



The Impact of Language on Cognitive Development.

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ABSTRACT

Cognitive linguists have long debated whether language and cognition are separate mental faculties or whether language emerges from general cognitive abilities. Various theorists attribute importance to different factors in the development of language. The nativist view stresses that children are preprogrammed and have an innate ability to acquire language. The behaviorists focus on the importance of the language environment. Piaget believes that each stage in development occurs as a result of the inter-action between maturation and environment. Whorf and Vygotsky shared the view that language is a social and cultural phenomenon. Krashen uses the term language acquisition, while Vygotsky speaks of the internalisation of language. Chomsky argued that language is innate and complex. He sees language development in the child as a separate aspect of knowledge, apart from the rest of cognition or mental functioning.

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Main Document

Cognitive development refers to the change in children's pattern of thinking, as they grow older. Linguists have shown considerable interest in the relationship between language and cognitive development, raising questions such as: Can we think without language? How are language and thought related? Is thinking influenced by the structure of language and so on. In the 1970's and 1980's, linguists tended to emphasise the commonalities between language and cognition. In the 1990's, it was noted that, like other aspects of cognition, language acquisition is heavily dependant on experience. The acquisition of language is a crucial part of cognitive development, in determining how the child will learn how to think. Cognitive linguists have long debated whether language and cognition are separate mental faculties or whether language emerges from general cognitive abilities.

Theories of Cognitive Development

The nativist view stresses that children are preprogrammed and have an innate ability to acquire language. The behaviorists focus on the importance of the language environment. In the 1950s, Benjamin Lee Whorf proposed the linguistic relativity hypothesis. He said language determines the way people think. For example, Whorf said that Eskimo people and English-speaking people think about snow differently, because the Eskimo language has many more words for snow, than the English language does. Most subsequent research has not supported Whorf's hypothesis, but researchers do acknowledge, however, that language can influence thought in subtle ways.

A major proponent of the idea that language depends largely on environment was that of the behaviorist, B. F. Skinner. He believed that language is acquired through principles of conditioning, including association, imitation, and reinforcement. According to this view, children learn words by associating sounds with objects, actions, and events. They also learn words and syntax by imitating others, which enables children to learn words and syntax, by reinforcing correct speech. Critics of this idea argue that a behaviorist explanation is inadequate and maintain several arguments regarding this such as : learning cannot account for the rapid rate at which children acquire language; there can be an infinite number of sentences in a language and all these sentences cannot be learned by imitation; children make errors, such as overregularizing verbs. For example, a child may say he hit me, incorrectly adding the usual past tense suffix -ed to hit. Errors like these can't result from imitation, since adults, generally, use correct verb forms; children acquire language skills, even though adults do not consistently correct their syntax.

*Jean Piaget proposed a major theory of children's cognitive development that involves important processes -schemas, assimilation and accommodation,

organisation and equilibration, egocentrism, conservation and hypothetical-deductive reasoning. His vision of the child is that of an active constructive thinker. Jean Piaget's Stage Theory believes that

the child is neither the possessor of a performed set of mental abilities nor a passive recipient of stimulation from the environment. From infancy onward, movement, increasingly, gives way to thought and learning continues to be an interactive process. Piaget believed that each stage in development occurs as a result of the inter-action between maturation and the environment. He said that the child's cognitive structure and the kind of logic his thinking possesses, gets expressed in his use of language. He theorised that cognitive development preceded language development and language did not contribute to the development of thinking.

Language behaviour is treated as a dependent variable, with cognition as an independent variable. Thus, language is viewed, essentially, as a symptom of underlying intellectual orientation. His work revealed some important things to look for in cognitive development, such as the shift from pre-operational to concrete operational thinking and he showed us how children need to make their experiences fit their schemas, while simultaneously adapting their schemas to experience. His notion of the general stages has been criticised as dubious and the notion of the general purposes have been challenged. Some cognitive abilities appear earlier than Piaget thought, others later. Criticism of Piaget's theory is on his estimates of children's competence, the stages, the training of children at a higher cognitive level and not being precise enough about how children learn. Critics feel he underestimated the abilities of infants and his theory does not adequately explain language development. His theory has little emphasis on social and emotional factors nor is there any obvious explanation for the increase in the power of the cognitive system, with age. Culture and education exert stronger influences than he believed.

*Lev Vygotsky's chief contribution lies in the study of concept formation by children. His central concern was the relationship between the development of thought and that of language. He views language first as social communication,

gradually promoting both language and cognition. He stresses the importance of communication with others, as a major factor in the development of a child's language, which stimulates the development of thought. For Vygotsky, learning precedes development. In his theory, children's cognitive development is shaped by the cultural context in which they live. The zone of proximal development (ZPD) is the term he used for the range of tasks that are too difficult for the child to master alone, but can be learned with guidance and assistance. He describes the importance of the ZPD as the distance between the child's actual developmental level, determined by independent problem solving and the level of potential development, as determined through problem solving under adult guidance, which he refers to as scaffolding. In order for the scaffolding to be effective, it must match the child's developmental level. The ZPD captures the child's cognitive skill and the lower limit of the ZPD is the level reached by the child working independently. He believed that the environment plays an important role in how children develop cognitively. To Vygotsky, a clear understanding of the inter-relations between

thought and language is necessary for understanding intellectual development. According to him, language plays an important role in a child's development. When it comes to language learning, the authenticity of the environment (and the affinity between its participants) are essential elements to make the learner feel part of this environment. Language is learnt due to a need to understand the environment and from social interactions with others. For him, learning precedes development. He stresses the link between language development and cognitive development and his most important contribution concerns the inter-relationship between language development and thought. Vygotsky believed that the role of language in cognitive development has two purposes: communication (which is important in the transmission of culture) and history between individuals and regulation, (which refers to one's control over one's own cognitive processes). He said that, initially, language and thought, develop independently and, then, merge. Children must use language to communicate with others, before they can focus inward on their own thoughts. He posits social speech as the first stage, after which egocentric speech develops, which, then, changes into inner speech. Children use speech, not only for social communication, but also to solve tasks. He argued that children use language to plan, guide and monitor their behaviour. This use of language for self-regulation is called private speech. He argued that children who use private speech are more socially competent, than those who don't.

Critics point out that Vygotsky was not specific about age related changes, as he did not adequately describe how changes in socio-emotional capabilities contribute to cognitive development. His theory has also been criticised for overemphasizing the role of language in thought. Also, the ZPD might make some children lazy, as they might want expert help, when they could have done the task on their own.

*Noam Chomsky holds the view that biological influences bring about language development. His theory states that the ability to learn language is inborn, that nature is more important than nurture and that experience in using language is only necessary in order to activate the language acquisition device (LAD). He argued that humans are prewired to learn language at a certain time and in a creative way. Chomsky argued that human brains have a language acquisition device (LAD), an innate mechanism or process that allows children to develop language skills. According to this view, all children are born with a universal grammar, which makes them receptive to the common features of all languages. Because of this hard-wired background in grammar, children easily pick up a language when they are exposed to its particular grammar. One problem with Chomsky's theory is that it does not take into account the influence that cognition and language have on each other's development.

Comparison of the Theories of Cognitive Development

With regard to constructivism, Vygotsky is a social constructivist and gives strong emphasis to the socio-cultural context. For him, children construct knowledge through social interaction. On the other hand, Piaget is a cognitive constructivist and gives little emphasis to the sociocultural context. For him, children construct knowledge by transforming, organising and reorganising previous knowledge. For Piaget, private speech is egocentric and immature, but for Vygotsky it is an important tool of thought during the early childhood years. He suggested that what Piaget saw as children's egocentric speech was, in fact, private speech, the child's way of using words to think about something. The end point of cognitive development for Piaget is formal operational thought, but for Vygotsky, the end point can differ, depending on which skills are considered to be the most important in a particular culture. Both Piaget and Vygotsky believed that as children develop language, they actually build a symbol system. But, they differed in the view of how language and thought interact with each other. Piaget believed that cognitive development led to the growth of language, that language has a minimal role and cognition, primarily, directs language; whereas Vygotsky views language as developing thought and believed that language plays a powerful role in shaping thought.

Arnold Gesell, like Piaget, emphasis the motor and intellectual development, but unlike Piaget, believes that because the infant and the child are subject to predictable growth forces, the behaviour patterns that result are not whimsical or accidental by-products, but are end products of an orderly sequence. Whorf and Vygotsky shared the view that language is a social and cultural phenomenon. For both, the primary function of language is enabling social communication. However, for Vygotsky, language transforms thought and he interpreted the influence of language on thought in terms of its significance for the development of human consciousness, whereas for Whorf, language constrains thought and he interpreted the influence of language on thought in terms of its implications for the limits of human awareness. Although the views of Vygotsky and Whorf are quite different, their approaches are more complementary than contradictory. A more adequate understanding of the role of language in thought can be obtained by integrating the strengths of Vygotsky's diachronic, historical- developmental approach, with Whorf's synchronic, comparative -interpretive approach. Also, Krashen's input hypothesis resembles Vygotsky's zone of proximal development. Vygotsky speaks of the internalisation of language, while Krashen uses the term language acquisition. Both theories are based on the common assumption of interaction with other people. On the other hand, Chomsky argued that language is innate and complex. He said that all humans have a genetic predisposition towards learning language and rejects the notion that all language must be learned afresh, as normal children are born with a hard wired syntax that enables them to grasp the basic workings of language. He stressed the importance of the child's genetic inheritance of the syntax imprint, as he believed that syntax is the most creative part of the human mind. According to Chomsky, language is an autonomous faculty of the mind and children are born with a language acquisition device. He says that language is a unique mental faculty and sees language development in the child as a separate aspect of knowledge,

apart from the rest of cognition or mental functioning. His theory has been challenged and debate about the origins of language has shifted from an emphasis on innate capabilities and toward a greater awareness of the role of learning.

Educational Implications

Piaget's theory is very useful and his ideas can be applied to educate children, as they learn best by making discoveries, reflecting and discussing them. Children need support to explore their world and discover knowledge. The teacher can, therefore, facilitate thinking and make the classroom one of exploration and discovery. Piaget believes that education merely refines the child's cognitive skills that have already emerged. Vygotsky's ZPD captures the child's cognitive skills that are in the process of maturing and the main implications for teaching is that children need many opportunities to learn with the teacher or more skilled peers. Knowledge will be mutually constructed and this scaffolding (shared support and guidance) will benefit children and help them attain more sophisticated thinking skills. In Vygotsky's view, education plays a central role, helping children learn the tools of the culture. In both Piaget's and Vygotsky's theories, teachers are facilitators and guides. On the other hand, Chomsky's theory helps to promote contexts in which learners play an active role in learning. The teacher becomes a collaborator. Thus, learning becomes a reciprocal experience for both the teacher and the learner.

Conclusion

Do specific language codes have an influence on the thinking process? In principle they can. Language acquisition is perceived as a more complex process. Cognitive linguists have long debated whether language and cognition are separate mental faculties or whether language emerges from general cognitive abilities. This view appears to be best captured by the idea that language and cognition have complex similarities and differences and both develop over the human life span from genetic factors being constrained by environmental inputs and cultural learning. There, thus, appears to be a close connection between the development of thought and the development of language.

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