

A Bibliometric Analysis of Research on Child Metaphor

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Utilizing CiteSpace and the China National Knowledge Infrastructure (CNKI) visualization tool, the present study performed a bibliometric analysis of both Chinese and international research on child metaphor from the past three decades, examining trends and focal points. The study indicates that there is a consensus on the emergence, developmental trajectory, contributing factors of metaphoric competence, and the functions of child metaphor. However, several aspects remain underexplored, including the characteristics and developmental tendencies of metaphor production, the representation and processing mechanisms of various abstract concepts, and the rhetorical features in children's written language. Additionally, there is a gap between the findings of international research and the verified results in the Chinese context. This study suggests that future research hotspots may include investigating the characteristics of metaphors produced by Chinese children of all ages, the creative use of language in L1 classroom discourse, and the cultivation of metaphorical ability. Chinese scholars may benefit from enhancing interdisciplinary cooperation in the study of metaphors of atypical children and exploring the common rules of human cognitive development.

Keywords: child metaphor, bibliometric analysis, CiteSpace

Introduction

The study of children's use of language plays a crucial role in language research. It can help confirm or support certain theories or hypotheses, establish an empirical basis for linguistic analysis, and in turn promote the construction of linguistic theories through the discovery of new laws (Lee, 2018). Child language is multifaceted, including literal and non-literal language. Metaphor, as a kind of non-literal language, is not only a rhetorical device but also a cognitive tool. It directly participates in the formation of the conceptual system and is an essential mechanism for humans to acquire new knowledge (Lakoff & Johnson, 1980). Therefore, the study of children's usage and production of metaphors can explore the development of language ability and the formation of conceptual networks in the human brain, and then reveal the general rules of human cognitive development.

Bibliometrics has been increasingly applied in the field of metaphor research to make an objective analysis of its development and trends. Using CiteSpace software or statistical methods, scholars have studied the development of metaphorology in China (Sun, 2015; 2020), corpus studies of metaphor (Xue & Xiang, 2018), studies of multimodal metaphor (Chen & Hu, 2018), and studies of spatial metaphor (Wu & Lee, 2020). Therefore, this method can also be applied to studies of child metaphor.

Using CiteSpace software (running on JAVA) and China National Knowledge Infrastructure (CNKI) visualization tools, this paper conducts a bibliometrics analysis of research on child metaphor both domestically

and internationally, aiming to answer the following questions:

1. What is the development trend of research on child metaphor domestically and internationally?
2. What are the similarities and differences in research hotspots and methods between Chinese and international studies?
3. In what ways should the domestic research on child metaphor be expanded in future?

Data Sources

The data for this study were sourced from the China National Knowledge Infrastructure (CNKI) and the Web of Science (WoS), a multidisciplinary database. A total of 118 articles were initially identified in CNKI using the term “child metaphor”. After excluding foreign studies, 68 Chinese academic journal articles remained, including book reviews. A search of the core collection of academic journals in WoS, using the same term, yielded 83 articles. After excluding conference abstracts, 75 articles remained, including book reviews.

Bibliometric Analysis

The time range of the collected Chinese literature is from 2001 to 2020, and that of the English literature is from 1990 to 2020 (see Figure 1).

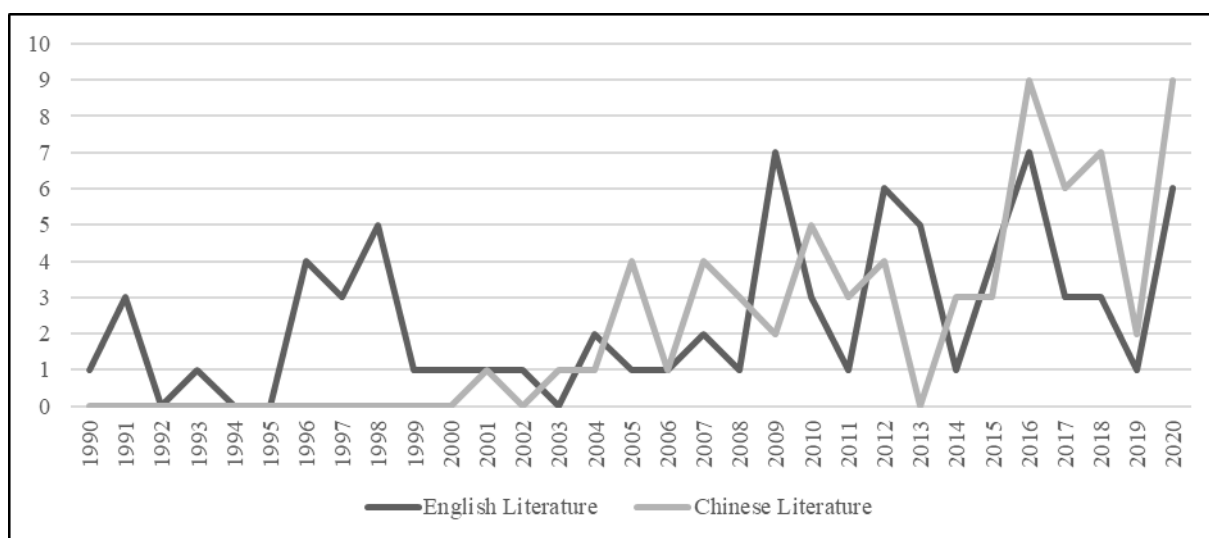


Figure 1. The number of publications over the years.

Figure 1 illustrates that research on child metaphor commenced in foreign countries in 1990, whereas in China, it began later, in 2001. Despite minor fluctuations, there has been a gradual increase in annual publications in the subsequent years.

Hotspots in Chinese Research on Child Metaphor

On CiteSpace, research hotspots can be identified by clustering and high-frequency keywords.

The Chinese literature obtained from CNKI was imported into CiteSpace and formatted accordingly. The time slice was set from 2001 to 2020, with a one-year time partition. The term sources selected were “Title”, “Abstract”, “Author Keywords”, and “Keywords Plus”. The author selected “Keyword” and set the number of objects (N) in each time slice to 50. The software was then run to automatically generate a keyword clustering

co-occurrence graph, which was manually adjusted as follows (see Figure 2):



Figure 2. Keyword clustering co-occurrence graph of domestic research on child metaphor.

Modularity Q is an index used to evaluate network modularity. A Q value greater than 0.3 indicates significant cluster structure, with values closer to one indicating better clustering. The Silhouette value is an indicator of network homogeneity. A Silhouette value (S value) above 0.5 suggests the clustering result is reasonable, while an S value above 0.7 indicates efficient and convincing clustering. In Figure 2, the Q value is 0.824, and the S value is 0.9282, suggesting that the cluster topics have a strong correlation, and the clustering results are highly reliable and valuable for reference. The keywords in the figure are closely internally correlated, with different clusters formed based on varying degrees of affinity. A total of 36 clusters are formed in the Atlas, of which five are shown in Figure 2. The area of each cluster represents the number of articles it contains. Each cluster has a unique naming tag; larger clusters contain more members and have smaller numbers. The largest clusters in the graph are, in order, Cluster #0 (children), Cluster #1 (metaphor), Cluster #2 (children's picture books), Cluster #3 (hearing impairment), and Cluster #4 (cognitive linguistics).

The high-frequency keywords in the literature indicate the primary focus of researchers. Besides “metaphor” (17 times) and “children” (14 times), which are inevitably included in this research topic, the other Top 20 keywords, their frequency (F), and first occurrence year (Y) are listed in Table 1.

The high-frequency keywords include “metaphoric competence”, “language development”, “cognitive development”, and “preschool children” in Cluster #0 (children). In Cluster #1 (metaphor), keywords, such as “comprehension ability” and “cognition” appear. Keywords like “spatial metaphor”, “visual grammar”, and “children's picture books” appear in Cluster #2 (children's picture books), and “conceptual metaphor”, and so on appear in Cluster #3 (hearing impairment).

Table 1

List of Top 20 High-Frequency Keywords in Domestic Research on Child Metaphor.

No.	Keyword	F	Y	No.	Keyword	F	Y	No.	Keyword	F	Y
1	Metaphoric competence	7	2001	8	Body metaphor	3	2010	15	Language development	2	2016
2	Metaphor comprehension	6	2010	9	primary school Children	3	2012	16	Comprehension ability	2	2008
3	Spatial metaphor	5	2014	10	Image	2	2009	17	Metaphor production	2	2001
4	Preschool children	5	2008	11	Child literature	2	2016	18	Cognitive development	2	2016
5	Children's picture book	4	2017	12	Context	2	2011	19	Metaphor translation	2	2016
6	Children's perspective	3	2005	13	Non-physical metaphor	2	2010	20	Conceptual metaphor	2	2017
7	Cognition	3	2007	14	Visual grammar	2	2017				

This clustering and high-frequency keywords reveal several hot areas in domestic research on child metaphor.

Research on Metaphoric Competence

Table 1 shows that “metaphoric competence” is the top-ranked keyword in domestic studies. It first appeared in 2001 and occurred most frequently (seven times). “Metaphoric competence”, first proposed by Gardner and Winner (1978), is a crucial part of non-literal language competence. Domestic research on children’s metaphoric competence is mainly divided into theoretical and empirical studies.

Theoretical analysis is primarily conducted from functional linguistics and relevance theory perspectives. Li (2016) proposed that children’s use of metaphor in language acquisition coincided with their language development by reviewing ontogenesis studies by functional linguists. Li and Chen (2017) studied children’s metaphor comprehension and metaphoric competence development from a relevance theory perspective. They concluded that knowledge about domains, interaction, scene context, and cognitive and emotional goals in the discourse context are closely related to the comprehension of metaphorical language. Therefore, they suggested constructing an appropriate discourse context to promote children’s metaphoric competence.

Empirical studies on children’s metaphoric competence mainly focus on two aspects: metaphor comprehension and metaphor production. Zhou (2001; 2003) was a pioneer in exploring the development of children’s ability to comprehend and produce time metaphors. She found that children’s ability to produce and understand time metaphors increased with age, with the third and fourth grades in primary school being a critical period for forming competence in comprehending and producing time metaphors. This ability tended to mature by the sixth grade. Additionally, children mastered different types of time metaphors at various ages. Since then, the development trend of children’s metaphoric competence and the order in which children of different ages grasp different metaphor types have become focal points in child metaphor studies in China.

Another keyword that appeared in 2001 was “metaphor production”, but it occurred less frequently (twice). The keyword “metaphor comprehension”, which first appeared in 2010, has a total frequency of six, ranking second. This indicates that metaphor comprehension has received more attention from scholars compared to metaphor production. However, there is disagreement about the starting age for metaphor comprehension. Some studies found that children could understand metaphors’ extended meanings after the age of 10 (Yu &

Jiang, 2005); another scholar noted that four-year-old children could understand metaphorical sentences and verbally explain metaphorical mappings (Liu & Mi, 2008). The reasons for this divergence have attracted academic attention. Metaphor induction methods, the selection of metaphorical expressions, and conceptual domains may impact experimental results (Mi, 2011). This disagreement needs to be resolved using various empirical methods.

Naturalistic observation should not be overlooked. Based on longitudinal data collected from naturalistic observation, Pan and Zhou (2018) identified 10 common types and three main functions of metaphors in Mandarin-speaking children's language production. They proposed the developmental tendencies and critical periods in preschool children's metaphor production.

As research in this field has progressed, scholars have found that children's metaphor production and comprehension may not develop in a balanced way. Children begin to possess metaphorical thinking at the age of four. As their metaphor identification, knowledge level, and logical thinking improve, their metaphor comprehension ability is enhanced. However, as children's age, vocabulary, knowledge, and experience increase, the number of metaphors they use shows a declining trend (Gao & Wu, 2015).

Research on Children's Picture Books (Literature)

The high-frequency keywords "spatial metaphor", "children's picture books", and "children's perspective" primarily represent the research orientation of exploring the social and cultural characteristics behind different types of metaphors in children's literature or picture books.

Wu and Xiang (2014) analyzed body and spatial metaphors in children's literature on May 4th Movement and explored constructing China's image from children's perspective. Based on the framework of visual grammar and conceptual metaphor theory, Xie and Guo (2017) analyzed how spatial elements in children's picture books construct textual, interpersonal, and conceptual meanings. They emphasized that spatial metaphor was one strategy to convey meaning. Zhao (2020) further analyzed the application and teaching implications of spatial metaphors "up/down", "front/back", "big/small", "far/near", and "center/edge" in children's picture books. They suggested that spatial metaphors help develop children's thinking ability and spatial cognition. Teachers should be aware of spatial metaphors in picture books. Furthermore, nursery rhymes have gradually entered the academic field. Liao (2020) classified metaphorical mapping based on a nursery rhymes corpus to discuss embodied cognition's importance.

Research on Children's Metaphorical Cognition

The seventh most frequent keyword "cognition" (first appeared in 2007) is related to Cluster #4: cognitive linguistics.

Domestic researchers place significant importance on adopting cognitive views on child metaphor and exploring children's cognitive development through different metaphor types. Wu, Yang, and Liu (2007) and Wu, Chen, Wu, and Qian (2016) analyzed the occurrence time, order, and frequency of spatial words in primary and secondary school students' compositions, identified the metaphorical domain of "high/low", and revealed the relationship between children's abstract and spatial concept development. Wu et al. (2016) examined the metaphorical representation of social status in children's drawings. Zhai, Lu, and Lu (2016) investigated the cognitive development of vertical spatial metaphors of moral concepts in different-aged children. They adopted picture-selection and word-selection tasks and found that spatial metaphors of "morality is above and immorality is below" began to appear in early childhood. This initiation occurred at Ages 4 to 5,

basically formed at Ages 7 to 9, and approached adult levels at Ages 11 to 13. Lu, Guo, and Feng (2017) investigated the psychological representation of vertical spatial metaphors of moral concepts among children involved in bullying behavior and found that their cognition of moral concepts was biased and did not conform to conventional ones. Du, Lin, and Chen (2020) verified through experiments that children possessed the same “left/right” spatial-time metaphorical schema as adults at Grade 3 in primary school.

Studies of Metaphoric Competence of Special Children

Researchers have focused on the metaphorical deficits of autistic children and interventions and metaphor comprehension of hearing-impaired children. Chen, Li, and Chen (2020), for example, compared metaphor processing and comprehension between hearing-impaired children and normally developing children. They found that metaphor processing and comprehension of normally developing children were significantly better than those of hearing-impaired children and that the semantic level affected metaphor processing and comprehension of hearing-impaired children. The processing and understanding of conventional metaphors by hearing-impaired children are significantly better than that of novel metaphors.

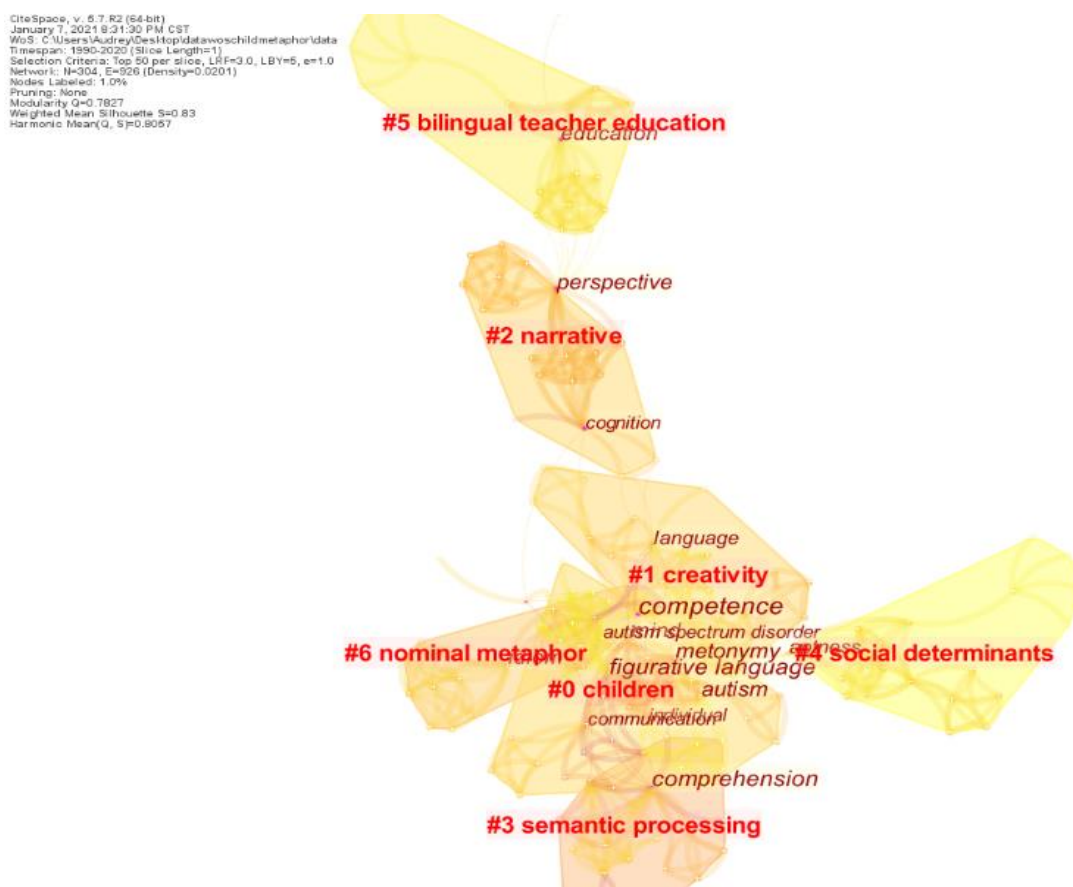


Figure 3. Keywords cluster co-occurrence map of overseas research on child metaphor.

Hotspots in Foreign Research on Child Metaphor

The English literature was imported into CiteSpace and re-examined. The time slice was set from 1990 to 2020, partitioned annually, and the term sources selected were “Title”, “Abstract”, “Author Keywords”, and

“Keywords Plus”. In the functional area, “Keyword” was selected, the N value for the number of objects in each time slice was set to 50, and the software was run. Subsequently, the keyword clustering co-occurrence graph was automatically generated and manually adjusted as above:

Figure 3 displays a Q value of 0.7827, an S value of 0.83, and a total of 62 clusters formed in the graph, with seven displayed in the figure. Cluster #0, labeled “children”, includes high-frequency keywords such as “figurative language”, “metonymy”, “mind”, and “Autism Spectrum Disorder (ASD)”. Cluster #1, “creativity”, encompasses “competence” and “language”. Cluster #2, “narrative”, includes “perspective” and “cognition”. In Cluster #3, “semantic processing”, the keyword “comprehension” is found. Cluster #4, “social determinants”, contains the keyword “aptness”. Cluster #5, “bilingual teacher education”, includes “education”. Finally, Cluster #6, “nominal metaphor”, includes the keyword “idiom”. Apart from “metaphor” (20 occurrences) and “children” (four occurrences), which are essential to this research topic, the other Top 20 keywords, their frequency (F), and the first year of occurrence are listed in Table 2 below:

Table 2

List of Top 20 High-Frequency Keywords in Overseas Research on Child Metaphor

No.	Keywords	F	Year	No.	Keywords	F	Year	No.	Keywords	F	Year
1	(Metaphor) comprehension	14	1990	8	ASD	4	2017	15	Perspective	3	2012
2	Language	13	1996	9	Autism	4	2010	16	Ability	3	2009
3	Mind	12	2009	10	Disorder	4	2007	17	Education	3	2012
4	Competence	9	2012	11	Idiom	4	1998	18	Assessment	3	2012
5	Figurative language	9	1998	12	Acquisition	4	1997	19	Cognition	3	2004
6	Metonymy	6	2009	13	Individual	4	2005	20	Age	3	1998
7	Emergence	4	1996	14	Novel metaphor	3	2016				

From the above clustering and high-frequency keywords, several focuses of international research on child metaphor exist.

Studies of Metaphor Comprehension

The keyword “metaphor comprehension” is the most frequent, appearing 14 times, first noted in 1990. Researchers have utilized various measurement methods to explore the development and influencing factors of children’s metaphor comprehension, their processing of non-literal language, and abstract concepts.

Regarding measurement methods, Pearson (1990) pioneered the induced repetition task, comparing it with the repetition and imitation tasks, arguing that the induced repetition task could test the subjects’ semantic representation ability and was suitable for preschool children’s cognitive characteristics. Winer et al. (2001) proposed that a judgment paradigm combined with verbal interpretation was more reliable. Consequently, the verbal interpretation paradigm was commonly used to measure metaphor comprehension (Ozcaliskan, 2007). The question-answering paradigm (multiple-choice questions and open-ended questions) was employed to explore children’s ability to understand metaphors in discourse (Seigneuric et al., 2016).

Regarding the developmental trend of children’s metaphor comprehension ability, researchers have varying perspectives and findings. Pearson (1990) studied metaphor comprehension using an elicited repetition task, comparing metaphor repetitions with semantically well-formed literal sentences and semantically anomalous sentences, all matched for length, vocabulary, and sentence structure. For children, metaphorical

sentences were not abnormal in meaning, and they processed them similarly to literal sentences. Winer et al. (2001) proposed that children's ability to understand non-literal language such as metaphor, irony, and exaggeration increased with age. Adults had a better understanding of non-literal language and initially interpreted sentences metaphorically. Ozcaliskan (2007) found that before Age 4, children could understand metaphors in stories, and before Age 5, they could comprehend isolated metaphors. Gesture usage affected children's metaphorical ability. Before Age 4, children perceived metaphorical concepts as objects, using gestures to express object movement. Before Age 5, children communicated metaphorical meanings using gestures consistent with the target domain. The study confirmed that metaphor was an early cognitive and linguistic ability, providing evidence for the embodied nature of conceptual metaphor.

The above studies indicate that preschool children already possess metaphor comprehension, and factors such as sentence length, vocabulary difficulty, context, and gesture may affect their metaphor comprehension ability. Additionally, Rubio-Fernandez and Grassmann (2016) proposed two other influencing factors: implicit analogical reasoning and unconventional naming for familiar things.

Additionally, the concepts involved in metaphors also affected understanding. Ozcaliskan (2007) examined children's understanding of the metaphorical motion "time flies by". Stites and Ozcaliskan (2013) further classified spatial metaphors for time into three types: moving-time, moving-ego, and sequence-as-position, and examined the comprehension and interpretation of these types of metaphors in children aged three to six and adults. Studies confirmed that young children possessed both metaphor comprehension and interpretation abilities. The comprehension and interpretation of the first two types were better than that of the third type. Children's physical experiences played a crucial role in understanding abstract time concepts.

Metaphorically denoting abstract concepts through spatial concepts is a common phenomenon in many languages. Besides the abstract concept of "time", scholars also paid attention to the representation of music-related concepts. Antovidic (2008) studied metaphorical representations of music-related concepts in Serbian and Romanian children. Shayan, Ozturk, Bowerman, and Majid (2014) found that different languages used different metaphors to denote pitch, and they conducted a cross-language study on the development of pitch-thickness mapping. Through a cross-modal association task, they examined the matching ability of Farsi, Turkish, German, and English-speaking children and adults in thickness-pitch association. Thus, the effect of spatial metaphor on the development of children's ability in cross-modal mapping was explored. They found that humans' thickness-pitch association was acquired through learning, and the thickness-pitch metaphor in language could promote the development of this mapping ability.

Scholars have reached some agreement on whether there is a difference between children's processing of metaphorical and literal language. For children, metaphorical sentences were not semantically anomalous and were processed in the same way as literal sentences (Pearson, 1990). Understanding rhetorical language required the same processing and background knowledge as understanding literal language, and children's ability to read literal language predicted their ability to understand non-literal language (Seigneuric et al., 2016).

Studies of Children's Metaphor Production

Gottfried (1997) started focusing on the metaphor production of preschool children. An induced production experiment was conducted on preschool children to investigate their ability to produce metaphorical

compound words. Studies indicated that preschool children developed the ability to use metaphorical language early, and significant developmental changes occurred between the ages of three and five. Furthermore, Perez-Hernandez and Duvignau (2016) classified the semantic approximations in the data collected from French children, analyzed the use of metaphor, metonymy, and their interaction in semantic approximations by children of different ages in language acquisition, and explored the nature and cognitive motivations of semantic approximations.

Studies of Metaphor and Creativity Cultivation

Taylor (2012) studied metaphors in classroom discourse by observing and analyzing the spontaneous metaphors used by children to convey creative meanings and conducting a multimodal discourse analysis of children's classroom interactions.

The development of preschool children's metaphorical ability should not be overlooked. Scholars have analyzed the metaphor production of kindergarten teachers and its impact on teaching activities. Bialecka-Pikul (2010) found that metaphor was a reliable tool to test children's Theory of Mind (ToM), which refers to people's ability to perceive and understand ideas, desires, emotions, and feelings in others' minds.

Metaphor Studies on Special Children

In English literature, a significant proportion of metaphor studies focus on special educational needs children. Since the 1990s, scholars have been attracted to the use of verbal and visual metaphors, metaphor comprehension, and metonymy understanding of special children with hearing impairment, language disorder, Williams Syndrome, learning disability, and epilepsy. The majority of metaphor studies have been conducted on children with Autistic Spectrum Disorder (ASD).

The study of metaphors in special children predominantly focuses on metaphor comprehension. Herwegen and Rundblad (2018) conducted both cross-sectional and longitudinal experiments to explore the comprehension of novel metaphors and metonymy in children, adolescents, and adults with Autism Spectrum Disorder (ASD). Their studies revealed that the rhetorical language comprehension of autistic children of all ages is weaker than that of their neurotypical counterparts. Specifically, the cross-sectional experiments indicated that age did not predict the comprehension of novel metaphors or metonymy, while the longitudinal experiments demonstrated a gradual improvement in children's comprehension as they aged. Lee et al. (2019) examined teaching methods to enhance metaphor comprehension in children with ASD, investigating their understanding of metaphors based on physical and abstract features by using echo cues, picture cues, and discourse cues for children aged five to eight with ASD. Their research indicated that this type of guidance positively impacted metaphor comprehension. Additionally, they suggested that visual stimulation, guiding students to identify associations and common features between two elements in a metaphor, should also be a crucial approach to enhance metaphor comprehension. Pastor-Cerezuela, Fernández-Andrés, Tordera-Yllescas, and González-Sala (2020) conducted experiments involving three groups of subjects, aged six to 12: autistic children as the experimental group, a group of neurotypical children matched with the experimental group based on physiological age, and a group of neurotypical children matched with the experimental group based on language ability. The results revealed that the age-matched group outperformed the language-matched group in comprehending both conventional and novel metaphors; the language-matched group outperformed the experimental group in metaphor comprehension; and the comprehension of conventional metaphors was superior to that of novel metaphors.

Studies of the Social Functions of Metaphor

Since humans think through metaphors and reason through analogies, metaphors, as a way of thinking, affect people's understanding and perspectives of social issues, as well as the criteria for judging social behavior. Some scholars have explored the effect of metaphor in advertising and whether the use of metaphor can enhance primary school children's understanding and memory of advertisements (Pawlowski, Badzinski, & Nancy, 1998). Others have investigated people's understanding of the social factors of child abuse and neglect through metaphor studies (Kendall-Taylor & Stanley, 2018). There have also been studies exploring the use of metaphor to inspire students' perception of mathematical similarities (Lehrer & Confrey, 2002). Perez-Marina, Hijón-Neiraa, Baceloa, and Pizarro (2020) attempted to teach basic programming concepts by applying metaphor-based teaching methods, which proved to be effective in promoting the development of computational thinking in children.

Metaphor Studies of Children's Literature (Picture Books)

Scholars have conducted metaphor analyses in children's literature involving imaginary space (Grandy & Tuber, 2009) and explored the interaction between language and visual patterns in multimodal works (Guijarro & Jesus, 2016), discovering that symbolic metaphors in pictures have become a fundamental means for children to understand abstract concepts in fairy tales. Liang and O'Halloran (2016) examined the verbal, pictorial, and multimodal metaphors in children's picture books. According to the mapping relationship between target domains and source domains, they identified three types of metaphors: personification, domestication, and cross-experience metaphors. They also compared their educational effects and discussed the pedagogical implications.

Reflections and Prospects

From the analysis above, it is evident that some consensus has been reached in the study of child metaphors globally. Preschool children (three to five years old) have the awareness and ability to understand non-literal language such as metaphors, and their understanding ability increases with age. Children acquire the ability to understand and use metaphors involving abstract concepts later. Moreover, children's cognition of abstract concepts is related to the characteristics of the language itself. Spatial metaphors in language can affect children's cognition of spatial concepts.

However, there are still some under-researched areas in the field of child metaphor research.

Firstly, compared to research on metaphor comprehension, there are fewer findings in the studies of metaphor production. Studies on the initiation and developmental trends of metaphor production need to be further refined. The exploration of special children's metaphor production also deserves more attention from scholars. The influence of specific contexts, body movements, and external factors on children's metaphoric competence remains to be determined. The specific characteristics of child metaphors in different age groups still need to be further explored.

Although many achievements have been made in the study of children's metaphor comprehension, there is still much room for improvement. Most existing studies have been conducted through experimental methods. Due to different research paradigms and experimental materials, the results vary significantly. Therefore, scholars in this field have not reached an agreement on the overall trajectory of children's metaphor comprehension, representation, and processing mechanisms of different abstract concepts. To obtain more

comprehensive and objective findings, it is necessary to expand the research from the age of subjects, research methods, and measurement tools. The establishment of a large corpus of Chinese children may be an effective method to promote the studies of language development. Moreover, on this basis, the establishment of a multilingual children's corpus could help scholars conduct cross-language child metaphor research, explore the formation and development mechanisms of metaphorical thinking, and reveal the cognitive rules in human thinking.

Secondly, children's literature or picture books reflect the characteristics of children's written language and are also an important medium to promote the development of children's written language. In recent years, researchers globally have analyzed the types of metaphors in such texts, the characteristics of the interaction of language and pictures, and the establishment of children's literature corpora. There have been some representative findings in this field, but there is still much room for further exploration.

Thirdly, compared to international research findings on child metaphors, domestic research deserves more attention from scholars. Most studies on the development trends and influencing factors of children's metaphoric competence have been conducted in English, Turkish, and Spanish. The findings lack validation in native Chinese-speaking children. Based on the study of Chinese children, cross-language metaphor research is of major significance to explore the common characteristics and processing mechanisms of human non-literal language ability development. Additionally, international scholars attach major importance to the creative meaning-making in children's classroom discourse and the cultivation of preschool children's metaphoric competence, while this has not attracted much attention from domestic scholars. The influence of metaphorical discourse on children and the critical metaphor analysis of children's discourse are also aspects that need to be expanded in the future.

In conclusion, this paper applies CiteSpace to conduct a bibliometric analysis of child metaphor research globally, revealing the hot topics in the past 30 years and clarifying the future research prospects in this field.

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