. New theory comes out of the tension from the discrepancy that results when existing theories resist accommodation of new observations or new facts.

Represented at the BU Conference each year are communities of scientists, each having a commitment to a set of beliefs and techniques identified with a particular theory of language or particular theory of acquisition. In fact, the last 40 years has seen a succession of attempts to explain language acquisition, as one and then another theoretical perspective has emerged in response to new issues, new concerns, or new data. These theoretical tensions began more than 40 years ago with the challenge to behaviorism from the theory of generative transformational grammar.

The original tension was between conflicting emphases on what was inside versus outside, people’s heads. B. F. Skinner (1957) had proposed what really was an elegant theory about language, or what he called "verbal behavior," and how verbal behavior is conditioned by the environment. It was, in effect, a two-person theory. One person’s response to the behavior by another person shapes subsequent behaviors. Environment determines verbal behavior.

Everyone knows, but it bears repeating on a 25th anniversary, that Noam Chomsky’s (1959) insight was that what matters most for language is internal to the individual and not in the environment. Children learn the underlying grammar of the language that generates the behaviors. They hear sentences, but they learn a grammar, and the grammar itself is nowhere to be found in the environment. The assumption that language comes from the environment was strongly challenged, and the enterprise of studying language acquisition changed irrevocably.

The resulting explanatory model based on transformational grammar was a one-person theory. The theory focused on formal language structure and on the rationalist explanation of language as a uniquely specified human capacity: an intricate and highly abstract system of rules in the mind, that “bear no relationship to the representation of everyday events.”
The tension between environmental and innatist explanations of language acquisition began almost immediately and continues today. Catherine Snow (1972) started the effort to show how the information needed for inducing rules of grammar was, indeed, available in the input, and cautioned against throwing the bathwater out with the baby. No one today seriously disputes the importance of linguistic input—it has to figure in anybody’s theory. At the same time, however, claims have grown even stronger that human language is largely predetermined and, for example, is now attributed to a “gene” by Steve Pinker (1994).

Another psycholinguistic tension appeared when interest turned, with my own research in the late 1960s-70s, to the semantics of children's language and the role of meaning for acquiring syntax (Bloom, 1970). When attention shifted to matters of meaning, attention also shifted to explanatory models based in cognitive development. The initial, explanatory model for the semantic bases of early language learning was Jean Piaget's (1954) account of the cognitive developments that begin in infancy—in particular, development of the symbolic capacity, and concepts of objects, events, and the relations between them. For Piaget, and others influenced by him, the meaning of children's early language derives from the representations of reality made possible by cognitive development, and language does, indeed, relate to the representation of everyday events.

The result was a tension between this more general cognitive theory to explain how language is acquired, and language theory that invoked a specifically linguistic capacity for acquiring the syntax of a grammar. Both, however, are one-person theories consisting as each of them does of an account of what goes on inside the child's head.

The attention to context that was required by semantically based research (Bloom, 1970) was soon extended to include developments in language around semantics and syntax, notably the pragmatics of language use in interpersonal contexts (Bates, 1976). The result was another explanatory model, this time a multi-person theory, embracing the child's social context and influence, in particular, by Lev Vygotsky (1962). Children acquire language as it is constructed between persons in their interactions in everyday events, and social constraints on language were seen as deterministic or, at least, facilitative of the process. The original attraction of transformational grammar, in the beginning, had been the corrective it offered to the emphasis on the environment stressed by behaviorism. Subsequently, however, the balance tipped once again toward the environment. Whatever their biological endowment might be, children develop in a socially determined context. Thus, a new tension: between linguistic, cognitive, and social theories of acquisition.

The 1980s saw the introduction of yet another research paradigm in "learnability theory" (Wexler & Culicover, 1980). Because the adequacy of any theory of language was judged by how well it accounted for acquisition, child language data became evidence for the correctness of one or another theory of the adult grammar. If the language input a child receives is insufficient for learning grammatical rules (that is, children hear only sentences, but they acquire a grammar), then certain, specifically linguistic principles, parameters, and procedures must be present to begin with in order for languages to be learnable.

And still another tension in acquisition theory emerged with the introduction of connectionist models of the neurological architecture for language learning (Rumelhart & McClelland, 1986). The assumption in connectionist models is that the information needed to acquire language is, indeed, available in the input, because children are not learning rules per se. The tension that has now emerged is between models, on the one hand, of the neural networks in the brain that acquire and represent information about language from the input, and, on the other hand, explanatory models that invoke a strong, rule-based linguistic substructure. We are back to one-person theories.

In sum, we have several theoretical tensions as a result of our research efforts and their theoretical justifications in the last two generations. These tensions originate in different world views, or world hypotheses in the terms of Stephen Pepper (1942). They are, alternatively, formism, mechanism, organicism, or contextualism and they are based, respectively, on the root metaphors of similarity, a machine, the integrative organism, or, in the case of contextualism, the dispersive historic event.

According to Pepper, world hypotheses are autonomous and mutually exclusive—one can only look at the world in one way, and different world views cannot be combined. Nevertheless, no matter how irreconcilable theoretically, Pepper also allowed the "equal or nearly equal adequacy of a number of world theories." and he cautioned against "falling into the dogmatism of neglecting any one of them" (p. 104). Each theory may be adequate, but the several, together, may be more adequate.
And so we come to the most recent efforts at amalgamation. We now recognize that language acquisition does not reduce to cognitive development or the social context in any simple way. But neither does it reduce to adult theory or to the biology or the architecture of the mind in any simple way. If we are to achieve a truly explanatory model of language acquisition, our theories and research need to reach beyond language, and beyond a focus on only one or another aspect of the child's development.

Several such models are now being put forth. One is the "coalition model" of Hollich, Hirsh-Pasek, and Golinkoff (2000). Another is my own Intentionality Model (Bloom, 1993; Bloom & Tinker, 2001). Different world views may well be incompatible, and theories to combine them may be too eclectic to be tested easily. Nevertheless, the fact is that human development, in general, and the process of language acquisition, in particular, are, indeed, inherently mechanistic, organismic, and contextual—all at the same time. Again, according to Pepper, while these world views are fundamentally different, together they "constitute the sum of our knowledge" and provide a more balanced and informed conception than anyone can do alone (p. 342). In other words, integrative and coalition models, however 'messy' to some tastes, may well come closer to the truth.

DEVELOPMENTAL TENSIONS

An essential tension figures in the development of the child, just as it does in development of theory. Developmental change is not simply quantitative or cumulative: A child does not simply add one ability, skill, or behavior to another, to become the mature adult. Nor does the child simply add one procedure or structure to another on the way to the mature language. Developmental change is necessarily directed—in the case of language acquisition, directed at the target language. But the path of developmental change entails processes of organization, differentiation, integration, reorganization, and consolidation, as the child's knowledge—including knowledge of language—is transformed by new encounters.

These general processes in development emerge out of an essential tension between the mind of the child and external events, between what the child already knows and new information. It is the sort of tension that is, in fact, required for all of human development, including language. The child could never develop, could never become a self sufficient, productive adult without experiencing and working through a succession of developmental tensions. The critical importance of tension is inherent in virtually every theory of human development, from Freud, to Erikson, to Piaget—to name just three, very different theories.

The tension required for human development was articulated most explicitly by Freud whose theory was a tension reduction theory. For Freud, the primordial, initial principle of life is the "pleasure principle" and the aim of the pleasure principle is to get rid of tension, to avoid pain and to find pleasure. Freud pointed out that there would be no psychological development if all the infant's tensions could be handled by the reflex mechanisms—blinking, sneezing, coughing, bladder opening—that remove tension-causing physical disturbances. Many tensions occur, like hunger, for example, for which there are no reflexes. Hunger contractions, when they are not satisfied by food, cause restlessness, crying, and increased tension.

Again, there would be no psychological development if parents were able to meet all the child's needs and relieve every tension. That's unlikely to happen, in any event, because parents create tensions as well as reduce them—they need to impose schedules, training, and discipline for the child's well-being (not to mention their own). As Freud's theory comes to deal more with the unconscious it gets increasingly abstract, and far far afield from our concerns here. [I expect that this is the first and the last time someone mentions Freud in a BU keynote.]

Piaget's theory of cognitive development is, implicitly, a tension reduction theory (although he, himself, did not call it that). The young infant strives for a state of equilibrium in the confrontation between the known and the unknown. Equilibration, in Piaget's theory, is the analogy of Freud's pleasure principle. For Piaget, disequilibrium occurs when new encounters resist interpretation and understanding—when the information in new encounters is discrepant from what the child already knows and cannot be assimilated to existing knowledge. The tension that results forces a revision in existing knowledge. Again, quite simply, there would be no cognitive development without the tension that presses existing forms of thought to change in the effort to accommodate new information.
I am proposing that just as an essential tension is required for the development of theory, an essential tension is required for all human development and, by inclusion, language acquisition. *There would be no progress in language acquisition* without the essential tension that is caused by discrepancy in the mind of the child. One source of discrepancy is between what the child has in mind and what others have in mind—the intentional states that are expressed in their messages—with the resulting tension that presses the child to learn the language of those messages. Another discrepancy is between what the child already knows about the language and linguistic input that resists understanding. The tension that results presses the child to revise knowledge of the language so as to accommodate new input.

I have conceptualized the tension that is required for language acquisition as an *essential tension between engagement and effort*. Social connectedness and young children's affective investment in and dependence on other persons motivate acquiring the language, in the first place, and sustain a child's directedness toward the target language. However, this engagement in learning the language meets resistance in the effort that is required—the effort of cognitive processing, and the effort to overcome competition for limited, cognitive resources. This tension in the mind of the child is essential—neither engagement alone, nor effort alone, can overcome the discrepancy between existing knowledge and new encounters that resist interpretation and expression.

In sum, we cannot escape or get around the fact that we are dealing with a developing child, even when we abstract out the language. However, when we assign causality in language acquisition to maturation, or to innate knowledge, or to genetics, then we stop looking for processes of developmental change. The result is description only of what is, what children can and cannot do, and correlations between behaviors and anatomy, or between behaviors and chronological age. Age, however, is only an index, it is not a *causal* variable. Age only reduces to time, and time causes nothing. Changes in linguistic behaviors may be correlated with time but not caused by it. We still need to identify the variables and *processes of change* for language acquisition and these might or might not be correlated with age.

**STUDIES OF ENGAGEMENT AND EFFORT**

In my own research, we have looked at how the child's developing language intersects with developments in emotionality, cognition, and social interaction (see the studies summarized in Bloom, 1993). The results that are briefly summarized here, from our most recent research (Bloom & Tinker, 2001), demonstrate the interaction between engagement, as indexed by children's emotional expression, and the effort required for language acquisition at times of *emergence* and *transition*. The conclusion we've come to in this research is that language acquisition isn't 'easy.'

The children in our studies were 6 girls and 6 boys, from different ethnic and racial family backgrounds, living in the greater New York metropolitan area. The children and their mothers visited our laboratory playroom every month, beginning at 9 months of age and continuing until they were saying simple sentences at about 2 years of age, on average. These monthly 1 hour observations were video-recorded and augmented by monthly home visits and mothers' diaries of their children's progress in word learning.

Three achievements in language acquisition were identified for each child. First Words (FW) was an emergence and time of transition, identified with the first use of intelligible words in the laboratory playroom. The Vocabulary Spurt (VS) was a time of consolidation in word learning, and identified by a sharp increase in the slope of the growth curve for new words the children learned from one month to the next. The emergence of sentences (Ss), a second transition, was identified when the average length of child utterances reached 1.5 words. As in other studies, the children differed widely in their ages at the times of each of these developments in language, as shown in Figure 2.
We used each child's achievements in language as reference points for examining developments in other behaviors that coincided with developments in language. Of particular interest for this paper are the studies we've done of the relationship between emotional expression and language, in the period between the emergence of first words through the emergence of sentences. When language begins at the end of the first year, emotional expressions, which are already in place (having existed in some form virtually since birth), are frequent, robust, fully functional, and indicate engagement. In contrast, early words and procedures for sentences, which have to be learned, are fragile, tentative, imprecise, and require effort.

In order to analyze the relationship between emotional expression and language, we first coded time spent in each of these behaviors. The videotapes were interfaced with a microprocessor via a time code (30 frames per second) recorded on the original video tapes (Beckwith, Bloom, Albury, Raqib, & Booth, R., 1985). Because all transcription and coding decisions were associated with times of onset and offset, we could count the number of frames the children spent talking and the number of frames expressing emotion (or in any other behavior).

Results of this analysis are shown in Figure 3. Time in speech increased from FW to Ss, as expected, but emotional expression did not change in this same period of time. Thus, developments in language from First Words to Sentences did not represent an overall increase in expressivity; otherwise, emotional expression would have increased along with the increase in time spent talking. But it was also the case that language did not replace emotional expression, because emotional expression did not decrease as time spent talking increased.

![Figure 2](image2.png)

Figure 2. Mean Ages of language achievements and range in ages for the group of 12 children.

![Figure 3](image3.png)

Figure 3. Amount of time (video frames) the children spent expressing emotion and speaking, at the three language achievements (Bloom & Tinker, 2001).
Because the children's ages differed so widely at each of the language achievements, we looked at the differences between children who were earlier and later language learners in the time they spent expressing emotion and time spent speaking (Figure 4). Later learners were above and earlier learners below the mean age of achievement for the group as a whole.

![Figure 4. Amount of time later and earlier learners spent expressing emotion and speaking, at the three language achievements (Bloom & Tinker, 2001).](image)

The later and earlier learners did not differ in time spent speaking across the language achievements. Thus, the amount of time the children were talking was a function of progress in language rather than chronological age. However, the earlier learners, who reached the achievements at younger ages, spent less time expressing emotion than later learners, who were older when they reached the achievements in language (see Bloom & Capatides, 1987, for interpretation of the same result based on frequency of expression).

The amount of time that each child spent expressing emotion in a play session was then used to determine that child's individual baseline rate of expressing emotion, for predicting the probability that that child would have expressed emotion in any given interval in the course of the observation. Thus, given their individual baseline rates, earlier learners were less likely, and later learners were more likely, to be expressing emotion at any given time during an observation. Using a form of lag sequential analysis, every frame of video tape was scanned in each of the moments before, during, and after a particular target behavior, such as the child saying a word, to determine the observed incidence of a different behavior, such as emotional expression. The observed tendency to express emotion around words as targets, for example, was then compared to the baseline rate of emotional expression to determine whether the occurrence of the one behavior influenced the other.

The first of a series of these analyses was reported by Bloom and Beckwith (1989) and the summary result is presented in Figure 5. The vertical line in Figure 5 and in the figures that follow represents the time interval of a speech target event, from its onset to its offset. The data points represent the 5 1-sec intervals before speech onset, the time interval of the speech target, and the 5 1-sec intervals after speech offset. The horizontal line represents baseline levels: the likelihood that a child would be expressing emotion at any point in the course of an observation, given how often the child expressed emotion overall.
The functions for FW and VS in Figure 5 are the mean differences from the respective baselines of emotional expression at FW and VS, in standard deviation units. Scores above baseline mean that emotion was expressed more often than expected. Scores below baseline mean that expression of emotion was less than expected and the children were more likely, therefore, to be expressing neutral affect.

When the children were just beginning to learn words, at FW, they were less likely to be expressing emotion around saying words than they were to be expressing emotion around words at the Vocabulary Spurt, when speech presumably required less effort. The dip below baseline before speech at First Words was an indication of the cognitive effort required for speech at the time that words first began. The pattern (shape of the curves around speech) was the same at both times, but with significantly greater increase in emotional expression around speech at Vocabulary Spurt.

This result at Vocabulary Spurt indicated to us that the children were able to integrate the two kinds of expression at the time of consolidation in word learning, when saying words required less effort. The increased likelihood of emotional expression relative to baseline at VS was interpreted as evidence of engagement. The children were evidently learning to talk about those things that were relevant to them, those things they cared about. However, even though the children were able to integrate the two forms of expression, they still showed the effects of effort. The words they said with emotion were their easiest (earliest learned and most frequent) words, rather than more recently learned, infrequent words. And the emotion they expressed when they said words was most likely to be positive and at low levels of intensity, therefore requiring less effort than the negative emotions or emotion at high levels of intensity. There was, therefore, development in the tension between effort and engagement in effects of speech on emotional expression in the single word period (Bloom & Beckwith, 1989).

The lag sequential analyses have now been extended to the transition to phrases and simple sentences, when MLU reached 1.5 words (reported in Bloom & Tinker, 2001), and this result, for the 12 children, is shown in Figure 6. The beginning of Sentences, another transition and time of emergence in acquisition, again showed the effects of effort on emotional expression that the children's speaking entailed. In contrast to the result at VS, all of the scores around speech were below baseline levels of emotional expression, indicating that the children were more likely to be expressing neutral affect around speech at the time of transition to sentences.
Because the two subgroups of later and earlier learners differed in both age and how much time they spent in emotional expression, the lag analysis was repeated with the children divided according to their ages, above and below the mean age for the group, at the time of the transition to sentences, and this result is shown in Figure 7.

As can be seen, it was the later learners who, in spite of the fact that they tended overall to be more emotionally expressive, were far less likely to be expressing emotion around speech when compared to their baseline levels of expressing emotion. The earlier learners, who were younger and also less likely to be expressing emotion overall, were more likely to be expressing emotion around speech relative to baseline than were the later learners, even increasing above baseline immediately after speaking. We took these results to mean that children who reached the language achievements earlier were also acquiring language with somewhat less difficulty than those children who were somewhat later in making the transition to phrases and simple sentences.

Finally, we reasoned that expressing emotion around speaking might be influenced by the discourse context, and to test this hypothesis we repeated the lag sequential analyses separately with speech that occurred spontaneously, without a model in the immediately preceding discourse, and speech that imitated something of what someone else had just said. The tendency to express emotion around imitated or spontaneous speech relative to baseline is shown in Figure 8. The result confirmed the expectation that imitated speech, that took something from the prior discourse, was somehow ‘easier’ for the children, requiring less effort.
In sum, the fluctuations in real time patterns of emotional expression around speech, at times of emergence and transition in language acquisition, showed that the two systems of expression are not independent of each other. These one- to two-year-old children were very good at expressing their feelings, readily and easily smiling, laughing, frowning, and crying over those things that they cared about. Nevertheless, the effort required for the transitions in language acquisition, first to saying words and then to saying sentences, interfered with their expressing emotion at the same time. However, once a certain competence in saying words was achieved at the vocabulary spurt, the children were able to integrate speech and emotion to express how they feel and, at the same time, tell others something of what their feelings and objects of engagement were about. And at the transition to sentences, the children’s speech that had support from the discourse context, that is, speech that was imitated, evidently required less effort than speech without discourse support.

CONCLUSIONS

Three conclusions follow from these studies: The first is that acquiring language isn’t easy; the second is that performance counts; and the third conclusion is that language is acquired in the context of the rest of a child’s development.

Acquiring language isn’t easy, in spite of what you might have heard. This conclusion brings me back to the first theme that I started with, the child. A 3-year-old child has learned quite a few words and has acquired many procedures for sentences. But by no means does the 3-year-old have it all. Much more of the language is still to be acquired, arguably, well into the school years. Moreover, the 3-year-old has been working at it, virtually since birth. The very first associations with sound are being formed in the womb. And in the ensuing year, as research by Peter Jusczyk and his colleagues (1992), and others, have shown, infants take apart the stream of speech they hear around them, bit by bit, tediously segmenting the pieces of the signal that seem relevant, and then begin, toward the end of the first year, to associate the pieces of sound with elements of meaning.

Word learning starts out ever so slowly at the end of the 1st year, before picking up speed with the vocabulary spurt toward the end of the 2nd year. The first phrases and simple sentences then begin hesitantly, slowly, and proceed gradually and tentatively to increase in length and complexity. Make no mistake about it, children work at acquiring language because of the effort that it requires.

Performance counts. We have become too used to denigrating ‘performance,’ but the reality is that performance data of one kind or another is all that we have to work with in our studies of acquisition. Whether we are studying children’s responses in an experiment or studying words and sentences in a transcript, we study performance. And performance data are what children have to work with—performance in the acts of expression and interpretation in which the language is learned. And, again, make no mistake about it, children are learning
language in acts of expression and interpretation. Children are learning the language when they access words and sentence procedures in order to express what they have in mind in different circumstances. And children are learning the language when they strive to interpret the words and sentences that embody, make manifest what others have in mind.

Language is acquired in the context of the rest of a child's development. And this conclusion brings me back to the theme of tension and its importance for development of both the child and theory. Children are pressed to acquire language by the essential tension between engagement and effort. Engagement determines the motivation and direction of language acquisition: A language would never be acquired without the tension that comes from discrepancy between what the child has in mind and what others have in mind. Effort determines the deployment of cognitive resources and processing for resolving the tension that comes from the discrepancy between what the child already knows about the language, and new encounters that resist understanding and require new linguistic knowledge.

All aspects of the child’s development contribute to the acquisition process—cognitive, social, affective, and linguistic. And that is the reason for the psycholinguistic tensions we have in language acquisition theory – tensions that came about when theories based on one or another aspect of the acquisition process could not account for new data, new facts, new observations of other aspects of the acquisition process. As the research focus shifted from one and then to another aspect of acquisition, or aspect of development related to language, so too did the focus of acquisition theory shift as well.

And so, I come back finally to the question I started with: How do children acquire language? To paraphrase Ray Jackendoff in another context, several thousand very smart linguists and psychologists have been working for more than the last 25 years to try to answer that question. And still a consensus on the answer eludes us. I have sometimes wondered what my life would have been like if I had started off with an entirely different question, in an entirely different field of inquiry. If each of us had tilled a different field, searched in a different forest, or otherwise had started out, 25 years ago, with a different question, we might well have come up with an answer.

References


