

Learning Strategies of Common Medical Words from the Perspective of Memetics: A Case Study of Medical English Literature Reading of Common Clinical Diseases

Jinsong Yang^{*,#}, Xinli Zhang[#], Jianfu Li

Guangdong Medical University, China

#These authors contributed to the work equally

**Corresponding Author*

Abstract: This study delves into the application of memes in the field of medical vocabulary learning strategies, proposing effective ways to utilize memes for efficient medical vocabulary acquisition. The aim is to address the challenges and inefficiencies associated with learning medical vocabulary. Employing both literature review and empirical research methods, an analysis was conducted based on a survey questionnaire administered to 100 students from the Foreign Language School of Guangdong Medical University. This integration is expected to boost the efficiency of medical education and promote the dissemination and exchange of medical concepts. The study underscores that medical terminology possesses distinctive lexical memes, primarily characterized by phenotypic memes, with cultural memes playing a minor role. Regarding learning strategies, the research illuminates that social, cognitive, memory, and meta-cognitive tactics are prioritized from high to low frequency among the surveyed population. An exploration of the interplay between memes and diverse learning strategies reveals that interventions targeting assimilation, memory retention, expression, and transmission of vocabulary memes can be tailored through varying learning approaches. By adeptly applying these strategies, learners can optimize their efficiency, facilitating a more effective and supportive learning process.

Keywords: Learning Strategies; Medical Words; Memetics; Medical English Literature; Clinical Diseases

1. Introduction

In recent years, there has been a growing body

of research exploring the application of Memetics in various fields, including linguistics, translation studies, and language teaching. Richard Dawkins first introduced the concept of Memetics in his seminal work, *The Selfish Gene*, where he described memes as units of cultural transmission analogous to genes in biological evolution. These memes, according to Dawkins, spread through imitation and propagate ideas and behaviors within cultures (1976). Blackmore (2000) further expanded on this concept in *The Meme Machine*, emphasizing the significant role of imitation in human evolution and cultural development. She posited that complex cognitive processes, such as language and scientific research, are deeply rooted in imitation, thus underscoring the potential of Memetics in understanding language learning and cultural transmission.

Subsequent studies by scholars like Richard Brodie and Aaron Lynch have explored the broader implications of Memetics across various domains, including philosophy, psychology, culture, sociology, and linguistics. For instance, Seiffert-Brockmann et al. (2018) proposed a theoretical framework for understanding the propagation of political memes online, highlighting the challenges in analyzing constantly evolving digital artifacts. Radim Chvaja (2020) compared Memetics with gene-culture coevolution theory, identifying the constraints within Memetics that necessitate empirical testing. Similarly, Schlaile et al. (2021) aimed to bridge the gap between theoretical development and empirical testing in organizational Memetics by providing a framework to capture and measure the diversity and interdependence of memes within organizational contexts.

Despite the progress in applying Memetics to various fields, its application to medical

vocabulary learning remains underexplored. Medical vocabulary, essential for effective communication between healthcare providers and patients, is inherently complex due to its specialized nature. Learning these terms poses significant challenges for students, particularly given their length and specificity. Su et al. (2012) emphasized more than two-thirds of medical English terms are derived from Latin and Greek.

Liu (2021) highlighted the cultural components of medical vocabulary, stressing the importance of understanding cultural influences to enhance vocabulary acquisition. Song (2015) proposed morpheme-based and syllable-based strategies integrated with phonological memory approaches. These studies underscore the need for innovative strategies to improve medical vocabulary learning.

In light of these findings, this study aims to explore the effectiveness of common medical vocabulary learning strategies from the perspective of Memetics. The primary research questions include: What are the main memes of medical vocabulary? What are the implications for medical students when using vocabulary learning strategies? How can Memetics improve the learning efficiency and memory capacity of medical humanistic vocabulary? The hypothesis is that medical words with strong Memetic properties are easier to recognize, remember, and transmit by learners. This research seeks to provide theoretical and practical insights into medical education, enhancing the understanding, retention, and dissemination of medical terminology.

The integration of Memetics into medical vocabulary learning is expected to address the inadequacies of traditional methods and offer new strategies for students. By understanding the principles behind meme transmission and selection, educators can craft more effective teaching methodologies. This study will contribute to the theoretical development of Memetics and its practical application in medical education, ultimately improving the efficacy of medical vocabulary learning and communication.

2. Methodology

The research utilizes a literature review method to define and elaborate on key

concepts such as medical vocabulary, Memetics, and learning strategies. This involves a thorough review and summary of relevant literature to establish a solid foundation for the study. The research employs text analysis, using the book “Medical English Literature Reading of Common Clinical Diseases” to analyze medical terms related to 100 common clinical diseases. Through a theoretical framework, the study categorizes, organizes, and analyzes these medical terms to identify and extract prevalent medical word memes. These extracted memes inform the design of a questionnaire. The questionnaire, designed with reference to various scholars including Wen (1996) and Zhu (2009) and then modified to align with meme theory, is distributed to over 100 randomly selected students from the School of Foreign Languages at Guangdong Medical University, most of whom are medical English students. This ensures the study's rigor. Data collection involves recording medical terms from the text and collecting questionnaire responses via the Questionnaire Star platform. Data analysis includes root and affix analysis of words and further examination of terms with special names, referencing the book “Medical English Lexicology”. Questionnaire data are processed using SPSS 23 for descriptive analysis, reliability, and validity analysis, comparing the efficacy of learning strategies to derive experimental data.

3. Theoretical Framework

3.1 A Brief Introduction to Memetics

Memetics serves as a theoretical and analytical model to examine the replication, evolution, and dissemination of ideas, behaviors, and cultural phenomena among humans, paralleling the biological processes observed in genes. This framework, introduced by evolutionary biologist Richard Dawkins in “The Selfish Gene” (1976), defines a “meme” as a unit of cultural information subject to variation, competition, and inheritance, similar to genes in biological evolution. Memes, derived from the Greek word *mimēma* meaning “imitated thing”, encapsulate the replication and dissemination of language, thought patterns, values, and customs, influencing recipients’ mindsets and

potentially spreading further across generations. They manifest in various forms, including slogans, musical tunes, fashion trends, and gestures, spreading rapidly upon gaining a foothold. Different scholars classify memes into phenotypic and cultural categories. Phenotypic memes, akin to biological phenotypes, refer to specific manifestations of cultural elements such as ideas, habits, technologies, or languages, characterized by their diversity, visibility, and adaptability. Cultural memes, on the other hand, proliferate within society through imitation and sharing, influencing behaviors and beliefs. These memes exhibit replicability, variability, and selectivity, enabling them to resonate widely and adapt to various cultural contexts. For instance, the concept of “The Sunshine Vitamin” simplifies the technical term “Vitamin D”, aiding public understanding, while the practice of mask-wearing during the COVID-19 pandemic illustrates the variability and cultural adaptation of health behaviors. Selectivity in cultural memes, akin to natural selection, favors the propagation of ideas and practices that align with societal values and needs, as exemplified by the widespread acceptance of vaccination. Overall, cultural memes play a crucial role in shaping and evolving culture by persisting and proliferating due to their effectiveness, attractiveness, or adaptability, thereby driving cultural development and transformation.

3.2 Memes in Learning Vocabulary

Integrating memes into the acquisition of medical vocabulary represents the innovative core of this research, addressing the significant learning challenges posed by medical terms. Vocabulary learning strategies can be categorized into direct and indirect strategies (Oxford, 1990). Direct strategies focus on detailed analysis and application of word structure, while indirect teaching involves contextual use in various language activities to enhance vocabulary application. Phenotypic memes, as vehicles of cultural transmission, expedite vocabulary acquisition by emphasizing the articulation and dissemination traits of medical terminology. The use of structural association through prefixes, suffixes, and roots forms a systematic memory module for learners, enhancing learning efficiency by embedding these elements into

their cognitive system. For instance, prefixes like “hyper-” in “hypertension” and “hyperlipemia” highlight the replication of strong memes. Cultural memes, encompassing ideas, customs, and linguistic elements within a culture, also play a vital role. Medical English vocabulary, often rooted in Greek mythology and Latin, includes terms like “Alzheimer’s disease” and “atlas”, derived from historical figures and mythological narratives. The interaction of Latin and Greek elements in medical terminology illustrates the profound cultural influence on language development. By integrating cultural elements and etymological analyses, learners can develop a deeper understanding of medical vocabulary, fostering a dynamic and engaging learning environment. Overall, the application of memetics in medical vocabulary acquisition offers a strategic innovation, enhancing learners' proficiency through the replication and dissemination of robust lexical memes.

4. Result and Discussion

4.1 Memes in Medical English Literature Reading of Common Clinical Diseases

Meme refers to the imitation and replication of language content, ways of thinking, values, and customs from one individual to another, ensuring effective communication by maintaining accuracy and stability of the content or subject being communicated. Therefore, the prerequisite for the spread of meme vocabulary is the accuracy and stability of the vocabulary itself. Medical English vocabulary is characterized by standardized and accurate wording, objective expression, and strict logic due to its primary origins in Latin and Greek. Statistics indicate that approximately 70% of medical English words are derived from Greek, and 25% from Latin (Cai, 2010). Latin and Greek languages are rich in roots and affixes, each with a fixed meaning, satisfying the conditions of accuracy and stability necessary for meme propagation. This particularity is demonstrated through phenotypic memes.

Based on these principles, 100 common medical words from literature can be compiled and summarized. The prefixes and suffixes with fixed meanings that appear frequently can be screened, leading to the creation of the following table data.

Table 1. The Number of Occurrences of Prefixes and Suffixes in 100 Medical Words

Prefix and suffix	Frequency	Percentage of total(%)
A/An-	7	3.5
Dys-	1	0.5
Epi	3	1.5
Hyper-	3	1.5
Hypo-	2	1
Intra-	1	0.5
Micro-	1	0.5
Pan-	1	0.5
-oma	4	2
-itis	10	5
-osis	4	2
emia	4	2
-pathy	1	0.5
In-	2	1
Intra-	1	0.5
Pre-	2	1
Re-	7	3.5
Sub-	1	0.5
-al	13	6.5
-ary	3	1.5
-ation	2	1
-ia	12	6
-ous	1	0.5
total	88	44

Additionally, the analysis of 100 diseases shows a significant prevalence of Greek and Latin prefixes and suffixes, with 23 prefixes and suffixes from these classical languages accounting for 44% of the terms reviewed. These findings are consistent with Li's survey (2006), underscoring the enduring influence of Greek and Latin on medical lexicon. This highlights the importance for learners to familiarize themselves with these elemental components to grasp the broader medical vocabulary effectively.

Furthermore, an analysis of other specialized medical terms, such as Alzheimer's Disease, Guillain-Barre Syndrome (GBS), and Parkinson's Disease, reveals that these terms lack fixed root affixes and are named after their discoverers or carriers. The rapid spread and formation of these words into a special meme can be attributed to the notable achievements of scientists in these medical fields and the growing public awareness of the frequency and impact of these diseases. Cultural memes, which are elements of ideas, customs, and language proliferating within a particular culture or social group, play a significant role in this process.

4.2 Descriptive Results of the Questionnaire

Learning strategies are the methods and means used by learners to effectively master a language. Numerous studies, both domestic and international, have confirmed that effective learning strategies are closely related to achieving ideal learning outcomes. There are various types of learning strategies, and this questionnaire focuses on the role of roots, affixes, and etymological culture in medical vocabulary learning. It also examines the transmission of roots, affixes, and etymological culture as memes, as well as the design of learning strategies.

To understand the learning strategies used by learners in medical English vocabulary acquisition, a survey was conducted among 102 students from a medical university. The questionnaire focused on strategies for learning medical English vocabulary. A total of 102 questionnaires were distributed and all were effectively recovered, providing comprehensive data for analysis.

Table 2. Questionnaire Reliability and Validity

Cronbach.α	0.965
KMO	0.916
Bartlett's sphere test	2634.179
df	780.000
p	0.000

The reliability coefficient is generally expected to be between 0 and 1, with a value above 0.9 indicating good reliability. Analysis using SPSS 23.0 revealed a reliability coefficient of 0.965, which confirms the high reliability of the questionnaire. Additionally, for data validity, the Kaiser-Meyer-Olkin (KMO) value should be greater than 0.8, and the p-value should be less than 0.05. The KMO value for this questionnaire was 0.916, and the p-value was 0.000, meeting these validity criteria.

SPSS 23.0 was used to conduct a descriptive analysis of the learning strategies, and the results are presented in Table 1 below. According to the average value of each strategy, based on Oxford (1990), the frequency of learners' use of medical English vocabulary learning strategies is represented. The survey results indicate that the strategies can be categorized into four types: cognitive strategies, comprehension strategies, memory strategies, and social strategies.

As shown in Table 3, the average value of the

four types of learning strategies is 3.775, indicating a medium level of usage. Cognitive strategies (M=3.79) and social strategies (M=3.80) are the most frequently used, while meta-cognitive strategies (M=2.99) and memory strategies (M=3.72) are the least used, suggesting that these four learning strategies are commonly employed by students. The data reveals that students are adept at identifying content words through affixes, focusing on verb analysis, and using fixed collocations for memorization. In Guangdong Medical University, teachers support vocabulary retention through group discussions and PPT courseware, leading to effective mastery. However, the lack of medical English learning materials hinders students' ability to make learning plans, evaluate outcomes, and improve strategies, resulting in insufficient use of meta-cognitive strategies. Additionally, the complexity and difficulty of medical English vocabulary reduce students' initiative in learning.

Table 3. Frequency of Use of the 4 Learning Strategies

Types of Strategies	Mean	Std. Deviation
Cognitive strategy	3.79	1.22
Meta-cognitive strategy	2.99	1.14
Memory strategy	3.72	1.23
Social strategy	3.80	1.20
Overall	3.77	

4.3 Discussion on the Use of English Learning Strategies with Memes

4.3.1. The use of Social Strategies

In this study, social strategies emerges as the most commonly used learning strategy (M=3.80). Among the social strategies, the most frequent was finding suitable scenarios to use medical vocabulary (M=3.89). This high usage can be attributed to a significant portion of the study population being senior students in the internship stage, where the content is related to medical English. The practice of learning through application has long been recognized as an effective strategy, and it is evident that students at Guangdong Medical University exhibit a high level of learning consciousness. The frequency of the other two learning strategies was also notable (both >3.75), indicating that students generally follow the teacher's plan and actively participate in group discussions.

Table.4 Frequency of Use of Various Learning Strategies in Social Strategies

Items	Mean	Std. Deviation
23. Do you seek out real-life situations to apply medical English vocabulary?	3.89	1.14
24. Do you participate in group discussions to help memorize medical vocabulary?	3.75	1.22
25. Do you agree that having a designated study plan is particularly helpful for learning medical vocabulary?	3.76	1.28

Social strategies for learning are specific methods and techniques used during social interactions to facilitate effective learning. During the follow-up process, some students reported that the teacher often asked them to create PPTs and teach medical vocabulary as “teachers”, and frequently engage in group discussions to broaden their thinking. Successful reproduction and propagation of language memes involve four stages: assimilation, memory, expression, and propagation, with each stage subject to selection (Henriksen, 1999). Group discussions and the “flipped classroom” model enable students to assimilate words learned in class, memorize them as their own memes, express the assimilated knowledge, and spread it within the group. This repetition helps in selecting simple, easy-to-understand memes with clear characteristics, which are then stored in learners' brains. This method not only deepens memory but also allows students to quickly use the knowledge in their own way when needed. Undeniably, such learning strategies can stimulate students' motivation and effectively improve the traditional classroom's monotonous mode.

4.3.2 The use of Cognitive Strategies

Cognitive strategies are the second most utilized learning strategies, following social strategies. These strategies encompass specific methods or skills that individuals use when processing information, solving problems, or acquiring knowledge. These include repetition, translation, categorization, note-taking, using keywords, context, extension, transfer, and speculation.

Table 4 highlights the average values for various cognitive strategies. It is evident that the strategy of word formation using roots and affixes stands out significantly (M=3.92),

indicating that the study population has a solid English language foundation and has effectively mastered this strategy. Word formation is crucial because “the root is the heart of a medical term and it has the basic meaning of the term”. Additionally, the roots of medical terms come mainly from Latin and Greek, leading to different roots in medical terms that refer to the same thing but form terms with different spellings (Su, 2012). Therefore, mastering word formation suggests that learning medical vocabulary poses no particular difficulty.

Table 4. Frequency of Use of Various Learning Strategies in Cognitive Strategies

Items	Mean	Mean
1. Before learning medical vocabulary, do you assess the frequency of use of the term?	3.83	1.12
2. Do you infer the specific meaning of a medical English term based on its general meaning in ordinary language?	3.60	1.37
3. Have you noticed that certain medical prefixes frequently appear in specific contexts?	3.78	1.22
4. Do you deduce the meaning of medical English vocabulary from the context in which it appears?	3.79	1.25
5. Do you compare medical English vocabulary with words from other fields to aid in memorization through contrast?	3.89	1.18
6. Do you often use a dictionary to look up and understand unfamiliar medical terms outside of class?	3.69	1.33
7. Do you pay attention to the use of medical English vocabulary in TV shows (such as House M.D., Grey's Anatomy, etc.)?	3.89	1.23
8. Have you used the strategy of learning root words and prefixes to memorize medical English vocabulary?	3.92	1.18
9. How do you think the international use of Latin and Greek roots in medical vocabulary helps in understanding and memorizing medical terms?	3.76	1.22
10. Do you research the origin of medical terms and relate them to historical events or figures to aid in memorization?	3.78	1.21
11. Do you think understanding the cultural background of medical terminology helps in understanding medical vocabulary?	3.78	1.09

On the other hand, inferring the special meaning of medical words based on common meanings (M=3.60) shows that medical words have certain complexities and relatively longer components than other common words, making it challenging to infer the complete idea using common words alone. The frequent use of contrast memory (M=3.89) and memorizing words through movies and television (M=3.89) also indicates that associative and contrast memory are effective learning strategies.

The data also reveal that many students have started to memorize words in conjunction with the culture and characters behind medical terms (median value of 3.78). This suggests that some students are exploring a new learning strategy by combining word memorization with etymological culture, allowing them to understand historical context while deepening their comprehension and enjoying the learning process.

4.3.3 The Use of Memory Strategies

Memory strategies are the third most used learning strategies. Although memory strategies are considered powerful tools, their usage frequency among the study population is not very high (M=3.72). Oxford (1990) emphasized the importance of appropriate memory strategies for managing the largest and most challenging vocabulary during English learning. However, the study reveals that memory strategies are not utilized as effectively as they could be.

Table 5. Frequency of Use of Various Learning Strategies in Memory Strategies

Items	Mean	Std. Deviation
16. Do you use the forgetting curve to help memorize words according to memory retention patterns?	3.62	1.27
17. Do you repeatedly read aloud and recite medical vocabulary?	3.85	1.17
18. Do you create flashcards for medical vocabulary to aid in memory and understanding?	3.67	1.24
19. Do you remember words by reading and writing them simultaneously?	3.83	1.17
20. Do you often review newly learned medical vocabulary?	3.60	1.29
21. Do you categorize	3.80	1.24

medical terms for easier memorization?		
22. Do you use metaphors and similes to remember medical vocabulary?	3.69	1.28

Further analysis of specific memory strategy items shows that the most frequently used strategies are repeated reading (M=3.85), reading while writing (M=3.83), and categorizing (M=3.80). In contrast, strategies like using the forgetting curve (M=3.62) and revision (M=3.60) are used less frequently. This indicates that a significant portion of students in the research group do not effectively review learned words to reinforce their memory. This is reflected in the observation that some students recognize words but cannot recall their precise meanings promptly. Additionally, the data suggest that students still rely on traditional rote memorization, as it requires less time and energy. Memetics, which advocates imitation and recitation, aligns well with the most frequently used memory strategies. In the context of memory strategies, repeated reading (M=3.85) and reading while writing (M=3.83) conform to the principles of mimicry and recitation in memetics. The word formation rules and frequent use of roots and affixes in medical terms are repeatedly imitated, and over time, these lexical memes become part of the learners' cognitive framework. After imitation, recitation follows. Although traditional, recitation is an efficient method for accumulating language materials. Once these vocabulary memes are stored in the brain, learners can easily retrieve and adapt them as needed. When encountering new words, learners can analyze the word formation of medical terms and infer their meanings through known roots and affixes. Additionally, repeated use of recurring medical terms helps reinforce memory, allowing for easier recall and application of their variants.

5. The use of Meta-cognitive Strategies

Meta-cognitive strategies are the least used learning strategies in this study. These strategies, which include planning, monitoring, and evaluation, are used significantly less frequently than other strategies. Specifically, meta-cognitive strategies such as advance preparation, focused attention, selective attention, self-management, prior practice,

self-monitoring, delayed expression, and self-evaluation have low usage rates. One reason for this is nervousness, particularly when these strategies are emphasized by teachers (M=1.01), indicating that stress tolerance is a major factor affecting the output of medical vocabulary.

Table 6. Frequency of Use of Various Learning Strategies in Meta-Cognitive Strategies

Items	Mean	Std. Deviation
12. Do you agree that having a designated study plan is particularly helpful for learning medical vocabulary?	3.76	1.28
13. When the teacher asks about a word you don't know, do you feel nervous?	1.01	1.10
14. Do you overcome difficulties encountered while learning medical vocabulary?	3.92	1.14
15. Do you spend more time memorizing key medical terms?	3.93	1.11

Despite the low usage of meta-cognitive strategies, students in the study group demonstrate resilience in overcoming difficulties in learning medical vocabulary (M=3.92) and a willingness to spend more time memorizing vocabulary (M=3.93). This suggests that the students possess clear learning goals and self-regulation abilities, though they need to strengthen their use of meta-cognitive strategies due to their crucial role in language learning. Meta-cognitive strategies enhance learning efficiency by allowing learners to control and manage their thinking and learning processes. This involves behaviors such as goal setting, self-assessment, and self-control (Oxford, 1990). In terms of learning strategy frequency, meta-cognitive strategies are the least frequently used (M=2.99). According to Dawkins (1976), memes are influenced by cognitive and emotional factors. Therefore, the learner's state during the learning process is critical to whether memes can be effectively assimilated. A positive learning state facilitates the direct transmission of memes among learners, ensuring they are retained in memory, much like genes. Conversely, a poor learning state hinders this process.

6. Conclusions

Leveraging memes for vocabulary acquisition

capitalizes on their inherent capacity as units of cultural transmission, providing an efficient medium for learning. Memes proliferate among individuals in formats that are both memorable and easily disseminated. Applying this concept to medical terminology can significantly enhance both the efficiency and effectiveness of the learning process by generating content that is not only memorable but also widely shareable. Lexical memes, with their strong memetic characteristics, can be stored, extracted, and reproduced as whole units. Once mastered, these words or phrases can be replicated and used repeatedly in different contexts, improving the efficiency and accuracy of language expression.

The study's findings indicate that medical words possess certain lexical memes, primarily phenotypic memes, with cultural memes accounting for a minority. Analysis of learning strategies among the survey population reveals that social strategies ($M=3.80$) are used most frequently, followed by cognitive strategies ($M=3.79$), memory strategies ($M=3.72$), and meta-cognitive strategies ($M=2.99$). The relationship between memes and various learning strategies shows that the four key processes of assimilation, memory, expression, and transmission of vocabulary memes can be selectively influenced by different learning strategies, thus improving learning efficiency and supporting the learning process.

Theoretically, while memetics has been applied to diverse fields such as linguistics, translation studies, pragmatics, and language teaching, its application in medical vocabulary learning strategies remains relatively new. The global pandemic has heightened attention on the medical field, emphasizing the importance of medical vocabulary. Experts and scholars are continuously seeking new methods and strategies for medical vocabulary learning to adapt to the evolving landscape. By integrating memetics into medical vocabulary learning, this study addresses previous gaps and introduces novel learning strategies for students.

Practically, understanding the principles behind meme transmission and selection can help educators develop more effective teaching methodologies. Knowing which medical terms are likely to become memes and how they disseminate among students and healthcare providers can significantly enhance

the design and implementation of medical education. The fusion of memetics and medical vocabulary learning strategies aids in comprehending and applying the principles governing information dissemination within medical education and communication. This integration enhances the efficacy of medical education, fostering the spread and exchange of medical concepts.

However, this study has several limitations. First, the survey population is limited to English majors, leaving many unknowns for students with different English proficiency levels. Second, the sample size is relatively small, with only 102 survey responses collected. Finally, the author's limited knowledge and theoretical expertise may have affected the study's design and analysis. Unequal control of questions among various learning strategies may have led to skewed frequency results. To address these limitations and make the results more convincing, future research should expand the study population, increase the sample size, and improve the theoretical framework and professional knowledge of the researcher.

Acknowledgements

This paper is funded by 2023 China Higher Education Scientific Research Planning Project (23WYJ0308); The 2022 Annual Research Project of the Guangdong Province Undergraduate Universities Online Open Course Steering Committee (2022ZXKC195); 2021 Guangdong Medical University Undergraduate Teaching Quality and Teaching Reform Project (1JG21042); Guangdong Medical University Discipline Construction Project (4SG23024G)

References

- [1] [11] [19] Dawkins, R. (1976). *The Self Gene*. Oxford: Oxford University Press.
- [2] Blackmore, S. (2000). *The Meme Machine*. Oxford: Oxford University Press.
- [3] Seiffert-Brockmann, J., Diehl, T., & Dobusch, L. (2018). Memes as games: The evolution of a digital discourse online. *New Media & Society*, 20(8), 2862-2879.
- [4] Chvaja, R. (2020). Why did memetics fail? Comparative case study. *Perspectives on Science*, 28(4), 542-570.
- [5] Schlaile, M. P., Bogner, K., & Muelder, L.

- (2021). It's more than complicated! Using organizational memetics to capture the complexity of organizational culture. *Journal of Business Research*, 129, 801-812.
- [6] [17] Su, P. (2012). The Influence of Greek and Latin Language Culture on Medical English Vocabulary. *Journal of Capital Medical University (Social Sciences Edition)*(00), 247-249. (In Chinese)
- [7] Liu, W. (2021). An analysis of cultural elements in medical English terminology from the perspective of etymological motivation. *Journal of Changzhou Institute of Technology (Social Science Edition)*, (05), 104-107 (In Chinese)
- [8] Song, X. (2015). The application of lexical chunk theory in medical English. *Research on Medical Education in Universities (Electronic Edition)*, (04), 48-51. (In Chinese)
- [9] Wen, Q. (1996). *On English learning strategies*. Shanghai: Shanghai Foreign Language Education Press. (In Chinese)
- [10] Zhu, H. (2009). *Research on English vocabulary learning strategies*. Jilin: Jilin University Press. (In Chinese)
- [12] [15] [18] Oxford, R. L. (1990). *Language Learning Strategies: What Every Teacher Should Know* [M]. New York; Newbury House.
- [13] Cai, G. (2010). Medical English vocabulary - Etymology and characteristics. *Journal of Qiqihar Medical University*, (07), 1132-1133.
- [14] Li, D., et al. (2006). *Medical English lexicology*. Fudan University Press.
- [15] Henriksen, B. (1999). Three dimensions of vocabulary development. *Studies in second language acquisition*, 21(2), 303-317.