

The Relationship Between *Thought* and *Language* Based on Language Determinism and the Theory of Children's Cognitive Development Stage

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The relationship between *language* and *thinking* has always been the focus of discussion at home and abroad not only in linguistics but also in psychology, philosophy, anthropology, and so on. However, because of the intricate relationship between *language* and *thinking*, different scholars hold different perspectives on this question. There is not a consensus on this question. Some scholars believe that *thinking* comes before *language*, namely, *thinking* determines *language*, while some others hold the opinion that *language* comes before *thinking*, that is, *language* determines *thinking*. This paper makes a brief review of the perspectives on the relationship between *language* and *thinking* and places the emphasis on the Sapir-Whorf Hypothesis—language determinism and language relativity. However, based on Piaget's theory of children's cognitive development stage and Vygotsky's perspective of children development, a conclusion can be drawn that *thinking* appears before *language*, i.e., *thinking* determines *language*.

Keywords: *language*, *thought (thinking)*, Sapir-Whorf Hypothesis, Kidology

Introduction

The relationship between *language* and *thinking* has always been paid close attention to by researchers at home and abroad in many fields throughout the ages. With the in-depth development of globalization, people in different countries and regions begin to have more and more frequent communication. Factors such as language barriers and differences in thinking patterns are becoming more and more obvious. As a result, the inherent connection between *language* and *thinking* is thought-provoking. In order to investigate the relationship between *language* and *thinking*, we should have a good understanding about the definitions of the words “language” and “thinking” at first. “In linguistics, the most general definition of *language* is that *language* is a system of arbitrary vocal symbols used for human communication” (Dai, 2011, p. 1). From Saussure's perspective, *language* is a system of sign which consists of the signifier (sound image) and the signified (the concept). In Sapir's opinion, *language* is simply owned by human beings, not human instinct, through the creation of symbols to convey human thinking, a mode of emotion. Wu Tieping (1999) defined *language* and pointed out that *language* is a part of speaking. *Thinking* refers to the ability of higher animals and human

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beings to reflect and recognize things. In essence, *thinking* is actually a kind of cognition, the subject of which is human brain and things, and there is a certain connection between the two, so we can say that *thinking* is psychology. Philosophers have long been interested in the relationship between *language* and *thinking*.

Nowadays, with the development of science and technology, theoretical research has become more prosperous and a series of new disciplines have emerged. Especially after the beginning of the last century, linguistics has become a new subject, which is highly valued by people. At the same time, various researches, such as sociolinguistics and psycholinguistics, have emerged at the intersection of different disciplines. However, the relationship between *language* and *thinking* is tanglesome. Although there are many books on this subject, there is still no unified answer. From ancient times to the present, the experts of different disciplines, fields, or genres have discussed and researched this topic by using different theories and methods from different perspectives, and have come up with various research findings.

Literature Review

In order to solve the mystery of human thinking and systematically understand human thinking, we must rely on human language to carry out research. Although domestic and foreign experts and scholars, including philosophers, psycholinguists, anthropologists, sociolinguists, and cross-cultural linguists, have made various analyses and researches on the relationship between *language* and *thinking* from different perspectives and with various theories, there is still no consensus. This is because the relationship between *language* and *thinking* involves a wide range of issues, and people observe the issue from different perspectives and treat data in different ways.

Foreign Research

The Theory of Independence. The scholars and experts who support the Theory of Independence hold the view that *thought* can exist independently before the production of *language*, and after the production of *language*, there is still *thought* even without the participation of *language*. For example, during the process of painting a painting, composing a song, designing a dress, people can express their own thoughts by other forms except the language.

Ancient Greek philosopher Plato was the first person to put forward this view; he regarded the *thought* as a kind of insight which can't be said through words. British philosopher John Locke was the follower of this point, and he believed that the source of human knowledge was caused by the abstract *thought* from outside world, rather than *language*. (Wang, 2016, p. 1)

The deaf and aphasia also can provide the most powerful examples for the above point. As we all know, the deaf and aphasia cannot say any words, but they are capable of living like a normal person. In fact, the lack of language does not make it impossible for them to know and transform the world, which also proves that they are able to express and transfer information to the outside world without the participation of language.

The Theory of Sequence.

French philosopher Wendeles believed that *language* came into being before *thinking*. He insisted that human actively control thought through language and human could not consciously think without language, and it is the language that makes human use the ability which is given by nature to think. However, when there is no language, the thought of human was enslaved to their physiological function and the surrounding environment, rather than thought. And he believed that the initial language of human might be purely emotional, rather than ideaistic. (Wang, 2016, p. 1)

According to this, we can know that the savages do not have memory, and the so-called memory is just some illusion which is made up of their free imagination. In fact, language is human-specific. The animal calls are purely an emotional release which is totally different from the language used by human beings.

On the contrary, in Piaget's opinion (1984), *thinking* is prior to *language*. He believed that *language* and *thought* were heterogeneous; *thought* was produced earlier than *language*; and *language* was controlled by *thought*. *Language* was only the tool serving for *thought*, and it could be used to organize *thought* so that people communicate with each other. Piaget dedicated himself to the research of children's cognitive development, and puts it into four stages: sensorimotor stage, pre-operational stage, concrete operations stage, and formal operations stage. During the sensorimotor stage (0-2 years old), we can see such a phenomenon: A child who does not begin speaking can think through shape, color, and sound; he or she can express his or her desire through crying, laughing, and dancing. For example, he or she would stretch his or her hands catch what he or she wants when he or she sees it. Therefore, Piaget thought that *thinking* should be prior to *language*. In our real life, for example, before we write an article or make a speech, there is always a process for us to think in advance, which also indicates that *thought* is prior to *language*.

The Theory of Determinism. Piaget insisted that *thinking* determined *language*. Piaget (1984) concluded that the thoughts of children came from the motion not from the language by the analysis of development stages of the children thoughts. In Piaget's perspective, language development has something to do with cognitive development, that is, the development of the child's thinking determines when the child can learn to speak and what the child can say. For instance, before a child can say, "This car is bigger than that one", he or she must have developed the ability to judge differences in size. In a word, only when children's thinking has reached a certain level can they begin to talk naturally.

There is another perspective on the Theory of Determinism, that is, *language* determines *thinking*. On the basis of the concept of linguistic determinism, every language is a special view of the world in which the most powerful evidence is Sapir-Whorf Hypothesis. The main content of this Hypothesis is *language* determines *thought*. Whorf made a comparison between Eskimo and English to prove his opinion. For instance, there are over 400 kinds of description about snow in Eskimo, such as apun (snow on the ground), qanikca (hard snow on the ground), utak (block of snow), etc. However, there is only one description about snow in English; it is *snow*. As a result, linguistic structure determines cognitive structure.

Domestic Research

Zhou Jianren's perspective. In 1979, Mr. Zhou published an article named "Preliminary Exploration of Ideological Science" in *Guangming Daily*. Although the article has only 900 words, it is of great importance. He was the first person who proposed the theory of "*thinking* takes precedence over *language*" in the academic circle of our country, which exerted a huge impact on philosophy, psychology, linguistics, and many other disciplines of our country. People began to think whether *language* was the external form of *thinking* and whether *language* and *thinking* came into being at the same time. There were a series of problems which appeared in front of people.

Wu Tieping's perspective. Mr. Wu (1986) is a famous linguist in China. His masterpiece is *A New Exploration of the Relationship Between Language and Thinking*, which was published in 1986. The publication of this book has had a great impact on the linguistic theory circle in China. Scholars believe that it is the first work in China to elaborate on the internal relationship between *language* and *thinking*. This book

shows the author's research results in the field of the internal connection between *language* and *thinking*, and the whole book has a very clear point of view. The arguments are extremely abundant. The book has an epoch-making significance in linguistics circle.

The main idea of this book is that *thought* comes before *language*, and it can still exist without the shell of *language*; it does not depend on the basis of words; *language* is not decisive for *thinking*. He mainly demonstrates his views from the following aspects. First and foremost, he demonstrates his view from the process of children's growth. Everyone who has looked closely at a child's development, he argues, will agree that, for a child, *consciousness* precedes *thought*, and *thought* precedes *language*. Before children learn language, they can describe the meaning they want to express in a variety of ways, such as crying, facial expression, and gestures. Second, he demonstrates his view from the human and language development process. According to relevant archaeological materials, Peking man is the earliest human being, which means that the history of human beings is only 400,000 to 500,000 years. With the deepening of research, the history of human beings has been traced back to 14 million years ago. However, linguists infer that the history of *language* only has a few million years, and *language* has not been proved to exist in the rest time. Third, he demonstrates his view from the perspective of the intelligence of animals. He points out that human is originated from apes. Although this animal has no language, it has its own consciousness and even has its own independent thinking.

Modern scholars' perspectives. In modern times, scholars like Qi Rongjun, Zhou Guilan, and Qi Xiuchong support the idea that *thinking* determines *language* from the perspectives of image thinking and neologism. For example, Qi Rongjun (2005) points out that *thinking* plays a decisive role in *language*, which is also reflected in the fact that *language* is sometimes just used to satisfy the communication of human thoughts. For example, when creating specific paintings, we rely on image thinking instead of relying on language. When people elaborate on the conception process, they need to use *language* to express. In addition, Zhou Guilan and Qi Xiuchong (2002) have combined new words such as *motel*, *crematorium*, *edutainment*, to make concrete examples.

The Precedence Order of *Language* and *Thinking*

Language Coming Before Thinking

The Sapir-Whorf Hypothesis. Among the theories and perspectives related to the relationship between *language* and *thinking*, the Sapir-Whorf Hypothesis might be the most significant yet controversial one, attracting much attention yet arousing great controversy. In order to discuss the relationship between *language* and *thinking*, it is of great necessity to have a look at the content of the Sapir-Whorf Hypothesis. According to the name of the hypothesis, it's not difficult to see that it was put forward by a famous American anthropological linguist Edward Sapir, and his student Benjamin Lee Whorf, an amateur linguist. The hypothesis states: "Our languages help shape our way of thinking and, consequently, different languages may probably express the speakers' unique ways of understanding the world...the greater their structural differentiation is, the more diverse their conceptualization of the world will be" (Hu, 2010, p. 149). From this perspective, this hypothesis can be classified into two dimensions: language determinism and language relativity. Language determinism is also named the strong version, and language relativity is called the weak version.

The strong version emphasizes the decisive role of language to shape the thinking patterns; conversely, the weak one supposes that there is a correlation between language, culture and thought, but the cross-cultural differences thus produced in our ways of thinking are relative, rather than categorical. (Hu, 2010, pp. 150-151)

The strong version is criticized by many scholars and experts, while the weak one is usually accepted under many circumstances. According to the concept of linguistic determinism, one's thought or thinking is completely determined by his native language; the reason is that one can only perceive the world through the categories and distinctions encoded in the language.

In essence, the Sapir-Whorf Hypothesis is an explanation of whether language reflects reality or creates it. It comes down to two things: First, language can determine people's understanding of the world due to its self-shaping and self-creation ability, and it is a positive factor to form people's world image, which is called linguistic determinism. Second, different languages cannot represent the reality of the same society, and the image of the world changes with the language system people rely on for thinking. This is called linguistic relativity. The first point is equivalent to saying that a person's thinking is completely determined by his mother tongue, because a person can only understand the world according to the categories and different definitions encoded in his mother tongue. People's minds are largely determined by language. The way people observe and perceive the objective world depends on the lexical structure of language, because the process of people observing and perceiving the world is realized through language. Each language constructs its utterance for its speaker in a particular way. The second, more generally speaking, is that language structures are infinitely diverse, so the categories and distinctions defined in a language system are unique to that language system, and are different from those defined in other language systems.

Arguments of the Sapir-Whorf Hypothesis. The linguistic relativity principle is mainly based on Whorf's study on three types of languages, which are the Maya, the Aztec of Mexico, and the Hopi of Arizona. Whorf's study on Hopi language provided him with large amounts of specific examples as arguments of the hypothesis. He (1956) realized the differences between standard average European languages and Hopi language in both lexical level and grammatical structure. Whorf gave his evidence by making a comparison between the Hopi language and English. For example, the concept of time is different between English speakers and Hopis. The numeration of days in Hopi is totally different from that of the standard average European languages. The English sentence "they stayed nine days" becomes "they stayed until the tenth day" or "they left after the ninth day" in Hopi. "Nine days are greater than eight days" becomes "the ninth day is later than the eighth day". It can be concluded that English speakers tend to use plurality and cardinal numbers while the Hopis use ordinals without plurality. Whorf attributes the reason of this distinction to the relation between *language* and *thought*. Secondly, although Hopi verbs have no tenses like English, they have validity-forms, aspects, and clause-linkage forms to express "time" with great precision. All these methods that express "time" correspond to the feeling of duration and the division of time as an earlier and a later. Thirdly, Hopi language cannot separate time from space and does not permit simultaneity. For Hopi, two events in the past occurring a long "time" apart mean that many physical motions have occurred between them in such a way as to accumulate much distance between them. Events cannot occur simultaneously in different places. What happens at a distant village can be known here only later. Lastly, the phases of cycles are used differently from the standard average European languages. Whorf calls terms "summer, winter, September, morning, noon" as the phases of cycles (Whorf, 1956, p. 142). To English speakers, these words are nouns which can be used either subjects or objects, and can be singular or plural. We say "in winter" just as we say "in a school".

According to Whorf's opinion, our thought about such words becomes objectified. "Without objectification, it would be a subjective experience of real time. Only by imagination can such a cyclic phase be set beside another and another in the manner of a spatial configuration" (Whorf, 1956, p. 142). In Hopi, however, all phases of cycles are a kind of adverb, which are not used as subjects or objects, or at all like nouns. As Whorf illustrates, "one does not say 'it's a hot summer' or 'summer is hot'; summer is not hot, summer is only when conditions are hot, when hot occurs. One does not say 'this summer' but 'summer now' or 'summer recently'" (Whorf, 1956, p. 143). Without objectification, Hopi's "time" seems much more corresponding to the essence of real time.

Thinking Coming Before Language

As it is known to us all, the Sapir-Whorf Hypothesis is both an influential and controversial hypothesis. There are experts and scholars who are in favor of the Sapir-Whorf Hypothesis, and there are also others who disapprove it. The two famous representatives who disapprove the Sapir-Whorf Hypothesis are Piaget and Vygotsky. They attack the Sapir-Whorf Hypothesis from the perspective of the relationship between children's language and thinking.

Piaget's Thinking Determinism. Piaget devoted his whole life to the study of children's cognitive development and put forward the theory of children's systematic cognitive development from birth to adult. Stage theory is the most important achievement of Piaget's researches and plays an important role in the cognitive development of children in the world. Stage theory is closely related to the development of children's language and thinking. Piaget defined "stage" very strictly. He (1984) divided the development process of human from birth to maturity into four basic stages, namely, sensorimotor stage, pre-operational stage, concrete operations stage, and formal operations stage.

In sensorimotor stage (0-2 years old), children's main ability is cognition. Children use this cognitive ability to think and thus rely on actions to adapt to the environment. Through this stage, children initially learn to use language to express their own things. From birth to the age of 2 is the language preparation stage for children. Although children cannot speak complete sentences at this time, their thinking is very clear in their brain. For example, there was a 20-month-old girl named "Dingding" who had just learned to speak. She put a little red dot on her nose and looked herself in the mirror, and she was able to wipe it off. Mother said to her, "Dingding, come here and eat the fruit". "Dingding is coming", she would say, instead of saying, "here I come". This shows that in her thinking consciousness, Dingding still regards herself as an object and does not know that the subject and object are all her at this time. This age group is not self-aware.

In pre-operational stage (2-7 years old), children can only think through the appearance, and their thinking is superficial, primitive, and chaotic. Children in this period are not yet able to reason from what they see. At the same time, the thinking of children at this stage is rigid; they can only think about the immediate phenomenon, and their attention cannot be allocated and transferred. The language of children in this period is dominated by their thinking. For example, in an experiment in which two empty mineral water bottles were filled with the same amount of coke, a 5-year-old child was asked to confirm that the bottles contained exactly the same amount of coke. Then pour the coke into the jar in front of the child. Ask the child if there is as much coke in the mineral water bottle as there is in the jar. The child's answer is that more coke in a mineral bottle than in a jar. The reason is that he only cares about the change in the depth of the coke in the container and ignores the change in the width of the container.

In concrete operational stage (7-11 years old), children have reorganized and improved their cognitive structure, and their thinking is also flexible and reversible. For example, in an experiment, children in first grade were presented with two rows of equal numbers of coins. Then change the arrangement of the coins in the second row to make the distance between each coin larger. Ask the children if there are now the same number of coins in the two rows. Their answer is “the same number”. Similarly, children in the concrete operational stage can answer the correct answer precisely because their language is dominated by the development of thinking, and children’s thinking determines their language.

In formal operational stage (11-15 years old), children’s cognitive development has been relatively mature, and their thinking can be carried out according to logical reasoning, induction, or deduction method. Children at this stage can use different ways of thinking to develop their language abilities comprehensively. As mentioned above, in the concrete operational stage, children can only use concrete things, objects, or processes for thinking or calculation, and cannot use language or the things and processes stated in words as the basis for calculation. For example, children in operational stage cannot answer the question whose hair is longer, Tom’s, Jerry’s, or Lily’s. When children’s intelligence enters the stage of formal operation, there is no need for their thinking to start from specific things and processes. Instead, they can use language and words to imagine and think in their minds and reconstruct things and processes to solve problems. So children can easily answer Lily’s hair is longer without the help of the specific image of the doll. This method gets rid of the bondage of concrete things and uses language and words to reconstruct things and processes in the mind to solve problems.

In a word, by dividing the development process of human form birth to maturity into four stages, Piaget means to convince people that *thinking* comes into being earlier than *language* and *thinking* determines *language*.

Vygotsky’s Perspective. Vygotsky (1965) favors experiments on animals which show *language* and *thought* have distinct genetic roots and develop independently. By doing a lot of experiments on infants and children, he has found out that infants and children all have experienced a pre-language thinking development period and a pre-thinking language development period in their growth. Babies are able to babble and even speak individual words around the age of one, but these are purely emotional acts. When children are about 2 years old, independent thinking and language begin to interact: Language begins to serve the thinking; thinking begins to be expressed by language.

My Personal Opinion

As far as I’m concerned, language is an established custom in the development of history, and it does not exist independently, so it cannot determine people’s thinking. If language determines the world view, then people in the same society who speak the same language should have the same world view, but it’s not the case. According to Whorf’s idea, it should be that the way of thinking of each nation is all different, but the fact is that the way of thinking of each nation is basically common. The establishment of philosophy, logic, psychology, and other sciences is an excellent proof. The languages used by different nations to express their ideas differ greatly, but they also have a lot in common. For example, basic colors like *red*, *yellow*, *blue*, and *green* are found in all languages. The objective world of human life is basically consistent and the human brain mechanism is completely consistent. How else can we translate from one language to another? The main shortcoming of this hypothesis is that it wrongly exaggerates the decisive role of language form in thinking. In fact, the form of language does not constitute an absolute constraint on thinking.

In a word, the Sapir-Whorf Hypothesis emphasizes the decisive role of language in human thought and the relativity of people's view of the world, that is, it depends on the language used. Although there are some overreaction and shortcomings in his opinion, such as over-emphasis on the dependence of thinking on language, in general, its emphasis on the importance of language to thought and the theme of its approach are correct, and have since been recognized by most linguists. This view of language contributes greatly to the development of descriptive linguistics.

Conclusion

This paper makes a brief review of many perspectives of the relationship between *language* and *thinking* in the academic circle both at home and abroad. Through the collection and analysis of data and documents on the relationship between *language* and *thinking*, the author takes the example of the relationship between children's language and thinking to prove the author's personal opinion that *thinking* comes before *language* and that *thinking* determines *language*. Such a research result might inspire people to think about educational issues from different perspectives, especially to provide a new way of thinking for the development of children's language and mode of thinking.

The enlightenment of the thesis: Generally speaking, the thesis has a relatively reasonable structure, and makes a relatively comprehensive introduction of the perspectives of the relationship between *language* and *thinking* both at home and abroad. It can provide worthwhile information for the studies in the future. What's more, the result of the thesis is also beneficial to children's language education. Correct treatment of the internal connection between *language* and *thinking* can inspire people to think about education from different perspectives, especially how to cultivate children's thinking mode and language expression ability in children's education has important implications.

References

- Dai, R.-L. (2011). *A new course in English linguistics*. Dongying: China University of Petroleum Press.
- Gumperz, J. J., & Levinson, S. C. (1996). *Rethinking linguistic relativity*. Cambridge: Cambridge University Press.
- Hickmann, M. (2000). Linguistic relativity and linguistic determinism: Some new directions. *Linguistic*, 38(2), 409-434.
- Hu, Z.-L. (2010). *A course book in linguistics*. Beijing: Beijing University Press.
- Imai, M., Kanero, J., & Masuda, T. (2016). The relation between language, culture, and thought. *Current Opinion in Psychology*, 8, 70-77.
- Ji, Y.-D. (2016). *The relationship between thinking and language from the perspective of children's psychology*. Haerbin: Heilongjiang University.
- Lucy, J. A. (1992). *Language diversity and thought: A reformulation of the linguistic relativity hypothesis*. Cambridge: Cambridge University Press.
- Papafraou, A. (2017). Relations between language and thought. *Handbook of Categorization in Cognitive Science*, 11, 353-376.
- Piaget, J. (1984). *Structuralism*. Beijing: Beijing Commercial Press.
- Pi, Y.-J., & Fu, T.-X. (Trans.). (1987). *Children's psychological development*. Jinan: Shandong Education Press.
- Qi, R.-J. (2005). A new understanding of the relationship between thought and language. *Journal of Shandong Education Institute*, 20(2), 55-56.
- Sapir, E. (1929). The status of linguistics as a science. *Language*, 5, 207-214.
- Vygotsky, L. S. (1965). *Thought and language*. Cambridge: Mass M.I.T. Press.
- Wang, D. (2016). A brief analysis of the relationship between language and thought. *Campus English*, (6), 193-194.
- Whorf, B. L. (1940). Science and linguistics. *Technology Review*, 42(6), 229-231.
- Whorf, B. L. (1956). *Language, thought, and reality: Selected writings of Benjamin Lee Whorf*. Massachusetts: MIT Press.

- Wu, T.-P. (1986). *A new exploration of the relationship between language and thought*. Shanghai: Shanghai Educational Publishing House.
- Wu, T.-P. (1999). *Fuzzy linguistics*. Shanghai: Shanghai Foreign Language Education Press.
- Zhou, G.-L., & Qi, X.-C. (2002). A new exploration of the relationship between language and thinking. *The Northern Forum*, (6), 136-137.