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Analysis of the Use of DeepSeek in Paragraph Patterns in Chinese Learning

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ABSTRACT

This technological development has a significant impact in various fields, especially in the advancement of the Chinese language. Chinese has paragraph patterns in its writing. This research aims to find out the Chinese paragraph patterns developed through DeepSeek artificial intelligence technology by Chinese language study program students. This research uses a qualitative approach by collecting data in the form of Chinese essay texts written by students using the help of DeepSeek. The results show that paragraph patterns can be divided into three, namely deductive, inductive, mixed paragraph patterns. In deductive paragraphs, there are two paragraph structures, namely first, KT (topic sentence)-KPL(direct developer sentence), this structure is not found in the data that the researchers studied, then the second KT -KPL-KPT (indirect developer sentence) is found in the data in this study. Furthermore, the inductive paragraph pattern has two paragraph structures, namely first, KPL -KT then the second KPT -KPL-KT. Meanwhile, the finding of mixed paragraph patterns is a special finding. This proves that despite using DeepSeek in its use, there are differences in paragraph structures developed by the technology.

1. Introduction

The development of Artificial Intelligence (AI) technology has had a significant impact in various fields, including education (Syuhada, et al., 2024). One aspect that has received great attention is language learning, especially foreign languages such as Mandarin (Sutami, 2021). Mandarin is one of the international languages with the largest number of speakers in the world (Pradinata & Hermawan, 2020). This makes Mandarin in great demand by various groups. Mandarin is known as a complex language because it has a character-based writing system that is different from the alphabet.

Students learning Chinese often face difficulties in understanding proper structure and grammar. Therefore, the question arises as to how AI can assist in Chinese writing patterns, both in aspects of grammar, paragraph structure, and proper character selection. Thus, an innovative approach is needed to facilitate a more effective learning process. According to Li et al. (2025) the use of AI in Chinese learning not only improves learning efficiency but also enables higher achievement in language acquisition with an approach that suits individual needs. This suggests that AI can be a valuable tool in overcoming the difficulties faced by Chinese learners. Research on language processing in Chinese language learning has shown significant progress along with the development of Artificial Intelligence technology. This AI technology can replace the role of humans in certain fields of work. This is in accordance with Farwati, et al. (2023) who states that the use of AI will be very much needed in its use in the future.

DeepSeek is one of the AI technologies originally developed for programming code generation. Now its use is expanded in language processing including Chinese. The advantage of DeepSeek lies in its ability to understand complex structures, so it has the potential to be used as a tool in learning Chinese grammar. With this deepening, it can reduce the emergence of challenges for Mandarin speakers. This is in accordance with research conducted by Duan (2023) which states the common challenges faced by foreign speakers in writing Chinese sentences, namely, word order errors, lexical selection, and errors in distinguishing arguments. However, the semantic role labeling (SRL) approach in the study showed that the text could still be understood by native speakers, even though it contained structural errors.

This finding is in line research by Xu (2019) comparing the writing of students from China, Thailand, and Indonesia which states that linguistic differences, such as sentence length, vocabulary variation, and structure are strongly influenced by native language background which then affects the effectiveness of using AI tools such as DeepSeek in cross-cultural learning. In addition, Liu (2017) also revealed that there are two structure patterns between Chinese students and Western students, namely deductive (演绎) and inductive (归纳).

Deductive paragraphs are paragraphs where the main idea is at the beginning of the paragraph, followed by explanations and supporting evidence, while inductive paragraphs are paragraphs that begin with facts or examples, then close with a conclusion. This is in accordance with research from Suladi (2019) who states that paragraph structures are deductive and inductive. all of which emphasize the importance of unity, cohesion, and coherence. Meanwhile, in Indonesian there are mixed paragraphs. Mixed paragraphs are a form of reasoning in which paragraph writing is characterized by placing the main sentence or main idea at the beginning and at the end of the paragraph (Syahputra, et al., 2022). This pattern presents the main idea first then continues with several explanatory or developer sentences that support and expand the main idea, and ends with a reaffirmation of the main idea in the form of a conclusion.

In addition, in the paragraph pattern Suladi (2019) explains about 4 paragraph structures, namely (1) KT- KPL, (2) KT -KPL -KPT , (3) KPL -KT , (4) KPT -KPL-KT . The pattern of paragraph (1) is KT-KPL, where KT is the main sentence that shows the main idea, while the sentence is categorized as KPL if in its explanation it supports the topic sentence. Usually, this KPL is characterized by giving examples. So this pattern is a variation of deductive paragraphs because the main idea is at the beginning. Paragraph pattern (2) KT-KPL-KPT is the structure of this paragraph pattern starting with one topic sentence followed by two direct development sentences. The KT sentence conveys the main idea, the first KPL provides the first explanation or illustration, the second KPL reinforces the idea with additional explanations or examples. Then there is a KPT that shows a reaffirmation sentence and usually also shows a conclusion. This pattern is usually found in paragraphs that want to explain one idea in more depth through two points of view or two relevant pieces of evidence. So this pattern is a variation of the complex deductive paragraph. Paragraph pattern (3) KPL-KT is a paragraph that begins with explanatory sentences and ends with a topic sentence as the main idea. This structure is called an inductive paragraph, because the main idea is placed at the end. Paragraph pattern (4) KPT-KPL-KT is a paragraph that begins with an indirect developer sentence, followed by a direct developer sentence, and ends with a topic sentence as the main idea of the paragraph. This is a complex and gradual inductive paragraph form.

The KPL includes a word for conclusion and a word for summary, 总体而言 (overall), which is used to end the explanation and summarize the point. This is in line with Ross and Ma (2014) who state that 总体而言 or 总而言之 is the same word used to conclude or summarize an opinion at the end of a paragraph. There is also the word 因此 (therefore), 因此 is one of the cause-effect conjunctions in Chinese. This word is used to show the result of the previously mentioned cause. This is in accordance with Andriani's (2017) opinion which states that the word 因此 can function as a conjunction that states a conclusion, but not in the sense of the final conclusion of the entire text as in essay or report writing which means summarizing the results of a particular cause. There is also the word 总之 (in short) which is also one of the conclusion words.

With AI such as ChatGPT, DeepSeek, and others are commonly used AI technologies. DeepSeek is one of the AI models developed by a Chinese company. This model performs natural language processing, including in Mandarin. students tend to rely more on digital tools to analyze the correct writing patterns without understanding the formation process. This potentially reduces their ability to understand Chinese writing patterns which can make students less alert to writing errors and can hinder the learning process. This situation raises important questions about the extent to which AI affects the quality of Chinese learning, especially in Chinese paragraph pattern skills among students of Ma Chung University's Chinese Language Education Program. Therefore, this study aims to analyze the Chinese writing patterns produced by students with the help of DeepSeek. By understanding how AI contributes to this learning, this study can provide insights into the

effectiveness of AI in improving Chinese paragraph pattern writing skills and what kind of Chinese paragraph patterns are generated by DeepSeek.

2. Methodology

The type of research used in this study is descriptive qualitative research. This qualitative research is used to obtain information about the current situation and see between existing variables (Nirmalasari et al., 2022). This research aims to analyze, describe, and understand the structure of paragraph patterns in Chinese. Through this approach, data in the form of Chinese essay texts are analyzed with the help of the DeepSeek tool. The results of the analysis are then observed and documented.

The data sources of this research are paragraphs written by Chinese language study program students in 2022 using DeepSeek. The data sources of this research amounted to 10 data sources. From these data sources, data in the form of paragraph patterns are obtained.

Data collection techniques are done through documentation techniques. The author gives instructions about the discussion that must be written by students. After students completed the task, the author transferred the writing results into a table to facilitate analysis. This research focuses on analyzing text results regarding the use of DeepSeek in helping to write and understand Chinese paragraph patterns.

The data analysis method in this study refers to the approach proposed by Creswell (2014) who distinguishes data analysis into two types, namely general analysis and specific analysis. Data analysis in general is systematic steps in managing and understanding data. In general data analysis, there are 5 stages, namely data collection, data reduction, data classification, data presentation, and conclusions. The first stage, the data collection stage, the author asks students to write a paragraph with the same prompt, namely make an essay with the theme of the role of using AI in Chinese with 100 characters in Chinese. Then students were asked to write in paragraph form. Then the data was collected to be analyzed. Second, at the data reduction stage, the data obtained were selected based on certain criteria, namely a minimum of 5 sentences and a total of 90-100 characters. Third, at the data classification stage, the data that has been selected is then classified based on the number of characters and the number of sentences. Fourth, at the data presentation stage, the data is coded based on certain categories before conclusions are drawn.

Next is a special data analysis, special data analysis is data analysis carried out based on the formulation of the problem. The problem formulation of this research is to find out the students' paragraph patterns developed through the use of DeepSeek. Thus, the data analysis was carried out by classifying the data into deductive and inductive paragraphs and then sorted by paragraph pattern based on Liu (2017) which states that there are two paragraph patterns, namely deductive and inductive. Then after the data is classified based on the main sentence, the data will be classified again based on Suladi (2019), namely topic sentences, direct developer

sentences, and indirect developer sentences. Each of these classifications can be classified based on paragraph structure. The data is analyzed based on the theory and then the data will be presented.

3. Result and Discussion

Deductive Paragraph Pattern

Deductive paragraph pattern is a paragraph pattern in which the main idea is located at the beginning of the sentence. In this pattern, the main topic or opinion is usually presented at the beginning of the writing, then supported by arguments and evidence in (Liu, 2017). From the deductive paragraph pattern, two paragraph structures are found as follows.

Paragraph Structure KT-KPL

This structure begins with a topic sentence that contains the main idea, then followed by several direct developer sentences that explain the idea directly. This is in accordance with the opinion of Suladi (2019) which states that this structure is characterized by the first sentence containing the main idea which is then followed by sentences that support the topic sentence. This pattern is commonly used in deductive paragraphs because the main idea is located at the beginning of the paragraph (Liu, 2017). However, based on the research results, no paragraph pattern with the KT- KPL structure was found because each sentence at the end shows the conclusion part.

Paragraph Structure of KT-KPL-KPT

This structure also begins with a topic sentence, then continues with a direct developer sentence, and an indirect developer sentence that explains or further details the direct developer sentence. This is in accordance with the opinion of Suladi (2019) which states that this two structure has a structural pattern with a main sentence that shows the main idea, then the next sentence shows support such as providing examples, and the last sentence provides a conclusion from the sentence. This pattern includes deductive paragraph patterns that are more complex and thorough because they contain additional information gradually. This is in accordance with the opinion of Liu (2017) who argues that the complex deductive paragraph pattern is characterized by the presence of a conclusion that explains the conclusion at the end of the sentence and provides the main idea in the main sentence. The following is the data from the research found.

Figure 1 and 2 show that the sentences have a KT-KPL-KPT structure. The KT in figure 1 is "人工智能对汉语学习的影响很大" (the influence of AI technology on Chinese is huge). The sentence is categorized as a KT because it explains the main idea of the paragraph. The main idea of the sentence is characterized by the presence of the subject pattern (S), namely "人工智能" (AI technology) marked at the

beginning of the sentence. This is in accordance with Mahmud (2017) which states that a word is classified as a subject if it is located at the beginning. the heading (preposition) is "对汉语的" (against Chinese), the predicate part (P) is characterized by the presence of verbs or adjectives, this is in accordance with Mahmud (2017) who states that the predicate is characterized by the presence of verbs or adjectives, the predicate of the sentence is "印象很大" (Very big influence). Then the sentence categorized as KT is "它可以帮助学生练习发音、语法和词汇,提高学习效率" (he can help students practice pronunciation, grammar, and vocabulary) is a KPL sentence because it supports the main idea of the topic sentence.

Then the sentence "因此, 合理使用AI才能更好地掌握汉语" (therefore, the proper use of AI can improve Chinese learning) this sentence is included in the KPT sentence because the sentence provides the conclusion of the paragraph and the appearance of the word 因此 which indicates the conclusion sentence (Andriani, 2017). Then in the paragraph there is also a sentence that shows the element of opposition, namely the word 然而 (however) found in quote 1. And in quote 2 there is a word that shows the conclusion, namely 总体而言. This word is used to end the explanation and summarize the point (Ross and Ma, 2014).

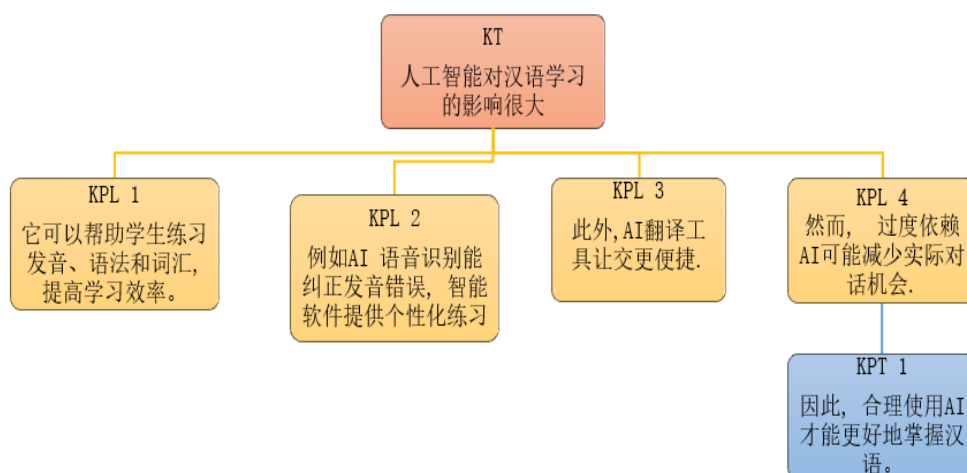


Figure 1. Paragraph structure KT-KPL-KPT

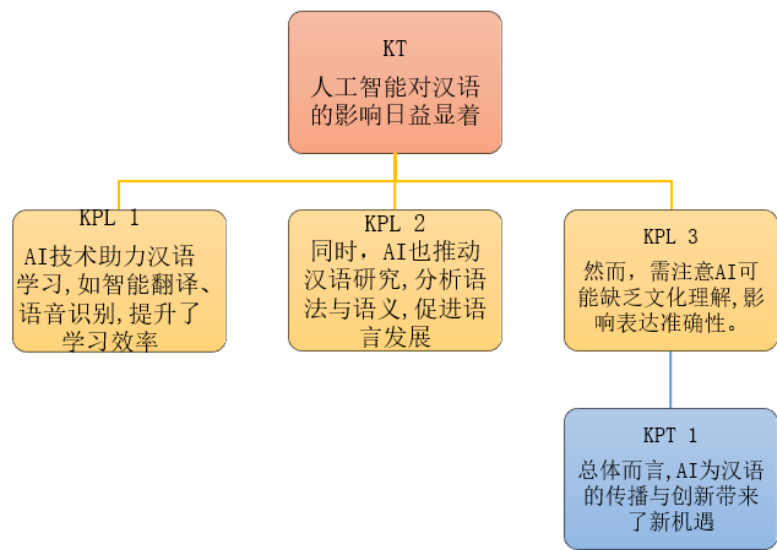


Figure 2. Paragraph Structure KT-KPL-KPT

Inductive Paragraph structures

An inductive paragraph pattern is one in which the main idea is located at the end of the paragraph. This paragraph pattern does not directly state the main opinion, but develops the background with facts, then draws a conclusion at the end (Liu, 2017). From the paragraph pattern, the two paragraph structures can be explained as follows.

KPL-KT Paragraph Structure

In this structure, the paragraph begins with a developer sentence, then ends with a topic sentence as the main idea. This is in accordance with Suladi (2019) theory which explains that this pattern is characterized by KT located at the end of the sentence. This paragraph is called an inductive paragraph because the main idea is located at the end of the sentence (Liu, 2017). The following is the research data.

Figure 3 shows that it has a KPL-KT structure, namely 人工智能对中文学习产生了深远的影响 (the influence of AI in Chinese learning has a profound effect). The sentence is categorized as an SVC because it provides a general explanation that supports the KT and explains the impact of using AI by giving an example. Then the KT in the figure is 未来,人工智能将更深入地融入语言教育体系,加速中文的国际化进程" (In the future, artificial intelligence will be integrated more deeply into the language education system, thus accelerating the internationalization of Chinese). The sentence is categorized as KT if it shows the main idea of the paragraph. This is in accordance with Suladi (2019) theory who states that KT

sentences are characterized by the main idea of the paragraph. This main idea is characterized by the presence of a time adverb structure, namely 未来 (in the future), subject, namely 人工智能. A word is categorized as a subject if it appears before the predicate (Mahmud, 2017). A word is classified as a predicate when it comes after the subject (Mahmud, 2017), so the predicate of the sentence is 将更深入的融入 (There will be deeper integration).

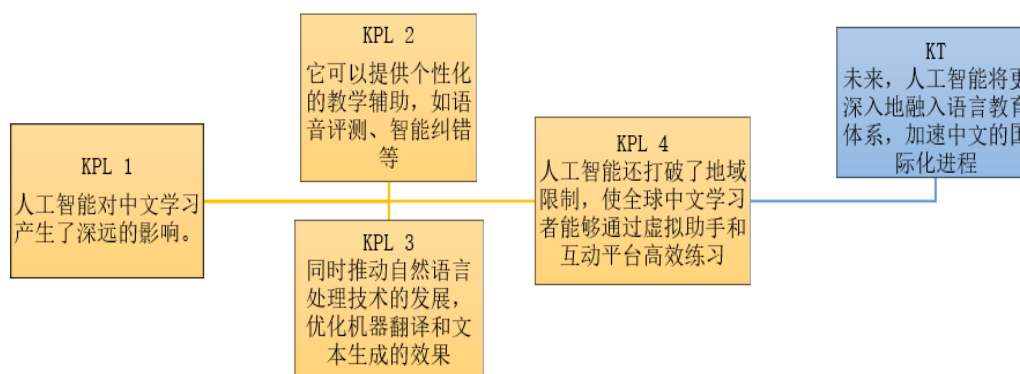


Figure 3. KPL-KT Paragraph Structure

Paragraph Structure KPT-KPL-KT

This structure has the topic sentence at the end of the paragraph. There are several developer sentences before the topic sentence, and there are developer sentences after it. This gives the impression that the topic sentence appears as a temporary conclusion of the previous sentences and becomes a reference for the sentence after it. This is in accordance with the opinion of Suladi (2019) which states that the structure is categorized as the structure of this paragraph pattern if in the structure the KPT is located at the beginning and ends with KT which shows the main idea of the paragraph. But this paragraph is not found in this study because at the beginning of the sentence is a KT sentence and not a KPL sentence, then the paragraph provides a conclusion at the end and is given a reaffirmation to strengthen the first KT.

Mixed Paragraph Structure

This pattern is a special finding pattern because this finding uses a prompt written in Indonesian which produces an Indonesian paragraph pattern, namely a mixed paragraph pattern. In this pattern, the main sentence or main idea is located at the beginning and end of the paragraph with the middle part filled with explanatory sentences or developers that support and strengthen the main idea (Syahputra et al., 2022).

Figure 4 shows the KT-KPL-KPT-KT structure. KT 1 人工智能的快速发展为汉语学习带来了许多便利 (The rapid development of Artificial Intelligence has

brought many conveniences to Chinese language learning). This sentence expresses the main idea of the paragraph as it explains the topic at hand which is that AI brings benefits to Chinese learning. then 首先, AI 翻译和DeepL能快速准确地翻译中文, 帮助学习者理解词汇和句子 (first, AI and DeepL translators can quickly provide Chinese corrections, helping students understand vocabulary and sentences). The sentence is categorized as a KPL because the function of the sentence is to support the main idea with facts, concrete examples, and refutation. Then the KPT in the figure is 因此, AI 应作为辅助工具, 而非唯学习方式 (Therefore, AI should be used as an auxiliary tool, not as a learning method). the sentence is a KPT because this sentence expresses a conclusion that functions as an evaluation or affirmation of opinion on the topic. And finally KT 2 合理利用 AI,将大提升汉语学习的效果(Proper use of AI will greatly improve the effectiveness of Chinese learning). This sentence is a KT because it is the main idea of the KPL in the form of a conclusion. This is in accordance with the research of Syahputra, Hamidiyah, and Nasution (2022) which states that the mixed pattern consists of the paragraph pattern Main sentence - Explanatory sentence - Main sentence. Mixed paragraphs help strengthen the main idea because it is mentioned twice. Then in this paragraph there are also words that have elements of relationships, such as relationships that express things or events outside the statement such as the word 此外 (besides that) found in figure 4.

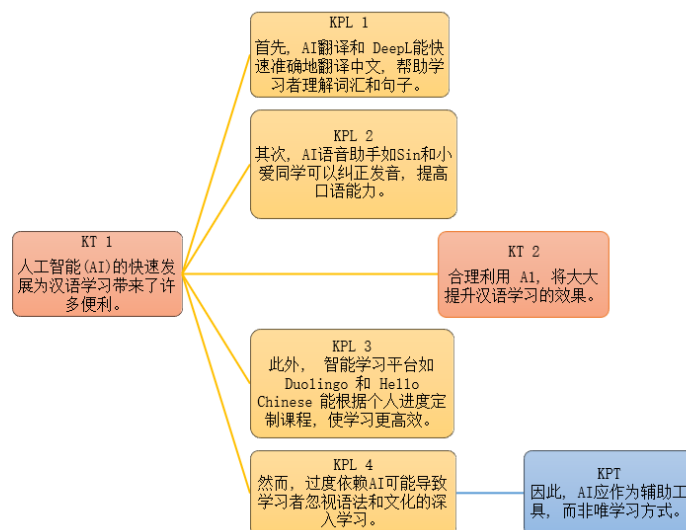


Figure 4. Mixed Paragraph Structure

4. Conclusion

The results show that the use of DeepSeek on Chinese paragraph patterns shows a difference, which is characterized by the difference in the main idea of the paragraph, there is a main idea of the paragraph located at the beginning, namely the deductive paragraph pattern and there is an inductive paragraph pattern, namely

the main idea of the paragraph located at the end of the sentence. From the deductive paragraph pattern, there is a KT-KPL-KPT structure found in 7 data characterized by the vocabulary 然而,例如, and 此外. Students generally began the paragraph with a statement about the impact of artificial intelligence on Chinese language learning, then outlined direct support such as the use of translation technology, speech recognition and finally reinforced the idea with additional considerations both in terms of long-term impact and suggestions for wise use.

Then the inductive paragraph pattern there is a KPL-KT paragraph structure found 1 data with the vocabulary found 同时 (at the same time) and 通过 (through), and there is also a mixed paragraph pattern found 2 data characterized by the presence of words contained in the deductive and contained in the inductive section, namely 例如(example), 然而, 同时 and 此外. In addition, in the conclusion section, there are also differences from the 10 research results found that the words often used in making conclusions are 因此, 总体而言, and 总之. Therefore, it can be concluded that although using DeepSeek using the same prompt, the use of AI DeepSeek technology has quite different paragraph patterns. Therefore, it can be concluded that in using AI such as DeepSeek, a clear and specific prompt should be written.

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