

Short-term Memory Training for Interpreters: Strategies and Applications

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Abstract: Interpreting is the oral translation of spoken language from one language into another. Short-term memory (STM) plays a pivotal role in the interpreting process. By examining the characteristics of STM in interpreting and using the City Profile of Nanchong City as a case study, this paper explores training strategies for enhancing STM capacity among interpreting learners. The aim is to improve the quality and efficacy of interpreting performance, thereby laying a solid foundation for future interpreting practice.

Keywords: Interpreting, Short-term Memory, Training Strategies.

1. Introduction

Interpreting is a communicative act involving the rapid and accurate oral conversion of perceived and comprehended information from one language into another. Its purpose is the complete and timely transmission of communicative content, serving as a fundamental means of cross-cultural and cross-ethnic communication in modern society^[1]. The delivery of information in interpreting is instantaneous and one-off, which means interpreters do not have sufficient time to re-understand the source language. They can only receive and transmit the source language information in a single pass. Therefore, short-term memory plays a particularly important role in the process of information storage and processing.

The *City Profile* of Nanchong City, published by the Nanchong Municipal People's Government in April 2025, provides a comprehensive overview of the city's geography, economy, culture, and customs. This text, rich in data, place names, and policy terms, is representative of materials encountered in scenarios like city promotion and investment conferences, making it an ideal case study for STM training in interpreting. Therefore, this paper utilizes Nanchong's *City Profile* to identify STM training strategies employed by interpreters and analyze their specific application within this context.

2. Short-term Memory

Human memory is categorized into sensory memory, short-term memory (STM), and long-term memory (LTM). Sensory memory retains information for an extremely brief duration, often less than one second. Long-term memory refers to the retention of information over extended periods, encompassing knowledge and experience accumulated through learning, as well as background knowledge, specialized term, and vocabulary prepared before an interpreting assignment^[2]. Short-term memory retains information for up to one minute, typically between 5 to 20 seconds, rarely exceeding 60 seconds. It has a limited capacity, generally holding 7 ± 2 distinct chunks or units^[3]. Its function is to temporarily store information captured by the brain before subjecting it to processing such as classification and interpretation. The brief of STM is crucial for interpreters,

representing a critical moment of cognitive processing. Thus, STM plays a vital role in interpreting.

During interpreting, STM first receives source language information filtered by sensory memory. Not all sensory information enters STM. However, only a portion that is consciously attended to or noticed undergoes semantic processing within STM. To better retain information, STM further processes incoming data. The interpreter engages in deliberate memorization during listening comprehension. The stronger the purposefulness, the faster the information processing. Compared to sensory memory and long-term memory, STM excels at temporarily storing information, integrating logic, and providing a buffer time for note-taking, making it indispensable in interpreting.

3. Training Strategies for Short-term Memory

STM capacity can be enhanced through dedicated training employing correct and efficient methods, coupled with continuous practice and experience summary. Strategies such as filtering information entering STM, using rehearsal for retention, and applying chunking techniques can expand STM's information capacity, thereby facilitating storage and comprehension^[4].

3.1. Rehearsal Strategy

The rehearsal strategy involves mentally repeating the content to be remembered, maintaining focus on it to keep it temporarily active within STM. Generally, the more frequently information is rehearsed, the greater the recall. However, rehearsal in interpreting is not mere verbatim repetition of sentences. The core task is conveying the meaning and intent of the source language, not mechanically memorizing and reproducing its linguistic symbols. Therefore, rehearsal in interpreting entails understanding the source message and processing its main ideas and key phrases. Common STM rehearsal strategies include monolingual rehearsal and shadowing rehearsal.

3.1.1. Monolingual Rehearsal

When beginning monolingual rehearsal training, interpreting learners should select materials with minimal specialized terms, tailored to their comprehension level.

Practice must rely solely on mental memory without any note-taking assistance.

The duration of rehearsal should be progressively extended based on material difficulty and the learner's memory capacity, starting from 5, 10, or 15 seconds and gradually increasing to 30 seconds, 1 minute, or longer^[5]. Training materials can begin with CCTV News, then move on to China Daily, TED Talks, and finally BBC content. Practice units should advance from simple sentences to complex sentences and discourse. For simple sentences, the focus is on accurate verbatim recall to train the memory precision. For complex sentences and discourse, the initial goal is to recall the main idea. What's more, proficiency in recalling supporting details comes later. Learners should strive for concise reformulation while preserving meaning. The objective at the stage is not rote imitation but developing the ability to understand and express meaning independently of the source language structure. After rehearsing and correcting the source language output, learners advance to listening to the source language and rehearsing in the target language.

3.1.2. Shadowing Rehearsal

Shadowing training requires learners to repeat the speaker's content with a slight delay, approximately one word to one sentence behind, aiming to achieve simultaneous listening comprehension and vocalization.

The delay interval should be adjusted flexibly based on the training stage, material difficulty, and the learner's attentional coordination. Initial practice can use Chinese materials to help adapt to the rhythm of simultaneous "listening - memorizing - speaking", gradually improving divided attention allocation. Once proficient with Chinese, transition to English materials. It starts with non-specialized content featuring clear pronunciation, beginning with a 1-2 word delay, progressing to 3-5 words, then to sense groups, half-sentences, or full sentences.

Monolingual rehearsal should follow the shadowing exercise to consolidate and test STM retention. As practice is central to developing communicative competence, role-playing scenarios in groups of 2-3 people, followed by peer feedback, is recommended to optimize training effectiveness^[6].

3.2. Chunking Strategy

Chunking training focuses on the logical structure of the source text. It reduces the number of information units that need to be memorized by integrating scattered information points into larger units according to different logical levels and memorizing these chunks through keywords. In this way, memorizing an entire segment is transformed into memorizing several keywords and logical clues^[7]. For example, when processing narrative texts containing time, place, and event, information such as "2025", "Nanchong City", and "Investment Promotion Conference" can be integrated into the core chunk of "Annual Investment Promotion Event", and then the structure can be built through secondary keywords like "contract amount" and "cooperation areas".

Memorizing lengthy segments word-by-word or sentence-by-sentence quickly reaches STM capacity limits. An interpreter cannot mentally recall every word in sequence nor notate everything verbatim. What the interpreter retains is the core meaning of utterances or discourse. Reorganizing information around these core meanings significantly increases STM capacity. Therefore, a hierarchical chunking

strategy clarifies the thought processes. Learners should aim to reduce information loss by expanding chunk size, decreasing the number of memorized items, and rapidly integrating incoming information into meaningful larger units for efficient memorization and comprehension.

3.3. Organizational Strategy

The organizational strategy involves categorizing the content to be remembered during the memorization process based on different meanings, grouping it into distinct themes, or transforming its form. Subsequently, specific methods are used to retrieve previously stored knowledge from LTM that is relevant in category or theme to the currently received discourse. This prior knowledge is then integrated with the new information for processing and storage^[8].

For qualified interpreters, their memory reserves encompass several aspects: first, an understanding of the structural patterns of different types of discourse. For example, a speech typically follows a structure of opening remarks, arguments, and conclusions; second, scenario knowledge, which means familiarity with the characteristics of different communicative contexts, such as the differences in language style and communication logic between business negotiations and academic seminars; third, encyclopedic knowledge, which is possessing basic general knowledge across various fields, including politics, economy, culture, and more.

During interpreting, this organizational strategy aids in more efficient information processing. For instance, when hearing discourse about urban development, the interpreter naturally categorizes mentioned economic data, infrastructure projects, and policy plans, while simultaneously activating relevant urban development knowledge from LTM. Integrating new information with existing knowledge strengthens retention and comprehension accuracy, forming a solid basis for subsequent translation output.

4. Case Study

Nanchong's *City Profile*, a representative text for city promotion and investment scenarios, encompasses information across geography, economy, history, culture, resources, and transportation. It contains numerous figures, proper nouns, and policy terms, posing specific challenges to the interpreter's STM processing. It analyzes the practical application of the previously discussed rehearsal, chunking, and organizational strategies using examples from this text.

ST1: 南充市位于四川盆地东北、嘉陵江中游, 辖3区1市5县、人口697.7万, 幅员面积1.25万平方公里, 是四川省第二人口大市、中国优秀旅游城市、国家园林城市、全国清洁能源示范城市、久负盛名的“绸都”, 国家规划确定的成渝经济区北部中心城市、成渝城市群区域中心城市和川陕革命老区重要节点城市。^[9]

TT1: Nanchong is located in the northeast of the Sichuan Basin and the middle reaches of the Jialing River. It administers 3 districts, 1 county-level city and 5 counties, with a population of 6.977 million and an area of 12,500 square kilometers. As Sichuan's second most populous city, it holds titles including "China Excellent Tourism City", "National Garden City" and "Famous Silk Capital". It is designated by the state as a northern central city of the Chengdu-Chongqing Economic Zone, a regional center of the Chengdu-Chongqing urban agglomeration, and a key node of the Sichuan-Shaanxi revolutionary old area.

Analysis: This text introduces Nanchong's geographical location, administrative divisions, population, area, and urban positioning. When processing this segment, interpreters can divide the information into 4 chunks: basic geographical information, population and area data, city titles, and strategic positioning. Each chunk is anchored by keywords. For instance, the keyword for the last sentence “designated by the state as a northern central city of the Chengdu-Chongqing Economic Zone, a regional center of the Chengdu-Chongqing urban agglomeration, and a key node of the Sichuan-Shaanxi revolutionary old area” is “Chengdu-Chongqing Economic Zone”. This compresses multiple scattered information points into 4 memory units, breaking through the capacity limit of short-term memory. Meanwhile, during listening, interpreters can strengthen impressions and clarify logic through rehearsal, quickly recalling figures and parallel titles to ensure the information sequence and corresponding relationships remain unconfused, thus preparing in advance for adjusting word order in target language output.

ST2: 根据地区生产总值统一核算初步结果, 2024 年南充市地区生产总值(GDP)2861.7 亿元, 按不变价格计算, 比上年增长 5.1%。其中, 第一产业增加值 471.0 亿元, 增长 2.6%; 第二产业增加值 778.5 亿元, 增长 3.4%; 第三产业增加值 1612.2 亿元, 增长 6.8%。三次产业对经济增长的贡献率分别为 9.3%、19.3%和 71.4%。三次产业结构由上年的 16.6 : 27.9 : 55.5 调整为 16.5 : 27.2 : 56.3。^[9]

TT2: Preliminary accounting shows that Nanchong's GDP reached 286.17 billion yuan in 2024, an increase of 5.1% over the previous year at constant prices. Among them, the primary industry added 47.1 billion yuan, up by 2.6%; the secondary industry added 77.85 billion yuan, up by 3.4%; the tertiary industry added 161.22 billion yuan, up by 6.8%. The contribution rates of the three industries to economic growth were 9.3%, 19.3% and 71.4% respectively, with the industrial structure adjusted from 16.6 : 27.9 : 55.5 to 16.5 : 27.2 : 56.3.

Analysis: This text mainly illustrates Nanchong's economic output through specific data. When processing this segment, interpreters can strategically break down the information into four core chunks: total GDP and its annual growth rate, sector-specific added value, the contribution rates, and changes in the industrial structure ratio. Within each chunk, sub-units are structured around the logic of “data plus contextual relationship” to avoid memorizing individual numbers in isolation. At the same time, interpreters can draw on their long-term memory knowledge of the national economy to clarify the internal logical relationships, strengthen memory by understanding the meaning, and help ensure the accurate correspondence between figures and industry types.

ST3: 南充是三国文化和春节文化的发祥地, 民风淳朴, 民俗优雅, 三国文化、丝绸文化、红色文化和嘉陵江文化交融生辉, 川北大木偶、川北灯戏、川北剪纸、川北皮影饮誉中外, 孕育了辞赋大家司马相如、史学大家陈寿、天文历法巨匠落下闳和忠义大将军纪信等众多历史名人。^[9]

TT3: As the birthplace of the Three Kingdoms culture and the Spring Festival culture, Nanchong boasts simple folk customs and elegant traditions. Its Three Kingdoms culture, silk culture, red culture and Jialing River culture blend harmoniously. Local arts such as Chuanbei big puppet shows, lantern operas, paper-cutting and shadow plays are renowned at home and abroad. The city has nurtured many historical

figures, including the great fu poet Sima Xiangru, the eminent historian Chen Shou (author of Records of the Three Kingdoms), the master astronomer and calendarist Luo Xiahong, and the loyal general Ji Xin.

Analysis: This text mainly presents Nanchong's history and culture through professional terminology, posing certain challenges in handling culture-specific items and proper nouns. When processing this content, interpreters can draw on their long-term memory related to “Three Kingdoms Culture” and “Red Culture”. Such background knowledge can guide appropriate translation choices, ensuring that terms are neither overly embellished nor culturally inaccurate. In addition, the four folk arts “Chuanbei big puppet shows” “Chuanbei lantern operas” “Chuanbei paper-cutting” “Chuanbei shadow plays” can be integrated into the overarching chunk of “Four Major Chuanbei Folk Arts”. Similarly, historical figures such as Sima Xiangru, Chen Shou, Luo Xiahong and Ji Xin can be categorized into the “Historical Celebrities” chunk, with their identities serving as memory anchors. Immediate rehearsal of these chunks named “4 types of folk arts” and “4 historical celebrities” can strengthen their impression in working memory. When outputting the interpretation, interpreters can then retrieve specific names and details from their long-term memory to expand these chunks, ensuring both processing efficiency and the richness of expression without omissions.

In summary, STM training strategies are effectively applicable to interpreting Nanchong's *City Profile*: Chunking reduces memory units, the organizational strategy deepens semantic associations, and rehearsal reinforces immediate recall. Together, these strategies enhance the efficiency and accuracy of information processing, providing cognitive support for interpreting complex texts^[10].

5. Conclusion

The unique nature of interpreting imposes significant demands on the interpreter's STM capacity. Interpreters require exceptional instantaneous memory to capture fleeting auditory signals, convert them into information, condense and filter it, and effectively store and retrieve the underlying meaning. Therefore, understanding the types and characteristics of memory in interpreting and summarizing practical and effective STM training methods is paramount. The rehearsal strategy, through monolingual and shadowing rehearsal, strengthens immediate information retention and is suitable for data-rich and logically clear texts. The chunking strategy reduces cognitive load through hierarchical integration and is highly effective for multi-dimensional, information-dense content. The organizational strategy leverages background knowledge from LTM to deepen semantic connections, proving valuable for processing complex cultural and policy-related information. The synergistic application of these three strategies enables interpreters to overcome memory capacity limitations, facilitating more precise and efficient information transmission in interpreting practice and providing reliable support for cross-cultural communication.

Acknowledgments

This work was financially supported by Higher Education Teaching Reform Project at China West Normal University (grant number: CWNUJG2024023), Key Project of Shu Dao Research Institute (grant number: SDYJB2402050), and Key

Research Center for Translation and Dissemination of Sanxingdui Culture (grant number: SXD25ZD01).

References

- [1] Mei, D. M. (2006). *Advanced interpretation course*. Shanghai Foreign Language Education Press.
- [2] Jonathan, K. F. (2009). *Memory: A very short introduction*. Oxford University Press.
- [3] Lu, X. C. (2009). *English-Chinese interpretation skills course - Interpretation*. Tourism Education Press.
- [4] Huang, C. N. (2014). Strategies for improving short-term memory ability in interpretation under the theory of skilled memory. *Contemporary Education Theory and Practice*, 6(6), 96–98.
- [5] Kong, M. L. (2013). A brief analysis of short-term memory training methods in interpretation teaching. *China Education Innovation Herald*, (19), 83.
- [6] Zuo, J., & Liu, H. P. (2011). Image schema and shadowing in simultaneous interpretation: An empirical study based on schema theory. *Chinese Translators Journal*, 32(5), 58–61, 96.
- [7] Ren, W., & Hu, M. X. (2010). Cognitive analysis of memory mechanism in consecutive interpretation and memory training strategies. *New Perspectives in Translation Studies*, (00), 251–264.
- [8] Zhang, Y. C. (2009). Short-term memory in interpretation and its training. *Journal of Changshu Institute of Technology*, 23(6), 87–89.
- [9] Nanchong Municipal People's Government. (2025, April 8). *City profile* [Electronic resource]. https://www.nanchong.gov.cn/zjnc/ncgk/sqgl/t_625056.html
- [10] Chen, C. M. (2013). A brief discussion on ways to improve short-term memory in English interpretation teaching. *Journal of Mudanjiang College of Education*, (1), 117–118.