

Discovering Psychology: Updated Edition**06 Language Development**

- 1 01:29:48:07 >> ZIMBARDO: How do we learn to talk?
- 2 01:29:50:22 Are we born with some innate ability for acquiring language?
- 3 01:29:53:26 (*baby making sounds*) >> Okay.
- 4 01:29:56:19 >> ZIMBARDO: Or do we imitate our parents?
- 5 01:30:00:17 >> Did he fall down?
- 6 01:30:02:10 (*baby crying*) >> ZIMBARDO: How do we go from this to this without ever taking a lesson?
- 7 01:30:10:07 "Language Development," this time on *Discovering Psychology* .
- 8 01:30:45:13 >> Well, I'm sure I'll be talking to you in the next month.
- 9 01:30:49:03 >> ...do impeach your modesty too much.
- 10 01:30:52:01 >> Did you discuss the diversion with Director Casey?
- 11 01:30:55:09 >> L-M-N-O >> P.
- 12 01:30:58:28 >> Well it is a huge, huge contract.
- 13 01:31:01:04 And we have some major differences.
- 14 01:31:03:11 >> ...that paper there that I did with John Worley.
- 15 01:31:05:09 >> Did you?
- 16 01:31:06:03 >> Yeah.
- 17 01:31:06:27 >> ZIMBARDO: The essence of language is human interaction.
- 18 01:31:10:07 As speakers of language, we share our own personal reality with others.
- 19 01:31:16:06 As listeners, we share in their realities.
- 20 01:31:19:19 >> Didn't you look at my report card?

- 21 01:31:21:17 >> Yes, I did, I did.
- 22 01:31:22:24 >> The other one for Peter.
- 23 01:31:25:16 >> Is the other one for your sister, and the other one for your brother?
- 24 01:31:31:14 >> ZIMBARDO: By studying how children learn to use language in social communication, psychologists hope to discover truths about the human mind, and about society and culture as well.
- 25 01:31:43:16 They seek to understand how this special ability has evolved in our species.
- 26 01:31:50:16 >> Hi.
- 27 01:31:51:22 >> Hi.
- 28 01:31:52:20 >> Cat.
- 29 01:31:53:19 >> Can you say bye bye?
- 30 01:31:54:21 >> Bye bye.
- 31 01:31:55:20 >> Bye bye.
- 32 01:31:56:26 >> ZIMBARDO: Are we born with a built-in readiness to use language?
- 33 01:32:00:23 How do we learn how to use words and structure sentences in coherent ways?
- 34 01:32:05:06 What role do parents play in teaching children how to communicate?
- 35 01:32:10:05 (*baby making sounds*) What makes Baby talk?
- 36 01:32:14:18 >> What's this?
- 37 01:32:16:17 >> ZIMBARDO: As soon as a baby is born, an amazing process begins, a process which we all take for granted -- the development of communication and language.
- 38 01:32:25:26 With amazing speed, children go from making their first sounds at birth to speaking their first words sometime around their first birthday.
- 39 01:32:33:19 And by the time they start school, children are speaking

- almost like adults, with a vocabulary of over 14,000 words.
- 40 01:32:41:20 But how do they do it?
- 41 01:32:44:14 What is the process by which language is acquired?
- 42 01:32:49:19 How much do we owe to nature, our genetic inheritance, and how much do we owe to nurture, the environment in which we learn?
- 43 01:32:58:22 Until recently, it was assumed that the process was all nurture -- that children learned language by imitating others, mainly their parents; that language was a learned skill.
- 44 01:33:12:15 >> Thank you.
- 45 01:33:14:08 >> ZIMBARDO: But in 1957, MIT linguist Noam Chomsky revolutionized the study of language by questioning this assumption.
- 46 01:33:22:26 >> We look at the very difficult empirical problem of explaining how it is that a young child with very limited information available to him acquires a system of language and knowledge of language that enables him to produce and understand these...
- 47 01:33:44:07 this vast number of new sentences.
- 48 01:33:47:28 >> Yellow.
- 49 01:33:48:27 >> Look at the big girl fly.
- 50 01:33:50:14 >> ZIMBARDO: Jean Berko-Gleason, a psychologist at Boston University, is an expert in language development.
- 51 01:33:57:08 >> Chomsky and his followers believe that human beings come into the world with what they call a language acquisition device, which is an actual neurological structure in the brain.
- 52 01:34:11:06 They haven't specified where it is, but they tell us that the language acquisition device makes it possible for children to learn any language anywhere, and that only human beings have the language acquisition device, and that the language acquisition device makes it possible for infants and for young children acquiring language to know what the deep structure or the meaning is of language, because the principles are innate.

- 53 01:34:37:08 (*baby making sounds*) >> ZIMBARDO: Ideas about the biological capacity for language sparked the creation of an entirely new field called developmental psycholinguistics.
- 54 01:34:50:16 But many psychologists believe that social interaction between child and parent also has a major role to play in the development of language.
- 55 01:35:00:17 Social relationships may be necessary to activate Chomsky's language acquisition device.
- 56 01:35:07:11 Research has shown that very young babies prefer human voices to other sounds, and human faces to other images.
- 57 01:35:17:04 Even at only a few weeks of age, they get upset when their parent's voice is paired with the face of a stranger.
- 58 01:35:24:03 >> Can you look at your mom?
- 59 01:35:25:23 Want to look inside?
- 60 01:35:27:04 Okay, you open it up for me.
- 61 01:35:30:04 >> ZIMBARDO: The role of social interaction in language development has been a major focus of Berko-Gleason's work.
- 62 01:35:36:04 >> Who's that?
- 63 01:35:38:20 That's the mommy.
- 64 01:35:40:13 >> Mommy.
- 65 01:35:42:02 >> We know that human babies are born with special mechanisms in their brain, or special parts of their brain, that are dedicated to the development of language.
- 66 01:35:50:21 That they have special capacities that only humans seem to have.
- 67 01:35:54:24 But having a special neurological capacity does not guarantee the acquisition of language.
- 68 01:36:00:17 In order for language to develop, babies have to interact with other human beings.
- 69 01:36:05:01 They have to hear language spoken to them.
- 70 01:36:07:14 They can't just learn language hearing it spoken around

- them, or hear language spoken on television and acquire it.
- 71 01:36:14:11 They have to interact with other people.
- 72 01:36:17:05 Social interaction really is at the basis of language development in children.
- 73 01:36:21:22 >> Come on.
- 74 01:36:23:14 Patty-cake, patty-cake.
- 75 01:36:26:11 >> Babies typically learn language from what's going on around them.
- 76 01:36:30:29 They don't learn language abstractly.
- 77 01:36:33:13 That is, a baby will hear language embedded in context and understand what the intention of the speakers are partly because the baby already knows what's happening.
- 78 01:36:42:07 In other words, the mother holds up a bottle and says, "Here's your milk."
- 79 01:36:46:12 The baby understands to begin with that the mother is talking about the milk, because she's holding the milk up and showing it to the baby.
- 80 01:36:54:00 The baby then begins to be able to decode the intention of the speakers because the intentions are embedded in the context of what's going on in the baby's life.
- 81 01:37:04:22 >> Roll it.
- 82 01:37:06:23 That's right.
- 83 01:37:08:18 Patty-cake, patty-cake.
- 84 01:37:10:20 >> If you watch mothers and little babies together, you see that mothers do some very typical things that help the baby to acquire language.
- 85 01:37:18:12 In English-speaking households, for instance, babies are spoken to by parents or by mothers much more slowly than they would speak to other people.
- 86 01:37:28:09 Parents enunciate very clearly when they talk to little babies.
- 87 01:37:32:05 Sentences are short and simple.

- 88 01:37:34:13 They're full of repetition.
- 89 01:37:35:26 People say, "See the book?"
- 90 01:37:37:01 That's the book.
- 91 01:37:38:10 It's a nice book."
- 92 01:37:39:22 They make it much easier for the baby to decode what the language is than if the baby simply had to listen to adults talking about politics at the dinner table.
- 93 01:37:47:29 >> Doggie.
- 94 01:37:49:09 >> Puppy.
- 95 01:37:50:10 And the baby.
- 96 01:37:51:15 And the baby.
- 97 01:37:52:19 >> Baby.
- 98 01:37:54:04 >> This was a perfect example of a mother talking to a young child.
- 99 01:37:58:10 For instance, she's talking in a much higher voice than she talks to other people.
- 100 01:38:02:11 She's talking slowly.
- 101 01:38:03:24 She's talking about the things that the baby is looking at right at this moment.
- 102 01:38:08:16 She's doing a really interesting thing, which is she's imputing meaning to the baby.
- 103 01:38:13:09 For instance, the baby points up in the air and says "baby" and the mother's looking around saying "Where is the baby?" as if the baby is really talking about a baby.
- 104 01:38:21:26 As the mother is really trying to make clear to the baby that language has a meaning.
- 105 01:38:26:06 If you say something, people are going to try to interpret it.
- 106 01:38:28:24 >> Mommy.
- 107 01:38:29:22 >> The mommy.

- 108 01:38:30:19 >> Ah.
- 109 01:38:31:19 >> Oh.
- 110 01:38:33:11 >> ZIMBARDO: So both nature and nurture are at work in the development of language competence.
- 111 01:38:39:09 But there's also another critical process at work here.
- 112 01:38:42:05 Research has shown that every child in every culture goes through some of the same sequences, the same stages of speaking its native language.
- 113 01:38:52:08 This universal process suggests that there is also some form of biological maturation at work.
- 114 01:39:00:18 As in walking or eating, what a child can do with language at any given time depends on a developmental timetable.
- 115 01:39:09:09 This timetable regulates the maturing of the brain and certain muscles in the mouth and throat that are needed for communication.
- 116 01:39:20:16 The first stage in acquiring language may be crying.
- 117 01:39:23:28 It's our first act of communication.
- 118 01:39:27:01 Babies cry because they're hungry, or tired, or cold, or in pain.
- 119 01:39:32:22 And the sound they produce usually provokes the desired social response.
- 120 01:39:38:26 Other comparable sounds are coos and gurgles, which begin around the second month.
- 121 01:39:46:17 The second stage of language development is the babbling of syllable-like sounds.
- 122 01:39:57:19 Babbling is important, because it allows a baby to practice making sounds, to group them together, and to vary them by adding intonations.
- 123 01:40:06:16 At this point, an infant can distinguish sounds of any language and can reproduce them.
- 124 01:40:12:14 This ability is called universal adaptability.
- 125 01:40:17:13 But by the time a child is one year old, it has lost this

- flexibility.
- 126 01:40:22:29 A child becomes a specialist in its own native language, distinguishing and reproducing only those sounds which are common to that language.
- 127 01:40:35:21 Children's first conversations, however, are wordless.
- 128 01:40:40:06 They interact with their parents by alternating and coordinating sounds and intonations.
- 129 01:40:48:04 And in turn, parents use melodic intonations usually reserved for soothing, arousing, or warning the baby -- intonations that are absent from ordinary adult conversation.
- 130 01:41:01:04 >> Are you being silly?
- 131 01:41:03:00 >> ZIMBARDO: This special kind of speech is known as motherese, or parentese.
- 132 01:41:08:16 >> Do you have the feeling that she's communicating with you now already?
- 133 01:41:12:16 >> All the time.
- 134 01:41:13:15 >> And she's paying attention to you, really?
- 135 01:41:15:12 >> Yes.
- 136 01:41:16:06 >> And that she's listening to your voice?
- 137 01:41:17:24 >> ZIMBARDO: Ann Fernald of Stanford University has studied this phenomenon in many cultures around the world.
- 138 01:41:23:10 >> Long before infants are speaking a language or understanding a language, they're communicating very actively with their parents.
- 139 01:41:30:29 They're understanding their parents.
- 140 01:41:34:21 In our research, we're very interested in how this pre- verbal communication gets established.
- 141 01:41:39:17 And what we're doing is recording in cultures around the world the kinds of daily episodes that are very common in the life of an infant.
- 142 01:41:46:13 >> Let's see if we can get a big smile now.

- 143 01:41:50:14 (*speaking french*) >> So far we've looked at a number of European languages: French, Italian, German, British English, as well as American English.
- 144 01:42:07:16 And we've also looked at a Nigerian language called Hausa, as well as at Japanese.
- 145 01:42:12:19 What we're finding is that the melodies of mothers' and fathers' speech in these situations are very similar, and we're hypothesizing that it's...
- 146 01:42:22:07 the melody is a message.
- 147 01:42:24:01 That the musical contour of the voice is carrying the meaning to the infant long before language is doing the work.
- 148 01:42:31:03 >> Is that my Becky?
- 149 01:42:34:01 >> And babies are not yet attending to words or to linguistic units of information, but they're reading something about the mother's emotions, her intentions, her feelings, through the kinds of melodies that she uses.
- 150 01:42:47:03 >> Oh, boy.
- 151 01:42:48:03 Can we have a smile from my girl?
- 152 01:42:52:07 >> This device here is an oscilloscope hooked up to a pitch extractor, which will allow us to look at the melodies or the intonation of pitch contours that are used in the mother's voice when she's speaking to a pre-verbal child.
- 153 01:43:05:26 Let me give you a couple of examples.
- 154 01:43:08:23 In American English, if you wanted to praise the baby, to let the baby know that you're happy about something that he or she's done, you'd say "Good boy.
- 155 01:43:15:21 Yeah, good."
- 156 01:43:17:07 Up and down.
- 157 01:43:19:03 And this is the typical pattern we're finding.
- 158 01:43:21:19 So you see, the pitch starts low, goes up to a crescendo, and down again.
- 159 01:43:25:02 In Italian, we find a very similar melody.

- 160 01:43:27:22 *Bravissima, bravissima* .
- 161 01:43:30:11 In German, you'd say, (*speaking german*) Again we see here this rise- fall pattern.
- 162 01:43:39:09 The melody that goes up and then down again, up and down again, reaching a very high pitch peak at the top.
- 163 01:43:44:21 We're finding this rise-fall pattern in every European language we've looked at, and also in our recent recordings in Japanese.
- 164 01:43:56:04 Now, another thing that frequently happens in a baby's life is that the mother says "No."
- 165 01:44:00:04 The child's about to head for a light or an electrical outlet where's there some danger possible, or to head over the stairs.
- 166 01:44:07:09 And so the mother will say, "No.
- 167 01:44:08:18 No, stop that.
- 168 01:44:09:23 No," using a short, sharp kind of vocalization that's much lower in frequency.
- 169 01:44:15:06 In French it would be (*speaking french*) Again, short and sharp and staccato in quality.
- 170 01:44:21:15 In German, the same sort of things.
- 171 01:44:23:21 (*speaking german*) Short and sharp and not smooth the way the praise contour was.
- 172 01:44:30:06 Again here we're finding universal melodies in Japanese as well as the European languages in the kinds of intonation of pitch contours that the mothers are using to convey this message to a baby who does not yet understand the words.
- 173 01:44:43:05 >> That's right.
- 174 01:44:44:13 Just calm her down.
- 175 01:44:45:20 >> It's very important that we go beyond this to look at other kinds of cultures with very different attitudes toward babies, toward the expression of emotion, in order to really test our hypothesis about universality.
- 176 01:44:57:12 >> (*speaking italian*) >> ZIMBARDO: After children have

practiced the elemental aspects of speech, they're ready for the third stage of language development, which comes toward the end of the first year: the one-word stage.

- 177 01:45:18:05 >> Hi.
- 178 01:45:19:22 >> ZIMBARDO: The earliest words are part of a behavioral ritual, such as saying "hi" or "bye."
- 179 01:45:25:18 The next set of words are those that express relationships of various kinds.
- 180 01:45:31:15 First come relationships between objects and actions, such as saying "ball" to mean throw it or get it.
- 181 01:45:40:03 Then comes relationships between objects, such as saying "fishy" when pointing to an empty tank where fish once swam.
- 182 01:45:50:07 And finally come words that are meant to affect events, such as "again" or "more" when a child wants another push.
- 183 01:45:56:22 >> Again.
- 184 01:45:59:13 >> ZIMBARDO: What is this one, what is that?
- 185 01:46:01:26 >> That's an airplane.
- 186 01:46:02:27 >> ZIMBARDO: That's an airplane?
- 187 01:46:04:02 (*makes airplane sounds*) Great.
- 188 01:46:08:29 When children learn to use words like "ball" or "fishy" or "again," they're really learning how to use symbols.
- 189 01:46:15:21 Words, after all, stand for something else -- the objects or actions being described.
- 190 01:46:20:19 And symbols can only be used with any degree of proficiency when a number of mental abilities have matured sufficiently, sometime in the second year of life.
- 191 01:46:32:28 To use words as symbols, the child's memory must be able to store images or memory codes of events and objects, and be able to retrieve them with the appropriate words that symbolize them.
- 192 01:46:47:26 At the same time, the child must also understand how to manipulate tools to make things happen.

- 193 01:46:55:11 These tools can be people as well as objects.
- 194 01:46:58:23 >> Pizza, pizza, pizza.
- 195 01:47:02:05 >> ZIMBARDO: In fact, parents are the most significant tool the child learns to manipulate to achieve its goals, and language is the most effective way to manipulate them.
- 196 01:47:12:24 >> There it is.
- 197 01:47:18:06 >> ZIMBARDO: Next comes the two- word stage.
- 198 01:47:22:07 >> Get out.
- 199 01:47:24:07 >> ZIMBARDO: No matter what their native language, all normal children around the age of a year and a half begin to use two-word phrases to express a number of common functions: locating and naming things, demanding and desiring things, describing actions and situations, questioning, modifying, and qualifying.
- 200 01:47:46:06 >> A ducky.
- 201 01:47:47:15 >> A ducky.
- 202 01:47:48:22 >> Quack, quack.
- 203 01:47:49:28 >> ZIMBARDO: Finally, in the last formal stage of this early development, the telegraphic stage, two-year-olds form simple sentences, mostly of nouns and verbs.
- 204 01:48:00:12 >> Play with Bess's Play-Doh.
- 205 01:48:02:18 That's Bess's Pla-Doh.
- 206 01:48:05:07 >> ZIMBARDO: The sentences lack plurals, articles, and tenses, but they do maintain the typical word order of actor first, action second, and object last.
- 207 01:48:15:18 >> I'm making him fat.
- 208 01:48:17:02 I'm making him fat.
- 209 01:48:19:15 >> I do one, too.
- 210 01:48:30:20 >> ZIMBARDO: After the age of two, as a child's mental abilities develop, early restrictions as to how much information he or she can get into one coherent statement are lifted.

- 211 01:48:40:15 By the age of four or five, the child is using language in much the same way as an adult does.
- 212 01:48:45:15 Its biggest task during these early years has been to discover the underlying regularities in the way adults use language -- the rules of grammar and syntax.
- 213 01:48:57:07 Dan Slobin is a psycholinguist at the University of California at Berkeley.
- 214 01:49:03:10 Slobin has studied how all children acquire a system of grammatical rules on their own, without imitating the people around them.
- 215 01:49:12:27 >> For the past 20 years or so we've been sending teams of researchers out all over the world to jungles, cities, villages, recording speech of little children to see how it is that children begin to acquire their native languages.
- 216 01:49:28:05 And we've found by now that regardless of what kind of language it is, what kind of social setting the child is learning under, two-year-olds are beginning to apply the grammatical structures of the languages that they hear.
- 217 01:49:39:19 >> And where do you go to school?
- 218 01:49:41:29 >> I like... I go in art school.
- 219 01:49:44:13 >> And what do you do in art school?
- 220 01:49:47:02 >> I paint.
- 221 01:49:48:18 >> For example, in English, we follow very strict word order.
- 222 01:49:51:25 We always first talk about what we're going to do, and then what we're going to do it to.
- 223 01:49:56:15 So we say, "Give me a cookie.
- 224 01:49:58:11 Drink the milk.
- 225 01:49:59:23 Show me your hand."
- 226 01:50:01:14 The first word is always the word about the action.
- 227 01:50:03:23 The second word is the word about the object.
- 228 01:50:06:14 Now, that division between action and object word seems to be quite universal in languages.

- 229 01:50:10:07 And children pick that up quite early.
- 230 01:50:12:23 In English they also quite early in their own two-word speech pick up that word order pattern.
- 231 01:50:16:23 So even if they're saying things that are quite short and simple, English children will say things like "I want cookie."
- 232 01:50:25:28 They won't say "Cookie I want."
- 233 01:50:27:12 They'll say, "More milk," not "Milk more."
- 234 01:50:29:17 They'll first talk about the action and then they'll talk about the object.
- 235 01:50:32:09 So they're already speaking grammatically.
- 236 01:50:34:09 Now, if you were to ask your ordinary parent in the street how their child learned to talk, they would probably say, "He just imitated, what's the problem?" Well, one problem is if you listen to what children say, they often say things that they couldn't have imitated.
- 237 01:50:46:09 So the children might say... a child might say something like "I broke the glass," or "I falled down."
- 238 01:50:56:22 Now the adults don't say things like "broke" and "falled."
- 239 01:50:59:26 But the child does.
- 240 01:51:01:14 And if you hear a child saying things like "broke" and "falled" this means that the child has worked out the pattern for forming the past tense in English.
- 241 01:51:11:00 English doesn't always follow that pattern, but the child has decided that once you find a pattern it's neat to stick with it, so that even if one doesn't say "broke" or "falled," and a child doesn't hear it, for a long time the child will use this pattern.
- 242 01:51:28:06 So for a long period, for about the ages of three to five, children are very persistent in trying to build a regular kind of grammar.
- 243 01:51:37:19 We see this across all languages -- wherever languages show bits that are irregular, children try to make them fit their own regular pattern.

- 244 01:51:44:15 They have an uncanny sense of how a grammar should be structured.
- 245 01:51:49:06 >> Goalie, forward, and halfback.
- 246 01:51:57:02 >> What... what's the name of your team?
- 247 01:52:02:16 >> ZIMBARDO: So now we're six years old, and we've acquired a highly sophisticated language to help us navigate through all the complex environments in which we have to function.
- 248 01:52:09:22 But what happens when we bump into other people who are also navigating their way through social situations?
- 249 01:52:15:08 How do we coordinate our intentions with theirs to avoid conflicts and to gain the ends we both want?
- 250 01:52:21:17 How do we learn the rules of conversation?
- 251 01:52:25:13 >> I have a Julie sister.
- 252 01:52:28:11 >> No, you don't.
- 253 01:52:31:04 >> I have.
- 254 01:52:34:02 My... my cousins... my cousin, John and my cousins...
- 255 01:52:39:20 >> Goggle?
- 256 01:52:42:05 >> Goggle.
- 257 01:52:45:00 (*laughing*) >> ZIMBARDO: According to psycholinguists, most dialogues are highly structured forms of social communication, and they include three essential features that must be understood and shared by both parties.
- 258 01:52:58:26 The first is opening conversations in ways that signal the willingness to converse.
- 259 01:53:05:18 The second is understanding the unwritten rules for taking turns.
- 260 01:53:11:03 And the third is closing conversations by mutual agreement.
- 261 01:53:16:16 When these seemingly simple acts are not carried out properly, the result is confusion and even distress.
- 262 01:53:28:09 >> Is the duck going to a city?

- 263 01:53:30:02 >> Yes.
- 264 01:53:31:07 >> ZIMBARDO: Parents teach their children the rules of dialogue in a number of ways.
- 265 01:53:34:28 They engage them in conversations, they ask questions and seek replies, they teach them what to say after someone has said or done something, such as "Thank you" or "Yes, please."
- 266 01:53:47:01 >> Thank you.
- 267 01:53:48:10 >> Thank you.
- 268 01:53:49:21 >> Please, please, please.
- 269 01:53:50:29 >> Please, please, please.
- 270 01:53:52:19 >> Thank you, thank you, thank you.
- 271 01:53:54:20 >> Thank you, thank you, thank...
- 272 01:53:56:25 >> "Henry was too hungry to resist."
- 273 01:53:59:07 >> No hungry.
- 274 01:54:00:26 >> ZIMBARDO: These early social activities not only help children to use language to gain their own ends, but also enable them to assist others in achieving their goals.
- 275 01:54:08:17 >> What is it?
- 276 01:54:09:19 >> What is what?
- 277 01:54:10:20 >> That.
- 278 01:54:11:26 >> That's Henry talking to the Banana Lady.
- 279 01:54:17:02 >> Hannah, your food's ready.
- 280 01:54:21:15 >> ZIMBARDO: Without a stable structure of social-verbal interaction, they wouldn't be able to use language in ways that are conversationally correct.
- 281 01:54:30:06 Children have to be taught how to collaborate with other conversationalists.
- 282 01:54:35:27 >> Do you want some pancakes?

- 283 01:54:37:18 >> Sure.
- 284 01:54:39:29 >> Well, I'm sure I'll...
- 285 01:54:41:07 >> ZIMBARDO: What would life be like without language?
- 286 01:54:44:12 It would be life without access to the world of ideas, without any connection to the hearts and minds of other people.
- 287 01:54:53:06 Language is fundamental to our very humanity.
- 288 01:54:59:02 But before we communicate our sense of the world, we have to perceive it.
- 289 01:55:04:01 In our next program, we're going to focus on perception as the critical link between the solitary isolated organism and everything else that exists.
- 290 01:55:12:16 Perception enables us to experience the universe as it is, and to redesign it as it might be, not to mention persuading others to see it our way.
- 291 01:55:22:21 The many worlds of perception, next time.
- 292 01:55:25:05 I'm Philip Zimbardo.
- 293 01:55:31:14 [Captioned by The Caption Center WGBH Educational Foundation]
- 294 01:56:36:22 >> *Funding for this program is provided by Annenberg/CPB to advance excellent teaching .*

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- 1 01:29:48:07 >> ZIMBARDO: How do we learn to talk?
- 2 01:29:50:22 Are we born with some innate ability for acquiring language?
- 3 01:29:53:26 (*baby making sounds*) >> Okay.
- 4 01:29:56:19 >> ZIMBARDO: Or do we imitate our parents?
- 5 01:30:00:17 >> Did he fall down?
- 6 01:30:02:10 (*baby crying*) >> ZIMBARDO: How do we go from this to

this without ever taking a lesson?

- 7 01:30:10:07 "Language Development," this time on *Discovering Psychology* .
- 8 01:30:45:13 >> Well, I'm sure I'll be talking to you in the next month.
- 9 01:30:49:03 >> ...do impeach your modesty too much.
- 10 01:30:52:01 >> Did you discuss the diversion with Director Casey?
- 11 01:30:55:09 >> L-M-N-O >> P.
- 12 01:30:58:28 >> Well it is a huge, huge contract.
- 13 01:31:01:04 And we have some major differences.
- 14 01:31:03:11 >> ...that paper there that I did with John Worley.
- 15 01:31:05:09 >> Did you?
- 16 01:31:06:03 >> Yeah.
- 17 01:31:06:27 >> ZIMBARDO: The essence of language is human interaction.
- 18 01:31:10:07 As speakers of language, we share our own personal reality with others.
- 19 01:31:16:06 As listeners, we share in their realities.
- 20 01:31:19:19 >> Didn't you look at my report card?
- 21 01:31:21:17 >> Yes, I did, I did.
- 22 01:31:22:24 >> The other one for Peter.
- 23 01:31:25:16 >> Is the other one for your sister, and the other one for your brother?
- 24 01:31:31:14 >> ZIMBARDO: By studying how children learn to use language in social communication, psychologists hope to discover truths about the human mind, and about society and culture as well.
- 25 01:31:43:16 They seek to understand how this special ability has evolved in our species.
- 26 01:31:50:16 >> Hi.

- 27 01:31:51:22 >> Hi.
- 28 01:31:52:20 >> Cat.
- 29 01:31:53:19 >> Can you say bye bye?
- 30 01:31:54:21 >> Bye bye.
- 31 01:31:55:20 >> Bye bye.
- 32 01:31:56:26 >> ZIMBARDO: Are we born with a built-in readiness to use language?
- 33 01:32:00:23 How do we learn how to use words and structure sentences in coherent ways?
- 34 01:32:05:06 What role do parents play in teaching children how to communicate?
- 35 01:32:10:05 (*baby making sounds*) What makes Baby talk?
- 36 01:32:14:18 >> What's this?
- 37 01:32:16:17 >> ZIMBARDO: As soon as a baby is born, an amazing process begins, a process which we all take for granted -- the development of communication and language.
- 38 01:32:25:26 With amazing speed, children go from making their first sounds at birth to speaking their first words sometime around their first birthday.
- 39 01:32:33:19 And by the time they start school, children are speaking almost like adults, with a vocabulary of over 14,000 words.
- 40 01:32:41:20 But how do they do it?
- 41 01:32:44:14 What is the process by which language is acquired?
- 42 01:32:49:19 How much do we owe to nature, our genetic inheritance, and how much do we owe to nurture, the environment in which we learn?
- 43 01:32:58:22 Until recently, it was assumed that the process was all nurture -- that children learned language by imitating others, mainly their parents; that language was a learned skill.
- 44 01:33:12:15 >> Thank you.
- 45 01:33:14:08 >> ZIMBARDO: But in 1957, MIT linguist Noam Chomsky

- revolutionized the study of language by questioning this assumption.
- 46 01:33:22:26 >> We look at the very difficult empirical problem of explaining how it is that a young child with very limited information available to him acquires a system of language and knowledge of language that enables him to produce and understand these...
- 47 01:33:44:07 this vast number of new sentences.
- 48 01:33:47:28 >> Yellow.
- 49 01:33:48:27 >> Look at the big girl fly.
- 50 01:33:50:14 >> ZIMBARDO: Jean Berko-Gleason, a psychologist at Boston University, is an expert in language development.
- 51 01:33:57:08 >> Chomsky and his followers believe that human beings come into the world with what they call a language acquisition device, which is an actual neurological structure in the brain.
- 52 01:34:11:06 They haven't specified where it is, but they tell us that the language acquisition device makes it possible for children to learn any language anywhere, and that only human beings have the language acquisition device, and that the language acquisition device makes it possible for infants and for young children acquiring language to know what the deep structure or the meaning is of language, because the principles are innate.
- 53 01:34:37:08 (*baby making sounds*) >> ZIMBARDO: Ideas about the biological capacity for language sparked the creation of an entirely new field called developmental psycholinguistics.
- 54 01:34:50:16 But many psychologists believe that social interaction between child and parent also has a major role to play in the development of language.
- 55 01:35:00:17 Social relationships may be necessary to activate Chomsky's language acquisition device.
- 56 01:35:07:11 Research has shown that very young babies prefer human voices to other sounds, and human faces to other images.
- 57 01:35:17:04 Even at only a few weeks of age, they get upset when their parent's voice is paired with the face of a stranger.

- 58 01:35:24:03 >> Can you look at your mom?
- 59 01:35:25:23 Want to look inside?
- 60 01:35:27:04 Okay, you open it up for me.
- 61 01:35:30:04 >> ZIMBARDO: The role of social interaction in language development has been a major focus of Berko-Gleason's work.
- 62 01:35:36:04 >> Who's that?
- 63 01:35:38:20 That's the mommy.
- 64 01:35:40:13 >> Mommy.
- 65 01:35:42:02 >> We know that human babies are born with special mechanisms in their brain, or special parts of their brain, that are dedicated to the development of language.
- 66 01:35:50:21 That they have special capacities that only humans seem to have.
- 67 01:35:54:24 But having a special neurological capacity does not guarantee the acquisition of language.
- 68 01:36:00:17 In order for language to develop, babies have to interact with other human beings.
- 69 01:36:05:01 They have to hear language spoken to them.
- 70 01:36:07:14 They can't just learn language hearing it spoken around them, or hear language spoken on television and acquire it.
- 71 01:36:14:11 They have to interact with other people.
- 72 01:36:17:05 Social interaction really is at the basis of language development in children.
- 73 01:36:21:22 >> Come on.
- 74 01:36:23:14 Patty-cake, patty-cake.
- 75 01:36:26:11 >> Babies typically learn language from what's going on around them.
- 76 01:36:30:29 They don't learn language abstractly.
- 77 01:36:33:13 That is, a baby will hear language embedded in context and

- understand what the intention of the speakers are partly because the baby already knows what's happening.
- 78 01:36:42:07 In other words, the mother holds up a bottle and says, "Here's your milk."
- 79 01:36:46:12 The baby understands to begin with that the mother is talking about the milk, because she's holding the milk up and showing it to the baby.
- 80 01:36:54:00 The baby then begins to be able to decode the intention of the speakers because the intentions are embedded in the context of what's going on in the baby's life.
- 81 01:37:04:22 >> Roll it.
- 82 01:37:06:23 That's right.
- 83 01:37:08:18 Patty-cake, patty-cake.
- 84 01:37:10:20 >> If you watch mothers and little babies together, you see that mothers do some very typical things that help the baby to acquire language.
- 85 01:37:18:12 In English-speaking households, for instance, babies are spoken to by parents or by mothers much more slowly than they would speak to other people.
- 86 01:37:28:09 Parents enunciate very clearly when they talk to little babies.
- 87 01:37:32:05 Sentences are short and simple.
- 88 01:37:34:13 They're full of repetition.
- 89 01:37:35:26 People say, "See the book?"
- 90 01:37:37:01 That's the book.
- 91 01:37:38:10 It's a nice book."
- 92 01:37:39:22 They make it much easier for the baby to decode what the language is than if the baby simply had to listen to adults talking about politics at the dinner table.
- 93 01:37:47:29 >> Doggie.
- 94 01:37:49:09 >> Puppy.
- 95 01:37:50:10 And the baby.

- 96 01:37:51:15 And the baby.
- 97 01:37:52:19 >> Baby.
- 98 01:37:54:04 >> This was a perfect example of a mother talking to a young child.
- 99 01:37:58:10 For instance, she's talking in a much higher voice than she talks to other people.
- 100 01:38:02:11 She's talking slowly.
- 101 01:38:03:24 She's talking about the things that the baby is looking at right at this moment.
- 102 01:38:08:16 She's doing a really interesting thing, which is she's imputing meaning to the baby.
- 103 01:38:13:09 For instance, the baby points up in the air and says "baby" and the mother's looking around saying "Where is the baby?" as if the baby is really talking about a baby.
- 104 01:38:21:26 As the mother is really trying to make clear to the baby that language has a meaning.
- 105 01:38:26:06 If you say something, people are going to try to interpret it.
- 106 01:38:28:24 >> Mommy.
- 107 01:38:29:22 >> The mommy.
- 108 01:38:30:19 >> Ah.
- 109 01:38:31:19 >> Oh.
- 110 01:38:33:11 >> ZIMBARDO: So both nature and nurture are at work in the development of language competence.
- 111 01:38:39:09 But there's also another critical process at work here.
- 112 01:38:42:05 Research has shown that every child in every culture goes through some of the same sequences, the same stages of speaking its native language.
- 113 01:38:52:08 This universal process suggests that there is also some form of biological maturation at work.
- 114 01:39:00:18 As in walking or eating, what a child can do with language at any given time depends on a developmental timetable.

- 115 01:39:09:09 This timetable regulates the maturing of the brain and certain muscles in the mouth and throat that are needed for communication.
- 116 01:39:20:16 The first stage in acquiring language may be crying.
- 117 01:39:23:28 It's our first act of communication.
- 118 01:39:27:01 Babies cry because they're hungry, or tired, or cold, or in pain.
- 119 01:39:32:22 And the sound they produce usually provokes the desired social response.
- 120 01:39:38:26 Other comparable sounds are coos and gurgles, which begin around the second month.
- 121 01:39:46:17 The second stage of language development is the babbling of syllable-like sounds.
- 122 01:39:57:19 Babbling is important, because it allows a baby to practice making sounds, to group them together, and to vary them by adding intonations.
- 123 01:40:06:16 At this point, an infant can distinguish sounds of any language and can reproduce them.
- 124 01:40:12:14 This ability is called universal adaptability.
- 125 01:40:17:13 But by the time a child is one year old, it has lost this flexibility.
- 126 01:40:22:29 A child becomes a specialist in its own native language, distinguishing and reproducing only those sounds which are common to that language.
- 127 01:40:35:21 Children's first conversations, however, are wordless.
- 128 01:40:40:06 They interact with their parents by alternating and coordinating sounds and intonations.
- 129 01:40:48:04 And in turn, parents use melodic intonations usually reserved for soothing, arousing, or warning the baby -- intonations that are absent from ordinary adult conversation.
- 130 01:41:01:04 >> Are you being silly?
- 131 01:41:03:00 >> ZIMBARDO: This special kind of speech is known as motherese, or parentese.

- 132 01:41:08:16 >> Do you have the feeling that she's communicating with you now already?
- 133 01:41:12:16 >> All the time.
- 134 01:41:13:15 >> And she's paying attention to you, really?
- 135 01:41:15:12 >> Yes.
- 136 01:41:16:06 >> And that she's listening to your voice?
- 137 01:41:17:24 >> ZIMBARDO: Ann Fernald of Stanford University has studied this phenomenon in many cultures around the world.
- 138 01:41:23:10 >> Long before infants are speaking a language or understanding a language, they're communicating very actively with their parents.
- 139 01:41:30:29 They're understanding their parents.
- 140 01:41:34:21 In our research, we're very interested in how this pre- verbal communication gets established.
- 141 01:41:39:17 And what we're doing is recording in cultures around the world the kinds of daily episodes that are very common in the life of an infant.
- 142 01:41:46:13 >> Let's see if we can get a big smile now.
- 143 01:41:50:14 (*speaking french*) >> So far we've looked at a number of European languages: French, Italian, German, British English, as well as American English.
- 144 01:42:07:16 And we've also looked at a Nigerian language called Hausa, as well as at Japanese.
- 145 01:42:12:19 What we're finding is that the melodies of mothers' and fathers' speech in these situations are very similar, and we're hypothesizing that it's...
- 146 01:42:22:07 the melody is a message.
- 147 01:42:24:01 That the musical contour of the voice is carrying the meaning to the infant long before language is doing the work.
- 148 01:42:31:03 >> Is that my Becky?
- 149 01:42:34:01 >> And babies are not yet attending to words or to linguistic units of information, but they're reading something about the

mother's emotions, her intentions, her feelings, through the kinds of melodies that she uses.

- 150 01:42:47:03 >> Oh, boy.
- 151 01:42:48:03 Can we have a smile from my girl?
- 152 01:42:52:07 >> This device here is an oscilloscope hooked up to a pitch extractor, which will allow us to look at the melodies or the intonation of pitch contours that are used in the mother's voice when she's speaking to a pre-verbal child.
- 153 01:43:05:26 Let me give you a couple of examples.
- 154 01:43:08:23 In American English, if you wanted to praise the baby, to let the baby know that you're happy about something that he or she's done, you'd say "Good boy.
- 155 01:43:15:21 Yeah, good."
- 156 01:43:17:07 Up and down.
- 157 01:43:19:03 And this is the typical pattern we're finding.
- 158 01:43:21:19 So you see, the pitch starts low, goes up to a crescendo, and down again.
- 159 01:43:25:02 In Italian, we find a very similar melody.
- 160 01:43:27:22 *Bravissima, bravissima* .
- 161 01:43:30:11 In German, you'd say, (*speaking german*) Again we see here this rise- fall pattern.
- 162 01:43:39:09 The melody that goes up and then down again, up and down again, reaching a very high pitch peak at the top.
- 163 01:43:44:21 We're finding this rise-fall pattern in every European language we've looked at, and also in our recent recordings in Japanese.
- 164 01:43:56:04 Now, another thing that frequently happens in a baby's life is that the mother says "No."
- 165 01:44:00:04 The child's about to head for a light or an electrical outlet where's there some danger possible, or to head over the stairs.
- 166 01:44:07:09 And so the mother will say, "No.

- 167 01:44:08:18 No, stop that.
- 168 01:44:09:23 No," using a short, sharp kind of vocalization that's much lower in frequency.
- 169 01:44:15:06 In French it would be (*speaking french*) Again, short and sharp and staccato in quality.
- 170 01:44:21:15 In German, the same sort of things.
- 171 01:44:23:21 (*speaking german*) Short and sharp and not smooth the way the praise contour was.
- 172 01:44:30:06 Again here we're finding universal melodies in Japanese as well as the European languages in the kinds of intonation of pitch contours that the mothers are using to convey this message to a baby who does not yet understand the words.
- 173 01:44:43:05 >> That's right.
- 174 01:44:44:13 Just calm her down.
- 175 01:44:45:20 >> It's very important that we go beyond this to look at other kinds of cultures with very different attitudes toward babies, toward the expression of emotion, in order to really test our hypothesis about universality.
- 176 01:44:57:12 >> (*speaking italian*) >> ZIMBARDO: After children have practiced the elemental aspects of speech, they're ready for the third stage of language development, which comes toward the end of the first year: the one-word stage.
- 177 01:45:18:05 >> Hi.
- 178 01:45:19:22 >> ZIMBARDO: The earliest words are part of a behavioral ritual, such as saying "hi" or "bye."
- 179 01:45:25:18 The next set of words are those that express relationships of various kinds.
- 180 01:45:31:15 First come relationships between objects and actions, such as saying "ball" to mean throw it or get it.
- 181 01:45:40:03 Then comes relationships between objects, such as saying "fishy" when pointing to an empty tank where fish once swam.
- 182 01:45:50:07 And finally come words that are meant to affect events, such

- as "again" or "more" when a child wants another push.
- 183 01:45:56:22 >> Again.
- 184 01:45:59:13 >> ZIMBARDO: What is this one, what is that?
- 185 01:46:01:26 >> That's an airplane.
- 186 01:46:02:27 >> ZIMBARDO: That's an airplane?
- 187 01:46:04:02 (*makes airplane sounds*) Great.
- 188 01:46:08:29 When children learn to use words like "ball" or "fishy" or "again," they're really learning how to use symbols.
- 189 01:46:15:21 Words, after all, stand for something else -- the objects or actions being described.
- 190 01:46:20:19 And symbols can only be used with any degree of proficiency when a number of mental abilities have matured sufficiently, sometime in the second year of life.
- 191 01:46:32:28 To use words as symbols, the child's memory must be able to store images or memory codes of events and objects, and be able to retrieve them with the appropriate words that symbolize them.
- 192 01:46:47:26 At the same time, the child must also understand how to manipulate tools to make things happen.
- 193 01:46:55:11 These tools can be people as well as objects.
- 194 01:46:58:23 >> Pizza, pizza, pizza.
- 195 01:47:02:05 >> ZIMBARDO: In fact, parents are the most significant tool the child learns to manipulate to achieve its goals, and language is the most effective way to manipulate them.
- 196 01:47:12:24 >> There it is.
- 197 01:47:18:06 >> ZIMBARDO: Next comes the two- word stage.
- 198 01:47:22:07 >> Get out.
- 199 01:47:24:07 >> ZIMBARDO: No matter what their native language, all normal children around the age of a year and a half begin to use two-word phrases to express a number of common functions: locating and naming things, demanding and desiring things, describing actions and situations,

questioning, modifying, and qualifying.

- 200 01:47:46:06 >> A ducky.
- 201 01:47:47:15 >> A ducky.
- 202 01:47:48:22 >> Quack, quack.
- 203 01:47:49:28 >> ZIMBARDO: Finally, in the last formal stage of this early development, the telegraphic stage, two-year-olds form simple sentences, mostly of nouns and verbs.
- 204 01:48:00:12 >> Play with Bess's Play-Doh.
- 205 01:48:02:18 That's Bess's Pla-Doh.
- 206 01:48:05:07 >> ZIMBARDO: The sentences lack plurals, articles, and tenses, but they do maintain the typical word order of actor first, action second, and object last.
- 207 01:48:15:18 >> I'm making him fat.
- 208 01:48:17:02 I'm making him fat.
- 209 01:48:19:15 >> I do one, too.
- 210 01:48:30:20 >> ZIMBARDO: After the age of two, as a child's mental abilities develop, early restrictions as to how much information he or she can get into one coherent statement are lifted.
- 211 01:48:40:15 By the age of four or five, the child is using language in much the same way as an adult does.
- 212 01:48:45:15 Its biggest task during these early years has been to discover the underlying regularities in the way adults use language -- the rules of grammar and syntax.
- 213 01:48:57:07 Dan Slobin is a psycholinguist at the University of California at Berkeley.
- 214 01:49:03:10 Slobin has studied how all children acquire a system of grammatical rules on their own, without imitating the people around them.
- 215 01:49:12:27 >> For the past 20 years or so we've been sending teams of researchers out all over the world to jungles, cities, villages, recording speech of little children to see how it is that children begin to acquire their native languages.

- 216 01:49:28:05 And we've found by now that regardless of what kind of language it is, what kind of social setting the child is learning under, two-year-olds are beginning to apply the grammatical structures of the languages that they hear.
- 217 01:49:39:19 >> And where do you go to school?
- 218 01:49:41:29 >> I like... I go in art school.
- 219 01:49:44:13 >> And what do you do in art school?
- 220 01:49:47:02 >> I paint.
- 221 01:49:48:18 >> For example, in English, we follow very strict word order.
- 222 01:49:51:25 We always first talk about what we're going to do, and then what we're going to do it to.
- 223 01:49:56:15 So we say, "Give me a cookie.
- 224 01:49:58:11 Drink the milk.
- 225 01:49:59:23 Show me your hand."
- 226 01:50:01:14 The first word is always the word about the action.
- 227 01:50:03:23 The second word is the word about the object.
- 228 01:50:06:14 Now, that division between action and object word seems to be quite universal in languages.
- 229 01:50:10:07 And children pick that up quite early.
- 230 01:50:12:23 In English they also quite early in their own two-word speech pick up that word order pattern.
- 231 01:50:16:23 So even if they're saying things that are quite short and simple, English children will say things like "I want cookie."
- 232 01:50:25:28 They won't say "Cookie I want."
- 233 01:50:27:12 They'll say, "More milk," not "Milk more."
- 234 01:50:29:17 They'll first talk about the action and then they'll talk about the object.
- 235 01:50:32:09 So they're already speaking grammatically.
- 236 01:50:34:09 Now, if you were to ask your ordinary parent in the street

how their child learned to talk, they would probably say, "He just imitated, what's the problem?" Well, one problem is if you listen to what children say, they often say things that they couldn't have imitated.

- 237 01:50:46:09 So the children might say... a child might say something like "I broke the glass," or "I falled down."
- 238 01:50:56:22 Now the adults don't say things like "broke" and "falled."
- 239 01:50:59:26 But the child does.
- 240 01:51:01:14 And if you hear a child saying things like "broke" and "falled" this means that the child has worked out the pattern for forming the past tense in English.
- 241 01:51:11:00 English doesn't always follow that pattern, but the child has decided that once you find a pattern it's neat to stick with it, so that even if one doesn't say "broke" or "falled," and a child doesn't hear it, for a long time the child will use this pattern.
- 242 01:51:28:06 So for a long period, for about the ages of three to five, children are very persistent in trying to build a regular kind of grammar.
- 243 01:51:37:19 We see this across all languages -- wherever languages show bits that are irregular, children try to make them fit their own regular pattern.
- 244 01:51:44:15 They have an uncanny sense of how a grammar should be structured.
- 245 01:51:49:06 >> Goalie, forward, and halfback.
- 246 01:51:57:02 >> What... what's the name of your team?
- 247 01:52:02:16 >> ZIMBARDO: So now we're six years old, and we've acquired a highly sophisticated language to help us navigate through all the complex environments in which we have to function.
- 248 01:52:09:22 But what happens when we bump into other people who are also navigating their way through social situations?
- 249 01:52:15:08 How do we coordinate our intentions with theirs to avoid conflicts and to gain the ends we both want?

- 250 01:52:21:17 How do we learn the rules of conversation?
- 251 01:52:25:13 >> I have a Julie sister.
- 252 01:52:28:11 >> No, you don't.
- 253 01:52:31:04 >> I have.
- 254 01:52:34:02 My... my cousins... my cousin, John and my cousins...
- 255 01:52:39:20 >> Goggle?
- 256 01:52:42:05 >> Goggle.
- 257 01:52:45:00 (*laughing*) >> ZIMBARDO: According to psycholinguists, most dialogues are highly structured forms of social communication, and they include three essential features that must be understood and shared by both parties.
- 258 01:52:58:26 The first is opening conversations in ways that signal the willingness to converse.
- 259 01:53:05:18 The second is understanding the unwritten rules for taking turns.
- 260 01:53:11:03 And the third is closing conversations by mutual agreement.
- 261 01:53:16:16 When these seemingly simple acts are not carried out properly, the result is confusion and even distress.
- 262 01:53:28:09 >> Is the duck going to a city?
- 263 01:53:30:02 >> Yes.
- 264 01:53:31:07 >> ZIMBARDO: Parents teach their children the rules of dialogue in a number of ways.
- 265 01:53:34:28 They engage them in conversations, they ask questions and seek replies, they teach them what to say after someone has said or done something, such as "Thank you" or "Yes, please."
- 266 01:53:47:01 >> Thank you.
- 267 01:53:48:10 >> Thank you.
- 268 01:53:49:21 >> Please, please, please.
- 269 01:53:50:29 >> Please, please, please.

- 270 01:53:52:19 >> Thank you, thank you, thank you.
- 271 01:53:54:20 >> Thank you, thank you, thank...
- 272 01:53:56:25 >> "Henry was too hungry to resist."
- 273 01:53:59:07 >> No hungry.
- 274 01:54:00:26 >> ZIMBARDO: These early social activities not only help children to use language to gain their own ends, but also enable them to assist others in achieving their goals.
- 275 01:54:08:17 >> What is it?
- 276 01:54:09:19 >> What is what?
- 277 01:54:10:20 >> That.
- 278 01:54:11:26 >> That's Henry talking to the Banana Lady.
- 279 01:54:17:02 >> Hannah, your food's ready.
- 280 01:54:21:15 >> ZIMBARDO: Without a stable structure of social-verbal interaction, they wouldn't be able to use language in ways that are conversationally correct.
- 281 01:54:30:06 Children have to be taught how to collaborate with other conversationalists.
- 282 01:54:35:27 >> Do you want some pancakes?
- 283 01:54:37:18 >> Sure.
- 284 01:54:39:29 >> Well, I'm sure I'll...
- 285 01:54:41:07 >> ZIMBARDO: What would life be like without language?
- 286 01:54:44:12 It would be life without access to the world of ideas, without any connection to the hearts and minds of other people.
- 287 01:54:53:06 Language is fundamental to our very humanity.
- 288 01:54:59:02 But before we communicate our sense of the world, we have to perceive it.
- 289 01:55:04:01 In our next program, we're going to focus on perception as the critical link between the solitary isolated organism and everything else that exists.

- 290 01:55:12:16 Perception enables us to experience the universe as it is, and to redesign it as it might be, not to mention persuading others to see it our way.
- 291 01:55:22:21 The many worlds of perception, next time.
- 292 01:55:25:05 I'm Philip Zimbardo.
- 293 01:55:31:14 [Captioned by The Caption Center WGBH Educational Foundation]
- 294 01:56:36:22 >> *Funding for this program is provided by Annenberg/CPB to advance excellent teaching .*