The Application of Schema Theory in the Process of Interpretation

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Abstract. The interpretation process involves complicated cognitive activities, such as comprehension of the source language, memorization and reproduction of the target language. With the booming of research on cognitive science and psychology, the feasibility of schema theory in interpretation studies stands out. This paper starts with reviewing schema theory, and then analyses the roles of schemata in the whole interpretation process: comprehension, memorizing and expression and proposes three major tactics of schemata accumulation, modification and re-construction for an interpreter to polish interpretation performances.

Keywords: Schema theory · Interpretation process · Tactics

1 Introduction

"Schema" is a very important concept in cognitive psychology, which is used to explain some cognitive phenomena of human beings. Carefully analyzing the research literature on schema theory, it can be found that schema is an abstract summary of past experience, schema is a dynamically evolving structure, and all schemas of a person constitute the sum of this person's knowledge. Any cognitive processing in the brain involves the activation of relevant schemas [1]. Therefore, schema has a very important practical significance for people to explore the cognitive process of human beings.

The process of interpretation involves very complex cognitive processes, such as the comprehension of the original language, the memory, the construction and expression of the target language, etc. To explore how this series of cognitive processes is realized, it cannot be solved by simple interpretation research alone, and an interdisciplinary research model must be used to promote the development of interpretation research [2]. Therefore, in recent years, schema theory has also been tentatively applied to interpretation research. The research data and results show that schema is closely related to interpretation results, but there is not much specific analysis and elaboration of these results. Even if there is, it is mostly limited to the analysis of schema theory in the stage of interpretation comprehension, and does not cover the entire interpretation process. In order to make up for this gap, this paper starts with the review of schema

theory, and explores in detail the important roles of schema theory in the process of interpreting listening, discrimination, memory, and expression, and put forward techniques and strategies to maximize the use of the theory to improve the quality of interpreting according to the respective characteristics of schema and interpretation, that is, in the practice process, if people can consciously expand, adjust and reconstruct the schema, they can better help the interpreter to complete the interpretation task and improve the quality of interpretation.

2   Schema Theory and Its Relevance to Interpretation

The relatively complete schema theory was first proposed by Piaget. He believes that schema refers to the way individuals perceive, understand and think about the world, is the framework or organizational structure of human psychological activities, and is the basis for human understanding of things. Schema is a knowledge structure in which known things or information are stored in the human brain. It is an abstract knowledge structure in which humans store existing knowledge and life experience. The stored knowledge determines the way humans understand and observe things. A schema consists of basic elements and multiple variables. Schemas exist in an abstract form in long-term memory, and can be activated by certain stimuli to make them concrete. Schemas have three properties: First, they are growable. Humans can add new content to the old schema to expand the schema; second, they are adjustable. When the old schema is found to be wrong or not suitable for the new situation, the existing schema can be modified; third, they can be newly created. Humans can construct new schemas after encountering new things or experiences. It can be seen from the three characteristics of schemas that when people come into contact with new things, they always consciously or unconsciously compare them with the existing related or similar schemas in their own brains, and adjust them, so as to constantly revise and improve the existing schemas. If the new information and the existing schema are similar or the same, only a small amount of effort is required to adjust; If the difference between the two is large, it will take a lot of effort to adjust the original schema; If there is no related or similar schema in mind, it needs to be reconstructed. Piaget divided schemas into three categories: language schemata, content schemata, and structure schemata. Language schemata refers to people's mastery of language, including basic knowledge of phonetics, vocabulary and grammar; content schemata refers to background knowledge about text content; structure schemata is related to text background knowledge of various rhetorical structures. Schema theory emphasizes two types of information processing, top-down processing and bottom-up processing. It is based on the belief that people's cognitive system is organized hierarchically, with the most basic perceptual systems at the bottom and the most complex cognitive systems at the top. Bottom-up means that the human cognitive system processes the acquired sensory information from the bottom up until this information matches the information in people's long-term memory; top-down means that the human cognitive system processes information from the top down, in which predictions based on past knowledge accumulation or context play an important role.

Seleskovitch believes that interpretation is a triangular process in which the construction of meaning lies at the apex of the triangle. She believes that meaning is a kind of non-linguistic awareness, a synthesis of the linguistic meaning activated by the utterance and the cognitive meaning of the listener. From the perspective of psycholinguistics, understanding in interpreting means that the translator creates a sufficient mental representation through cognitive processes based on the original text and his/her own knowledge. The knowledge here is the sum of the schemas in the translator's mind, including language schemata, content schemata and structure schemata related to the original text. If the translator is familiar with the original text, the comprehension process is the process of activation of existing schemas in the schema set (long-term memory); If the translator is only familiar with part of the original text, this process is the construction process of the new schema; If the translator is completely unfamiliar with the original text, it will not make any sense from the perspective of the language schema, but the translator can infer the information through the content schemata and structure schemata previously activated or constructed. From the two types of information processing and interpretation features of schema theory, understanding can only arise if the received information activates the relevant schema in long-term memory; conversely, if the information does not activate a schema or if the associated schema does not exist in the long-term memory, no understanding would occur. It can be seen that the bottom-up processing is the basis of understanding, and the language schemata plays a key role. At the same time, the top-down processing is equally important, providing a context for comprehension, in which content schemata and structure schemata play a key role [3].

3   The Role of Schema Theory in the Process of Interpretation

Although there are differences in the interpretation of the interpreting process among different schools, the interpreting process is generally considered to include the following factors: listening comprehension, memory, and target language expression. Comprehension, as the first important link in the interpreting process, undertakes the work of decoding speech information, and lays the foundation for subsequent memory and target language expression, so it has received more attention from interpreting researchers.

3.1   The Role of Schema Theory in Listening Comprehension

3.1.1   Schemas Provide an Ideational Scaffolding for Receiving Primitive Information

Interpreters build psychological expectations by activating the existing schemas in their minds, and effectively reduce the burden of listening, discrimination and understanding through active prediction. For example, when an interpreter translates at the UN Security Council, the relevant schemas in the interpreter's mind about the topics of the conference and the general structure of the speeches of the participants will be activated. Through the presentation of the first few sentences of the speaker, it is possible for the interpreter to determine the general direction of the development of the subsequent content, thereby speeding up the understanding process.

3.1.2 Schemas Contribute to the Distribution of Attention

Schemas help the interpreter to selectively focus on certain elements of the source information depending on the situation. For example, when an interpreter is translating at a press conference, the schema about the speaker's speech in the past will help him judge the content of the speech, determine which parts of the speech content are key information and which are secondary information, so as to consciously allocate attention and achieve smooth and effective information understanding.

3.1.3 Schemas Contribute to Inferential Elaboration

On many occasions, the speaker does not express his/her point of view clearly due to various reasons, and the way of speaking is more subtle and euphemistic, which requires the interpreter to make inferences based on certain clues in the discourse text combined with the existing schema, so as to realize the original effective comprehension of language information. For example, the original language information received by the interpreter contains the following contents: first, the global economy is generally weak due to the financial crisis; second, the Chinese economy is recovering strongly, but China is not Superman; third, the global economic outlook is confusing. Although the speaker does not say it explicitly, the interpreter can infer from the schema related to Superman that this passage expresses such a point: Although Superman is omnipotent and always stands up when others are in danger, China cannot Like Superman, because of its current economic strength and influence, it is impossible for China to pull the world economy out of the quagmire. It can be seen that, with the help of relevant schemas, interpreters can play derivatively on the information in the discourse text, and then interpret the implicit relationship between the information, so as to achieve an effective understanding of the content of the original language.

3.1.4 Schemas Help with Ambiguity Eraser

During the process of interpretation, interpreters often encounter the semantic ambiguity of words or phrases or the syntactic ambiguity of sentences. Interpreters often eliminate ambiguity through the context established by the schema, and produce the correct understanding. For example, if they need to translate the following two sentences:

Example 1: 他已经走了一个小时了.

Example 2: Mike hit the nail right on the head.

In Example 1, "走" can be translated as "been walking" or "been away" depending on the context. Example 2 can be understood as "麦克钉钉子正好打在钉头上 (Mike's nail just hit the nail head)", it can also be understood as "麦克的头正好碰在钉子上 (Mike's head just hit the nail)". If the speaker is describing how Mike drove a nail with a hammer, the first understanding is more contextual; if the speaker is explaining why Mike was taken to the hospital emergency room by a neighbor, the second understanding is obviously more appropriate.

3.2   The Role of Schemas in Memory

3.2.1   Schemas Can Speed up the Process of Comprehension in Interpretation

In interpreting, comprehension is the process of converting what people hear into their own thoughts. Thorough understanding is the foundation of memory. Cognitive psychology believes that memory traces are by-products of information processing. The greater the depth of information processing, the longer the information is retained. That is to say, the more thorough the understanding of memory materials, the better the memory effect. Schemas play an important role in language comprehension, which can provide reference for interpreting the content of the text, help in the establishment and selection of word meaning, and help in the prediction of the following, thus speeding up the understanding process [4].

3.2.2   Schemas Can Simplify the Memory Process

The schema theory shows that people store information according to certain rules when they memorize information. Similarly, interpretation memory is not a simple memory process, but a process in which the interpreter compares, matches, and classifies the new information heard with the information already in the brain. Schemas make this process automatic and fast, thus simplifying the memory process.

3.2.3   Schemas Make the Progress of Memory Faster

The human brain needs the most time for semantic processing, but much less time for image memory. This shows that interpreters should use their imagination as much as possible to increase the proportion of images in the process of memorization [5]. It is not difficult to understand that the schemas have a high degree of image because of the clear structure, so they can make the progress of memory faster.

3.3   The Role of Schemas in the Target Language Expression Stage

3.3.1   Schemas Can Reduce the Pressure of Interpreters

Due to the immediacy, unpredictability and high information content of interpretation, the interpreter bears a relatively large amount of pressure compared with translation, and the stored graphic system of text structure and style helps interpreters reduce the pressure, thus effectively promoting the reconstruction of information. Taking diplomatic speeches as an example, in diplomatic speeches, many structural words and sentences are fixed, such as China's Five Basic Principles of Peaceful Coexistence. If the interpreter already has the relevant pre-translation schema reinforcement, it will be more fluent in the expression process, thereby improving the quality of interpretation in the target language.

3.3.2   Reasonably Supplementing and Reconstructing the Information

Due to the time pressure of interpreting activities, interpreters may miss part of the information, not be able to remember all the information, or only rely on some keywords in

the form of acronyms and special symbols to recall some specific content (especially consecutive interpretation). This will affect the fast, complete and accurate conversion and expression of information, and affect the effect of interpretation. If the above situation occurs, the interpreter needs to activate the relevant schemas when converting the expressed information, and reasonably supplement and reconstruct the utterance or recorded information according to the relevant schemas such as the discourse context, communicative environment and theme, and strive to ensure the integrity and cohesion of the information [6].

4 Skills and Strategies for Improving Interpretation Quality Using Schema Theory

4.1 Extended Schemas

People have this experience when discussing the role of schemas in listening comprehension. If the listening comprehension has no relevant background knowledge at all before the listening test, the listener must be confused by the lack of indirect schemas, because it is difficult to conceptualize that information immediately in the brain. It is easier for people to understand when they have relevant information and a network of diagrams and gradually grasp this knowledge. Similarly, a feasible way is for the interpreter to continuously accumulate and enrich illustrations on the basis of his existing schemas, adding more accurate and useful sub-schemas and meaning units. In this way, interpreters and listeners can fully mobilize their schemas to make their understanding easier.

For example: 蝶, 最终升华了梁山伯和祝英台现实中无法团圆的悲剧.

Translation: Turning into butterfly lovers finally elevated the tragic reality that Liang Shanbo and Zhu Yingtai, Romeo and Juliet in ancient China, could not stay with each other.

Through the analogy of similar characters in the two cultures, the audience can better understand the core content of the interpretation. Sometimes, the source language and the target do not always correspond, and this is a very common linguistic and cultural phenomenon. However, if translators can consciously accumulate and expand this type of schema, and can master the skills to deal with them, they can improve the audience's ability to mobilize their cognitive schema and promote their acceptance of the translated text.

4.2 Adjusting the Schema

In order to ensure the high quality of interpretation, relevant linguistic and cultural knowledge cannot be ignored, because interpretation involves people from different cultures who master different languages. In the final stage of interpretation, the expression stage, the interpreter should compare the schema he has received from the source language culture with the schema received by the audience. If the interpreter feels that the differences in the schemas will mislead the audience, he needs to adjust those interfering schemas so that the adjusted schemas are more acceptable and more correct in terms of target language understanding [7].

For example, Premier Wen Jiabao pointed out in the 2011 Government Work Report that the two historic issues of "winning a fight" and "not deteriorating" are interrelated and unified in building a strong people's army.

The MP's translation goes like this: Being able to fight and win and being able not to degenerate are interlinked and integrated into the construction of a strong PLA.

As it known to all, "not degenerate" is a typical Chinese word, and it is not entirely appropriate for the translator to translate it as "degenerate". Because "degenerate" in the Western political field refers more to corruption, and here Premier Wen refers to the fact that the essence and purpose of the People's Liberation Army remain unchanged and serve the masses. The interpreter's translation failed to adjust the schema in time, which would cause misunderstandings by foreign audiences.

After adjusting the schema, a more appropriate translation is: Being able to fight and win and always maintain its political color, are interrelated and complementary in constructing a robot PLA.

4.3 Reconstructing Schemas

It is easy to understand that specific life experiences and stereotyped schemas may be more dominant than what people say about communities, where people share similar living environments, language norms, and backgrounds. Cultural differences inevitably lead people to have their own unique schemas, and schema defaults also appear when two languages interact with each other. In the actual situation of interpretation, if the interpreter does not master it properly, it often happens that the schema with unique cultural characteristics does not reflect its proper function [8]. It also often happens that, some culturally specific schemas are completely lost in the target language. Occasionally, the source language translator may overlook some background knowledge due to lack of awareness of the different cultures being communicated, or because of the principles of language economy. This background knowledge may not be absorbed by the listener's cognitive range, and the interpreter may also miss important information that can fill in the holes of the schema in his speech. When faced with this kind of problem, the situation of the interpreter is quite severe. In this case, interpreters tend to choose to deal with the translation in a direct way, rather than mobilizing relevant explanatory sub-schemas to fill the cultural gaps in the target language. In this way, the listener is likely to be confused or even misinterpret the meaning of the source language. Therefore, once the schema in the source language is new information to the target language culture, the interpreter should adopt the strategy of schema reorganization, or provide relevant information in his translation, so that the translation is rich in connotation and extension to the listener [9].

For example, a speech by Premier Zhu Rongji: "……这几天, 台湾的选情波谲云诡, 急转直下, 用尽了权谋手段; 这让我想起了中国古代的司马昭, 这些举动不就是有人要让'台独'势力上台吗?".

The interpreter's translation is as follows:

In these few days, the Taiwan election campaign, with dramatic changes, has been fraud with treachery and schemes, which make me think of an ancient Chinese personality named "Sima Zhao". Some people are trying their best to make the one who is

for Taiwan independence win the election. Well, Sima Zhao is notorious for his hidden ambition being so clear to see for anyone.

Premier Zhu Rongji's remarks expressed his criticism and condemnation of the Taiwan authorities. However, instead of using harsh and direct diplomatic language, he borrowed a historical allusion to express his dissatisfaction. Considering that the foreign audience may not be familiar with the allusion or have never heard it, the interpreter reconstructed a new schema to explain the connotation of the allusion. The reconstructed schema information helps listeners reconstruct their cultural and contextual schemas, thereby better understanding the connotation and cultural characteristics of the original speech.

Schema expansion and reorganization can help people deal with schema gaps [10]. Experienced interpreters can make reasonable assumptions within the cognitive domain of the target language audience to determine whether corresponding schemas exist in the target language culture and language. Once the interpreter has identified a schema gap in the listener's brain, the interpreter can employ strategies to bridge the gap and reconstruct an understandable contextual schema. When dealing with schema conflicts, interpreters can apply schema adjustments to adapt to both sides of the conflict, so that the target language listeners can accept the information.

5   Conclusion

Through the above discussion, it can be seen that the schema theory has great enlightening significance to the teaching and practice of interpretation. In interpretation teaching, it is not enough for teachers to only teach interpreting skills. They should also clarify the schema awareness of students, train students to consciously summarize vocabulary schemas, topic schemas, chapter structure schemas, etc., develop their habit of memorizing according to the schema, improve the understanding of information and improve the memory effect, and strengthen the expansion and activation of relevant schema knowledge, and improve the quality and efficiency of interpretation. In addition, interpreting students should pay attention to the accumulation of background knowledge, expand their knowledge through various channels, and strive to cultivate themselves into "miscellaneous experts", which will help reduce the burden of information processing in the process of interpretation and improve the quality of interpretation [11]. Activated schemas play a pivotal role in the three stages of interpretation, including listening, memory and expression. It is feasible and beneficial to introduce schemas and schema theory into the field of interpreting research. However, the current research in this area has not received enough attention, and only some studies are not systematic and detailed enough. This paper is only a trivial attempt in this regard, hoping to attract the attention of interpreting educators and enthusiasts to schema theory, and conduct related research in this area, so as to improve the quality of interpretation.

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