The Power of Expression

Lois Bloom

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Edward Lee Thorndike Professor of
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Now that I have all of you... family, friends, students, and colleagues... here together at the same time, in one place, I eagerly seize the opportunity to answer a question I've been asked many, many times. That question is: What is it that you do?

What do I do? The fast answer is that I study very young children learning language and I teach other persons what I know about how children learn language, why infants even begin to learn language in the first place, and what it is they learn about language in the first three years of life. I ordinarily do this teaching in 2 courses: 2 semesters, 30 weeks, 60 hours. I am now about to sum it all up in the next 40 minutes.¹

I owe the title of my talk today to the philosopher, Charles Taylor:

What comes about through the development of language in the broadest sense is the coming to be of expressive power.²
The power of expression comes from using the conventional, linguistic meanings in words and grammar for expressing the private, personal meanings we have in mind. These personal meanings are the contents of our beliefs, desires, and feelings and they are unobservable unless we can somehow embody them and make them manifest. This is what language does. Language takes these private meanings that we have in mind and makes them public, in acts of expression and interpretation, so that other persons can know them.

Language uses different notation systems—speech, gesture, or print—for representing the conventional meanings that are invested in words and grammar. But regardless of the notation it uses, language affords us this process of continuous translation between public and private meanings. The words and sentences I am saying now embody what I am thinking and you, in turn, are using my words and sentences to set up thoughts in your own mind which will, hopefully, match what I am thinking. Thus, the meanings of language provide a way for us to read each other’s minds. We pretty much take that for granted today.

But in the 1960s, when I first started thinking of the importance of meaning for language development, meaning was not a popular topic in linguistics. Correspondingly, although hard to believe today, meaning was overlooked as well in studies of language development. It was in this climate, that I was asked to present my dissertation research to a Columbia University faculty seminar. They were a distinguished group of men: linguists, philosophers, sociologists, psychologists. They listened politely, smiled a bit condescendingly, and finally let me have it: “How could you possibly hope to know what a child means when we don’t even know what adults mean half the time?” Well, it isn’t so terribly complicated, I replied; we may not know the abstract semantic structure of a child’s sentence but we have little or no difficulty knowing what that sentence is about. Quite simply, very little children talk about what they are doing or about to do or want someone else to do and those things are usually evident or imminent in the context. In fact, parents depend on it and routinely interpret children’s messages all the time. Knowing what
a child's message is about, one can attribute something of what the child assumes the words in the message mean.

We've been studying meaning in child language ever since and, by and large, we study what and how children learn about the conventional, linguistic meanings invested in words and the structures of grammar. I will be talking today about some of these developments in the first few years of life, and about some of the developments in other aspects of children's thinking which contribute to these developments in language. But, to understand how children come to seek out and embrace the meanings in language in the first place, so as to make them their own, we need to look in the first year of life for the origins of language in infancy.

The human infant comes into the world without language but comes into the world as a profoundly social creature, from the beginning. The evolutionary fallout from many generations of language is that the newborn infant is exquisitely prepared, at birth, to acquire a language: In the first few hours of life, a human infant can tell the difference between its own mother's voice and a strange female voice. An infant as young as a few weeks old can hear the difference between categories of speech sounds, such as the difference between /p/ and /b/. And, virtually from the moment of birth, infants produce cries, whines, whimpers, and, eventually, smiles and laughs, to which their caregivers attribute meaning. We know, then, that certain basic capacities which serve language are already in place in the beginning of life.

Two things about the expressions of a young infant are particularly noteworthy. One is the simple fact that the infant's smiles, frowns, laughs, and cries are close to our own, adult expressions and this, more than anything else, contributes to our identifying with the baby as human. But, second, a baby's smiles and cries allow us to attribute something else to the baby, something more than just the smile or cry itself. We can attribute delight or distress, pleasure or pain, joy or misery. In short, the external and public expression we are seeing allows us to attribute something internal and private that the baby
is feeling. And it is this attribution—and the meaning of the expression—that we respond to when we respond to the baby.

In the first year of life developments occur in an infant’s emotionality and social connectedness with other persons. And, at the same time, infants discover quite a lot about the physical world and the ways that persons and objects ‘go together’ in the everyday events of their lives. It is these emotional, social, and cognitive developments which bring an infant to the threshold of language. By the end of the first year, all that infants have learned about persons, objects, and the self inform the beliefs, desires, and feelings that they have. These cannot be articulated by the smiles, whines, and cries which served the younger infant so well. Other modes of expression are required and, waiting in the wings, is language.

Children begin to acquire words slowly at first, in the second year, and their early words are fragile, tentative, and imprecise. But they soon pick up speed and, sometime toward the end of the second year, there is a burst in vocabulary as a child begins to use many different words and to use words more frequently and more easily. However, the words learned in the second year do not replace the emotional displays which had served the younger infant so well in the first year. Saying words is not something that children begin to do instead of expressing emotion. Rather, children continue to express their feelings through displays of emotion as they learn the words to articulate what their feelings are about: the words which name the objects and circumstances of their emotional experiences, words like “more,” “gone,” “Mama,” “cookie,” “fall down.” Because these words give public expression to a child’s private meanings, other persons can know them, share them, and perhaps do something about them.

The mentally constructed meanings which language expresses are unobservable representations which “we set up as we talk or listen and that we structure with elements, roles, strategies, and relations.” They are the mental contents individuals express when they talk, and that they construct when they
interpret the speech of other persons. These representations are set up in the part of mind that has traditionally been called 'working memory' or 'consciousness' that aspect of mind that intervenes between what we perceive in the world and the knowledge that we have. A focus on these underlying representations for language connects a theory of language development to theories of intentional states in philosophy and, in psychology, to "mental models," "mental spaces," "complex mental attitudes," and the like which are the products in consciousness of what has come to be called the "computational mind." Constructing these internal, personal representations in consciousness, as we talk and listen, are the critical aspect of thinking for language, and for the process of language acquisition. These representations are cognitive not linguistic constructions, but Fauconnier reminds us that "language does not come without them."

The acquisition of language depends, then, upon changes in the representations a child can set up and hold in mind. Two principles follow from this assumption. One is what I have called the Principle of Discrepancy: Children will be pressed to use speech (or gestures) when objects represented privately in consciousness are not perceptible to others in the context. Language will be required so that other persons will know what the child has in mind the child's mental meanings which are otherwise unobservable. Thus, the discrepancy between the child's world as it is, and the world the child expects, wants, or imagines to be, creates the demand for language.

One-year-olds most often express evident content. The meaning of an expression is evident when it matches something that is already in the context. For example, a child looks at a doll and says "baby." The child sees the doll as she names it; it is evident. In contrast, meaning is anticipative when the word points to an imminent event that does not match what is evident in the context. For example, a child saying "baby" as she searches for the doll. The child imagined the doll was among the other toys in the room as she named it; it was anticipated. In such anticipated meanings, representations in consciousness are constructed out of knowledge accessed from memory. If the Principle of
Discrepancy is correct, then anticipative meanings ought to increase with development, relative to evident meanings. And this is, indeed, what happens in the second year when children show a spurt in vocabulary. An increase in the number of words they know is associated with an increase in anticipative meanings.11

The second principle is what I have called the Principle of Elaboration: Children come to construct representations in consciousness that are not only discrepant but are also increasingly elaborated. This is the result of learning more about the world: The child has a richer store of past experiences and knowledge out of which increasingly elaborated mental meanings can be constructed. The more elements and relations between them in these representations, the more the child will need to know of the words and structures of language for their expression. Thus, more of the language, and more complex language, will be learned because it will be required for expressing increasingly elaborated mental meanings.

Certain meanings that one-year-olds express have a focus on only a single element, which the child has in mind while looking, showing, giving, or pointing. For example, when a child looks at the doll, and says “baby.” Still other mental meanings have a focus on an action of doing or going. Action-based meanings entail several elements in a representation, with different roles and different relationships between elements according to the participants and the goal of the action. For example, a child says “baby” as she turns to her mother for help in putting the doll into a truck, or says “up” as she climbs onto a chair.

Early words express these two kinds of meaning about equally as often—one with a focus on a single element and the other with a focus on multiple elements. If the Principle of Elaboration is correct, then development should occur in the expression of mental meanings with a focus on more than one object or person, and on different roles and relations between objects and persons. And this too is what we have found: Words that express dynamic,
action meanings increase in the second year and become far more frequent than words expressing stative meanings with a focus on only a single element. Single-words can go just so far in expressing the more complex meanings that are tied to action. Children will be pressed, therefore, to learn verbs of movement and location, and to begin combining verbs with nouns and pronouns for simple sentences. And, indeed, simple sentences typically begin after a spurt in vocabulary.

Children learn a simple sentence grammar for expressing a core of basic meanings. These conventional, linguistic meanings in simple sentences are of two kinds. Certain meanings come from the particular words that children use often in their early phrases, words like “more” and “no.” For example, “more juice” means recurrence because “more” means recurrence, and “no pocket in there” means nonexistence, because “no” means nonexistence.

More important, however, are the grammatical meanings in sentences with verbs: The little sentences children say, like “ride bike,” “I do it,” “this go there.” The meanings in most of a child’s early sentences depend on categories of verbs that name actions or states, and that license the thematic relations of nouns to verbs. Thematic relations are meaning relations between words that come from the connections between things that ‘go together’ in the themes of everyday, ordinary events—like putting the doll into a truck, or a ball rolling down a hill, or a child eating a cookie. The thematic categories in early child sentences, formed from these thematic relationships, include the inanimate objects which are affected by an action, the animate objects which act or are agents of an action, and the places to which, or along which, actors or objects move.

Children learn grammar by learning the verbs of the language and these thematic categories. The semantics of their simple sentences is in the thematic relations between verbs and nouns; the syntax of their simple sentences is in the formal configurations in which these thematic relations can appear in sentences. The categories of verbs in early sentences distinguish between verbs that
do and do not name a movement: action and state verbs, and whether the goal of the action, or the focus of the state, is the location of an object: locative verbs. In sum, the linguistic meanings invested in simple sentences come from verbs of action, state, and location. These categories of verbs, in turn, guide the subsequent acquisition of questions, verb inflections, and, eventually, complex sentences. 13

The point is that the meanings of words and sentences belong to the language: They come from the shared, agreed-upon meanings that words and sentences have for the persons who use them. In the beginning, the data for learning the meanings of language are in the circumstances of use in which children hear words and sentences. The meanings of early words like “cookie,” “gone,” “more,” and “Mama,” or little sentences like “eat meat,” or “throw ball,” can be gotten from the connections between the words and their corresponding events. Eventually, however, meaning in language becomes increasingly arbitrary and is no longer transparent in circumstances of use. Words like “citizen,” “honor,” and “trust” can only be learned indirectly, from the other words a child already knows. But that comes with the territory: Learning a language is learning the connections between sound and meaning which are conventional, shared, and public.

However, it does little good for a child to hear words and sentences spoken in relation to events, if the events themselves are not recognized and understood. Children learn the meanings of words and structures of the language only insofar as they learn about objects and events in the world. Early sentences are not just a random sampling of all the possible meanings and structures in language. Instead, children select from the meanings available to them in what people say, only those which connect with what they know about the world of objects, events, and relations. This selection goes hand in hand with the frequency of different words and sentence structures in the speech they hear. And, in turn, relative frequency of words and sentence structures in the speech adults address to a child is guided by what people talking to children believe they know about and can, therefore, understand.
Just as caregivers base what they say on what they think a child knows, we can use the meanings in a child’s language to form hypotheses about the child’s concepts. What are the concepts we can attribute to a child, based on the meanings in a child’s sentences? In fact, the continuity is fairly direct between meanings in early sentences and the cognitive, developmental history of the young language-learning child. In particular, the semantic roles in early sentences build on concepts of movement and location. The importance of movement and location has a long history in developmental psychology and has since been acknowledged in adult theoretical linguistics as well.

Jean Piaget, in his several infant books, stressed again and again that children learn about objects in the world by acting on them and perceiving them in different places. Infants learn to move objects from place to place and discover them anew in different places. More recent, experimental studies of infant perception use moving objects and the locations to which they move, for demonstrating what infants already know about objects even in the first few months of life. Through their perceptions and actions, infants come to form concepts of objects, movement, and location. And, correspondingly, movement and location have since come to figure prominently in adult linguistics, in theories of semantics as well as the structure and function of metaphor.

Efforts such as these to understand the cognitive underpinnings of language ordinarily focus on one or another version of the ‘mapping problem’: How children attach the forms of language to concepts of objects, events, and relations in the world. This focus on the mapping problem, and the cognitive developments which contribute to solving it, has, by and large, been product-oriented rather than process-oriented. The products emphasized in our research and theory are concepts, the forms of language, and connections between concepts and language forms. In fact, I think it’s fair to say that most language study, with adults as well as children, is not ordinarily concerned with process—with the on-line, moment-to-moment thinking that goes into actually saying and understanding words and sentences.
The underlying process for saying a sentence begins with a mental plan in consciousness and that mental plan entails several things: For one, constructing the representation or mental meaning that the sentence is about and, for another, accessing the words, grammar, and other linguistic procedures needed to generate the sentence. We can see the effects of this on-line processing in the variable length and completeness of a child’s sentences. For example, when a child has to access words that are new and infrequent, or add certain kinds of complexity like negation or prepositions to a sentence, the cognitive load of the sentence increases and something has to give. The result is that children say sentences like “Mommy read book” and “no read book” but they are not likely to say the complete sentence “Mommy no read book.” Negative sentences, or sentences with newly learned verbs, are shorter than are affirmative sentences with well-known verbs because negation and using new words in a sentence ‘costs’ the child extra cognitive effort. And the converse is also true: Using frequent, earlier-learned words and not adding complexity increases the probability that sentences will be longer and more complete.  

Thus, learning something of the words and grammar of a language doesn’t mean that access for expression is automatic; far from it. Rather, the probabilities of saying words and sentences, in one or another situation, are determined by the ability to construct a mental meaning; by how familiar and frequent the forms and meanings of language are; by support, or demands, from accompanying discourse; and other things besides.

At the same time that all this is going on for learning and saying words, thinking is needed as well for actions in other domains, such as emotional expression and play with objects. The cognitive resources of the young language-learning child need to be distributed among several developmental domains. This is apparent in the moment-to-moment contingencies between saying a word, and, for example, expressing emotion, or putting two objects together in play. For example, children simply do not say words, or express much emotion, in the moments when they are putting objects together in play. This is, in part, because the action of putting two objects together, to
construct a thematic configuration with them in play, also entails a mental plan. It is yet another public expression of a hidden representation. In sum, learning and using language share cognitive resources with other aspects of a child’s development. The distribution of these resources influences the probabilities associated with acts of expression, and influences how words and sentences come together with other actions that children do.

The ordinary thinking by which representations are constructed in consciousness are the unobservable facts in development. For language, the representations in these private, personal, mental meanings determine that knowledge of vocabulary, semantics, syntax, and procedures for discourse will be acquired. The focus in this perspective is squarely on the mind of the child, to be sure, but that is not to deny the critical part played in all of this by the social world. However, the public meanings constructed between persons absolutely depend on the private meanings constructed within persons. This fact was recognized by Fritz Heider, the founder of attribution theory in social psychology. He proposed that the psychology of persons guides the psychology of the interpersonal. Attribution theory made clear that the beliefs, feelings, and desires of individuals must be taken into account in the effort to understand and explain coordinated, social activity. Social contexts depend upon what is in the minds of the participants, and actions of expressing and interpreting are central in all social activity.

Mind and society are intimately connected, necessarily integrated, and fundamental in all that we do and all that we are. And, mind and society depend upon language for their integration. Just think for a minute what it would be like if we didn’t have language. If humans had never devised any language at all: We wouldn’t know much about the world; we wouldn’t know very much about one another; and we wouldn’t know very much about ourselves. Such a creature in a world without language is very different from a newborn infant without language today. Barring any interfering factors, most children will learn to make the connections between form and meaning to acquire a language. It will happen, in part, because persons in the world will help them
to learn language. It will happen also because they will want to learn a language. And it will happen because they will need to learn a language for the integration of mind and society.

A large part of why languages began in the first place was no doubt the need in a society for individuals to have this expressive power—to make external and public to other persons what is otherwise internal and private to ourselves: The unobservable goals and plans, beliefs and desires, and the feelings we have that determine our actions and interactions. But, while language can express many aspects of the objects, circumstances, and feelings in our mental meanings, language also has limitations with respect to how much and how well we can express what we mean. For example, words fail us altogether when our feelings are most intense and we fall silent, waiting for the feelings to abate and the words to come. And meanings which are particularly abstract and intense might be expressed only in private, by writing a poem, before being shared when someone else reads the poem. Poetry is a special case where the personal expression transcends the interpersonal.

So let me sum up at this point in my answer to the question: What is it that I do? I study the words and sentences of young children on the very threshold of language, as they struggle with words to make them their own in their efforts to express and articulate what they have in mind. The conventional, public, linguistic meanings they learn are in small words and sentences, with extensions limited to the persons, objects, and events of their first three years. They are learning more about themselves and more about the world and they are acquiring the power of expression: First, by saying a word or two, and then, a sentence or two, and, eventually perhaps, by writing a poem.

Because the words and grammar learned in the first three years are the currency for expression, they are the currency as well for a child's ensuing educational career. Schools use language; schools teach language. But how do schools let children exercise language for acts of expression and interpretation? We are all painfully aware of the violence in our city and in our schools. In a
very real sense, violence is an expressive act. But violence may be a default expression, when language has failed for expression, perhaps because the child and the school aren’t talking the same language either figuratively or literally.

The schools typically blame the child and, even more perniciously, the child’s language. But in studies that I and my students have done, we’ve come to know very poor children who may well become casualties of education: Poor white children in South Baltimore, in Peggy Miller’s dissertation, and poor, black children in New York, in Ira Blake’s dissertation \(^{21}\) and in my own studies. \(^{22}\) We can tell you that when these children were 2- and 3-year-olds, what they knew of the words and grammar of language was not different from the other children we’ve studied who are swimming in the main stream. But what might happen to them in the schools? Why might they become children whose language does not serve them well in the schools for expression and interpretation? I venture to suggest that a child might abandon efforts at language for expression, because of a failure in the schools to accept differences in language, and individual differences in how children use language for expression.

Which brings me to, Edward Lee Thorndike.

As most of you, I knew Thorndike as one of the founding greats of American psychology and of educational psychology, in particular. \(^ {23}\) I knew of his “Law of Effect” and the major influence it had on learning theory. I knew something of his work as a lexicographer because I grew up with his dictionaries. And something that most of you probably do not know (unless you’ve taken TK5024) is that he was even the author of a theory of language development; he called it the ‘babble-luck theory.’ I work in his building and now I sit in his chair, which is why you are all here today. I did not know very much else about Thorndike until I began doing some reading to prepare for this talk. Perhaps because I wasn’t looking for them, the echoes of Thorndike in my own work took me by surprise: In particular, his concern for individual differences, his passion for words and their meanings, his emphasis on the
probability that an act will be performed, and his insistence on observing what children do in order to understand what and how they learn.

The card catalog in the library took me to the farthest reaches of the Russell Hall basement, where many of the millions of words he wrote are kept. A slim volume he published in 1911 on *Individuality* was directed at the need in psychology, and in education, to acknowledge individual differences: "The early psychologists failed to see them precisely because the early psychology was partial and believed in a typical or pattern mind, after the fashion of which all minds were created, and from which they differed only by rare accidents. It studied 'the mind,' and neglected individual minds... [but] Individuality is already clearly manifest in children of school age... [and] Since human nature does not fall into sharply defined groups, we can literally never be sure of having a dozen pupils who need to be treated exactly alike."\(^24\)

He was a counter and lover of words and his preoccupation with words and their meanings came from the importance words have for learning, through "their connections with real things, qualities, acts, events, and relations. ... The[se] connections operate in a mental 'set' and under the influence of more or less of the hearer-reader's entire mental equipment."\(^25\) He was the original 'connectionist'; the title of an anthology of his papers published in 1949, the year that he died, is *Selected Writings from a Connectionist's Psychology*.\(^26\) He pointed to the strength or weight of these connections in terms of their potency, and the resulting probabilities with which they influence what animals, including children and other persons, actually do. The relative ease with which connections are formed depend upon three basic facts: the frequency with which an act is done; the attention the individual gives to the action; and, perhaps even more important, the intention in the act or what he called "the impulse to act." Thus, with his "Law of Exercise," he anticipated the epistemology of Jean Piaget, by stressing the importance of acting for learning.

And, he anticipated the importance of concepts: In his highly influential monograph *Animal Intelligence*, his Columbia University dissertation published in 1898, he wrote of "The Mental Fact in Association... what is in an animal's mind when, having profited by numerous experiences, he has formed
the association and does the proper act.” Thus, he began the quest for how cognitive concepts are formed “from direct connections to indirect connections in which a stock of isolated elements plays a part ... to discrimination, ... generalizations, ... abstractions.”27 The title of his biography, by Geraldine Joncich, is *The Sane Positivist*. The sanity in his positivism came from his worrying about what happened in the head of that chicken or monkey or child he studied, even though all he could really know of it was the end result, the behavior.

I will close with one last quote, this from Edward Lee Thorndike’s 1946 paper, “The Psychology of Semantics”28:

> “Meanings are in persons’ minds, not in words, and when we say that a word has or possesses such and such meanings, we are really saying that it has evoked, or caused, those meanings. Until it gets into a mind, a word is only puffs of air or streaks of ink.”

That sounds right to me.

I am gratified that some of what I have done in the last 25 years has continued in a small way what Edward Lee Thorndike began here almost 100 years ago. I am very pleased and proud to be the Thorndike professor at Teachers College. Thank you.
ENDNOTES


The details of these developments can be found in the studies reported in Bloom, L. (1991). *Language Development from Two to Three.*


Details of Edward Lee Thorndike's scientific contributions can be found in E. Hearst (Ed.), (1979). *The First Century of Experimental Psychology*. New York: John Wiley & Sons. The details of his career and personal life can be found in the thoroughly readable and enjoyable biography by Geraldine
Joncich, *The Sane Positivist*, published by Wesleyan University Press in 1968. Joncich’s chronicling of Thorndike’s Teachers College years affords a wonderful history of the College and those who created and sustained it in the first half of the century.


26 Thorndike, E. L. (1949). *Selected Writings from a Connectionist’s Psychology*.
