

## Visual Analysis of the Hot Spots and Trends of Intelligent Psychology based on Citespace

Wenjing Li<sup>1</sup>, Ruguo Song<sup>2</sup>, Peng Sun<sup>1</sup>, and Yongjun Dan<sup>1,\*</sup>

<sup>1</sup> School of Psychology, Qufu normal University, Qufu, Shandong 273165, China

<sup>2</sup> College of Teacher Education, Jining University, Qufu, Shandong 273165, China

\* Corresponding author

### Abstract

In order to have a more comprehensive understanding of the current situation and evolution of wisdom psychology research, This paper uses Citespace software to visually analyze 167 research literatures on wisdom psychology in CNKI database from 2005 to 2023. Combined with bibliometric analysis and visual knowledge graph, the publication time, author, journal and keywords of the articles are mined. The study found that since 2008, domestic intelligent psychology research has shown a fluctuating growth trend and will reach its peak in 2022. At the level of cooperation between authors and institutions, researchers' cooperation has been divergent in recent years, and research groups are relatively isolated and lack long-term effective cooperation. The research focuses on the topics of wisdom classroom, life wisdom, psychological counseling, psychological adjustment and so on. Therefore, the future research should strengthen the cooperation and communication among researchers, strengthen the research on smart classroom, intelligent education and personalized development, and further expand other research hotspots.

### Keywords

Smart psychology; Smart classroom; Citespace; Visual analysis.

### 1. Introduction

The study of "wisdom" has a long history. In the 1950s and 1960s, wisdom attracted the attention of psychologists, and scientific psychology began to explore wisdom. In the mid-1970s, empirical research on wisdom psychology began to sprout [1]. At the end of the 20th century, with the arrival of knowledge economy, researchers pay more attention to the value of "wisdom". Although in the past few decades, the research of wisdom psychology has made great progress, the research involves all aspects of wisdom psychology, such as the definition and measurement of wisdom, and in recent years, wisdom classroom, life wisdom, psychological counseling, psychological adjustment and other topics are also in full swing. But in general, the research on the development of wisdom psychology is still in its infancy.

The definition of wisdom in psychology is still inconclusive. Different researchers have proposed different definitions of wisdom from different aspects. According to the theories about wisdom in the psychological circle, Yang Shiyong divided them into recessive theory and explicit theory, and summarized wisdom into four wisdom views [2] : wisdom is a personal trait or ability; Wisdom is a higher cognitive structure; Wisdom is practical knowledge; Wisdom is a process that manifests itself in real life. Inspired by the four views of wisdom summarized by Yang Shiyong, Wang Fengyan and Zheng Hong put forward six views of wisdom: wisdom is a good way of life; Wisdom is the collection of practical knowledge; Wisdom is a kind of ability; Wisdom is a special way of thinking; Wisdom is a comprehensive quality; Wisdom is a process [3].

At the same time, Wang Fengyan and Zheng Hong put forward the theory of integrating wisdom, virtue and talent based on Chinese culture, and believe that wisdom is a comprehensive psychological quality of integrating virtue and talent that individuals acquire through experience and practice on the basis of their intelligence and knowledge [3]. Li and Wang adopted the mouse paradigm in Chinese culture and proposed three dimensions of virtue, talent and achievement of intelligent personality based on the theory of the integration of virtue and talent [4]. Wang Fengyan and Fu Xurong proposed that wisdom means that when an individual is faced with a complex problem, he can take an effective way to solve the problem and ensure that the result of his actions will not damage the legitimate rights and interests of others and society, and can also improve the well-being of himself, others and society [5]. Yang proposed that there must be at least three core elements for the generation of wisdom: cognition, emotion, and behavior [6].

Western psychologists also have their own unique views on the understanding and definition of wisdom. Ardel believes that wisdom is a personality trait and proposes that wisdom is a relatively stable individual characteristic with different time and space [7]. Ardel defines wisdom as a personality trait that integrates cognition, reflection, and emotion (kindness) [8]. Webster et al also believe that wisdom is a relatively stable personality trait, and he puts forward five components of wisdom: humor; Emotional regulation; Recall and reflection; An open mind; Important life lessons [9]. According to the Berlin wisdom model proposed by Baltes and his colleagues, the core of wisdom is that people make use of the relevant knowledge they have accumulated when dealing with complex affairs [10]. Grossmann believes that wisdom is a kind of practical reasoning ability with prosociality, which is the practical reasoning ability shown by individuals when predicting future developments. It consists of four components: recognizing one's own limitations; Consider and adopt a broader perspective than the immediate one; Awareness of uncertainty and change; Compromise or reconcile differences of opinion [11].

To sum up, researchers define and construct wisdom from different perspectives. At present, there is no unified concept of wisdom, and naturally there is no unified composition of wisdom. However, most domestic and foreign wisdom psychologists agree that wisdom is a multi-level and multi-dimensional structure [12]. Although different scholars define wisdom in different ways, they all agree that wisdom includes having good moral character and having knowledge and ability [13]. Wisdom is also regarded as the highest realm pursued by the development of human spiritual civilization and the unremitting goal pursued by all nations for prosperity and development [13].

The continuous development of wisdom psychology has also given birth to the emergence of articles on "wisdom" related topics. This paper aims to sort out the relevant articles since the development of wisdom psychology, summarize its rules, summarize its characteristics, and analyze the advantages and disadvantages of its research.

## 2. Method

### 2.1. Data Sources

In this study, the academic journals, dissertations, conferences and academic journals in CNKI database are used as the source, and the keyword "wisdom psychology" is searched by advanced search method, starting and ending from 2005 to 2023. A total of 187 articles were obtained. The obtained data include the title of the article, the author, the name of the journal, the keywords, the type of the literature and so on.

## 2.2. Research Methods

The tool used in this study is the information visualization analysis software Citespace6.2 developed by Professor Chaomei Chen of Drexel University. Compared with traditional literature combing methods, CiteSpace is based on co-citation analysis theory and pathfinding network algorithm, which has more quantitative and objective advantages. Its advantages in exploring the research hotspots, frontiers, development history and future direction of specific fields have also been verified in recent years in scientific research [14].

## 3. Results

### 3.1. Number of Publications and Subject Distribution

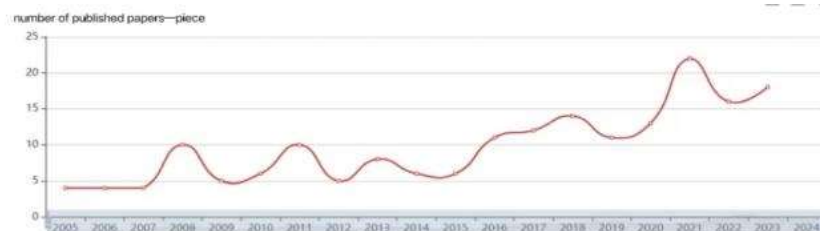
The annual number of publications can intuitively show the trend of research popularity in a certain period of time. As shown in Fig. 1, although the overall number of researches in the field of wisdom psychology is relatively small, the overall trend of the researches in the field of wisdom psychology is increasing from 2005 to 2023. Domestic researches on wisdom psychology can be divided into three stages: 2005-2015, 2016-2019, and 2020-2023, the first phase: 2005-2014 period, 2008 ushered in the first significant increase in the number of publications, prior to which there was very little research on intelligent psychology, in the preliminary stage of exploration in this field (see Figure 1). After 2008, the number of intelligent psychological papers showed a wave-like upward trend. The period from 2016 to 2019 is the second stage, in which the number of publications in the field of wisdom psychology gradually increased steadily, and the gap between the highest and the lowest number of publications is only two, which may mean that wisdom psychology has further entered the field of vision of scholars. In the third stage, from 2020 to 2023, intelligent psychology enters the hot research period, and the number of intelligent psychological papers reaches the peak of 23 in 2021, and the number of papers every year remains at about 15.

### 3.2. Author Cooperation Map Analysis

Author co-occurrence analysis can reflect the cooperation of authors in the field and the core author group. The time set in the figure is nearly fifteen years (2005-2023), and the time slice is one year. With the author as the node, the size of the name indicates the number of articles published by the author, and the larger the name and the darker the color, the higher the number of articles published. The lines between nodes represent the cooperation between authors, and the thicker the lines are, the more cooperation there is. The colors of nodes and lines vary from cool to warm to indicate the chronological order of the study (warmer colors indicate more recent publication; The colder the color, the more distant it is.) In this study, the number of authors' nodes  $N = 209$ , the number of connections between authors  $E = 111$ , and Density = 0.0051.

From the perspective of author group cooperation, four large groups have been formed in the research on wisdom psychology since 2005. First, before 2010, the two groups composed of Zhang Xudong, Zhao Duanwu, Zhou Muqing and Michale, Linden and Barbara were formed as the core forces and had the greatest influence. As time goes by, around 2015, the influence of the two groups formed by Patel, Tewari, Sudha, Sun Liyan, Wu Xinxin, etc., has gradually increased. In 2020, the research on wisdom psychology has gradually become dispersed, and there have been cases of two-person cooperation or single-person cooperation by Chen Haobin, Tan Lu, Wang Fengyan, Zhao Xurui, etc. In terms of the number of authors' publications, Wang Fengyan from Nanjing Normal University published two articles in CSSCI, followed by Tan Lu from Changsha Aviation Vocational and Technical College with three articles in CNKI total database.

On the whole, in the field of wisdom psychology, the cooperation among early researchers is relatively close, and the formation of a large group, in recent years, the cooperation of researchers is divergent, and the research group is relatively isolated, indicating that the breadth of current academic cooperation is relatively insufficient, and the research gradually tends to be individualized and the research group is small, and the external cooperation is insufficient.



**Fig. 1** Annual publication of Chinese wisdom psychology research

### 3.3. Analysis of Institutional Cooperation Map

The mechanism collaboration graph generation logic is consistent with the author collaboration graph, the number of nodes of the mechanism  $N = 153$ , the number of connections between authors  $E = 22$ , and  $Density = 0.0019$ . School of Psychology of Nanjing Normal University is the largest publishing institution on wisdom psychology, which has formed a cooperative institution with a large number of publications in recent years with the Institute of Moral Education of Nanjing Normal University. In addition, there are also emerging cooperation networks between Anhui University, School of Marxism of Anhui University and Anhui University Network Ideological and Political Work Center of Anhui University. In general, the cooperative research of intelligent psychology institutions is scattered, and the cooperation is insufficient. Since 2005, no large cooperative network has been formed, and there are still a large number of isolated research institutions. This suggests that future studies should strengthen collaborative links between agencies and promote exchanges between core agencies and links with isolated agencies.

### 3.4. Keyword Analysis

#### 3.4.1. Key Word Frequency Analysis

**Table 1.** Word frequency analysis

| seating arrangement | keyword                  | occurrence number | centrality |
|---------------------|--------------------------|-------------------|------------|
| 1                   | Wisdom classroom         | 10                | 0.06       |
| 2                   | College student          | 10                | 0.10       |
| 3                   | wisdom                   | 9                 | 0.16       |
| 4                   | Life wisdom              | 7                 | 0.04       |
| 5                   | Psychological counseling | 5                 | 0.02       |
| 6                   | Psychological adjustment | 4                 | 0.03       |
| 7                   | psychoanalysis           | 4                 | 0.00       |
| 8                   | Mental intelligence      | 4                 | 0.02       |
| 9                   | mind                     | 4                 | 0.06       |
| 10                  | Smart classroom          | 4                 | 0.02       |

Keywords are highly refined, summarized and core representations of the topic and content of a paper, and keywords with higher frequency can explain the hot issues in a certain research field, and the distribution trend of keyword frequency represents the migration route of

research topics in this field [15]. This paper selects Keywords as the node to explore the research hotspot of wisdom psychology through keyword co-occurrence. The total time length is set to 2005-2023, and the time slice is 1 year. The higher the keyword frequency, the larger the node; The higher the degree of correlation between keywords, the thicker the line. The color of nodes and connections changes from cool to warm to indicate the time order of the research (the warmer the color indicates that the keyword research is closer to the current time; The colder the color, the farther away from present time). In this map, a total of 304 nodes and 493 connections are generated, and the network density is 0.0107. Citespace analysis results show that the top 10 keywords are listed in Table 1.

In addition, centrality represents the media ability and bridge function of the keyword, and the greater the centrality, the greater the influence of the keyword. In general, the centrality value is greater than 0.1, indicating that the keyword has a greater influence. According to this standard, among the top ten keywords in the frequency ranking, the most influential are college students, wisdom and so on.

### 3.4.2. Key Words Cluster Analysis

The LLR algorithm was used to cluster and label the keyword co-occurrence knowledge graph, and it was found that the research on wisdom psychology mainly focused on 17 themes. Through the analysis and induction of the category contents, the 17 clusters were screened into five thematic clusters containing more keywords, namely, psychological resilience, wisdom, wisdom classroom, individual difference and trauma. Modularity  $Q=0.9202>0.3$  indicates significant differences between categories. In  $Silhouette=0.9327>0.7$ , the clustering reliability is high. Density=0.0107.

The keywords involved in the five main clusters are as follows:

- (1) Psychological resilience, its key words mainly include psychological adjustment, life wisdom, psychological crisis, psychological resilience, health psychology, traditional wisdom, evaluation of adversity, depression, etc.
- (2) Wisdom, its key words are concept, teacher, psychological classroom, practical wisdom, traditional culture, psychological decompression, psychological compensation, wisdom self, beyond wisdom and so on.
- (3) Smart classroom, its key words mainly include teaching, psychology, smart classroom, case analysis, case description, smart environment, psychological impact, electronic textbooks, Internet + and so on.
- (4) Personality differences, its key words are special students, personality differences, book knowledge, willingness to express, psychological analysis, another Angle and so on.
- (5) Trauma, its keywords mainly include randomized clinical trial, posttraumatic embitterment disorder, wisdom therapy, etc. See Table 2 for details.

**Table 2.** Cluster information table

| Cluster name               | keyword  |
|----------------------------|--|
| #0 mental elasticity       | Psychological adjustment, life wisdom, psychological crisis, psychological resilience, healthy psychology, traditional wisdom, evaluation of adversity, depression |
| #1 wisdom                  | Philosophy, teachers, psychological classroom, practical wisdom, traditional culture, psychological decompression, psychological compensation, wisdom self         |
| #2 Wisdom classroom        | Teaching, psychology, wisdom classroom, case analysis, case description, wisdom environment, psychological impact, electronic textbooks, Internet +                |
| #3 personality differences | Special life, personality differences, book knowledge, intention expression, psychoanalysis, another perspective   |
| #4Trauma                   | randomized clinical trial, posttraumatic embitterment disorder, wisdom therapy   |



### 3.4.3. Emergent Detection of Keywords

Keywords can reflect the influence of the keywords in a certain period of time, and then reflect the trend of research hotspots in a certain research field, and realize the tracking of research hotspots. The top 9 emergent keywords are shown here.

As can be seen from Fig. 2, from 2005 to 2011, the psychological adjustment of college students was the main research focus of wisdom psychology, lasting for nearly 6 years. From 2012 to 2016, people gradually paid attention to the fields of life wisdom and psychological crisis, among which the psychological law enjoyed a brief period of glory. During the five-year period from 2013 to 2019, there have been research hotspots such as psychological analysis and psychological wisdom, and psychological analysis has gained the greatest prominence in the research process of wisdom psychology in the past 18 years. From 2019 to 2023, smart campus and psychological contract have gradually entered our vision and become a current research hotspot.



Fig. 2 Keyword emergence map

## 4. Conclusion

First of all, in terms of the number of publications, 2008 was a turning point for domestic innovative education research, before which the research on wisdom psychology was relatively silent. From 2008 to 2016, domestic intelligent psychology research began to enter a fluctuating growth trend, and the publication of documents was flat from 2016 to 2019, and then reached the peak in 2021. Generally speaking, although the research of wisdom psychology in China is accompanied by the gradual expansion of its research scope, the research in this field has gradually entered a stable period of growth.

In terms of authors and institutions, early researchers had close cooperation and formed a large group, but in recent years, researchers' cooperation is divergent, research groups are more isolated, research gradually tends to be individualized and research groups are small, and external cooperation is insufficient. The institutional cooperative research of intelligence psychology is scattered, and no large cooperative network has been formed since 2005, and a large number of isolated research institutions still exist. Therefore, inter-institutional and inter-researcher cooperation and communication should be strengthened. On the one hand, inter-group communication should be expanded on the basis of close cooperation within the core research community.

In terms of keyword hotspots and future trends, since 2008, the research hotspots of wisdom psychology have mainly focused on topics such as wisdom classroom, life wisdom, psychological counseling, and psychological adjustment. Based on this, we can predict that in the future, wisdom psychology will further expand to smart campus and smart classroom, pay more attention to individual differences, and connect wisdom and education. We should further strengthen the research on smart classroom, intelligent education and intelligent teachers, pay attention to the individualized development of students' psychology, and gradually deepen and apply the research on teaching practice to explore more research hotspots.

Therefore, we should further strengthen the research on smart classroom, smart education and smart teachers, integrate with science and technology and humanities, and carry out innovation in education. Pay attention to students' individual differences, their psychological personalized development, pay attention to their psychological resilience and psychological adjustment process. Combining with local culture, attaching importance to traditional wisdom, exploring the wisdom figures and their types in the long history of local China, and developing local psychology in China.

## References

- [1] Clayton, V. Erikson's theory of human development as it applies to the aged: Wisdom as contradictive cognition, *Human Development*, 18 (1975) No.2, p.119-128.
- [2] Yang Shiying: The meaning and course of wisdom, a study of local psychology, (2008) No.29, p.185-237.
- [3] Wang Fengyan, Zheng Hong: *Theoretical Exploration and Application of Wisdom Psychology* (Shanghai Education Press, China 2014).
- [4] Li, H., & Wang, F: A three-dimensional model of the wise personality: A free classification approach, *Social Behavior and Personality: An International Journal*, 45 (2017) No.11, p.1879-1888.
- [5] Wang Fengyan, Fu Xurong: "Wisdom" : the comprehensive psychological quality of virtue and talent. *Chinese Journal of Social Sciences*, 6 (2017).
- [6] Yang, S. Y: The complex relations between wisdom and significant life Learning, *Journal of Adult Development*, 24 (2017). No.5, p.227-238.
- [7] Ardelt, M: Empirical assessment of a three-dimensional wisdom scale, *Research on Aging*, 25 (2003) No.3, p.275-324.
- [8] Ardelt, M: Can wisdom and psychosocial growth be learned in university courses? *Journal of Moral Education*, 49 (2020) No.1, p.30-45.
- [9] Webster, J. D: An exploratory analysis of a self-assessed wisdom scale, *Journal of Adult Development*, 10 (2003) No.1, p.13-22.
- [10] Baltes, P. B., & Smith, J: The fascination of wisdom: Its nature, ontogeny, and function, *Perspectives on Psychological Science*, 3 (2008) No.1, p.56-64.
- [11] Grossmann, I: Wisdom in context, *Perspectives on Psychological Science*, 12 (2017) No.2, p.233-257.
- [12] Chen Haobin, Wang Fengyan: An analysis of wisdom structure in Chinese culture and a new exploration of psychology, 40 (2020) No.1, p.42-49.
- [13] Chen, Haobin, Wang, Fengyan: Wisdom: Structure, Type, Measurement, and Relationship to Related Variables, *Advances in Psychological science*, 21 (2013) No.1, p.108-117.
- [14] Zheng Zikai, Wu DI, Liu Yongqi, Gao Qing, LI Zhaoxu: Current Situation and Development Trend of Bereavement Research in China: *Advances in Psychology Based on Knowledge Graph Analysis of CiteSpace*, 12 (2022) No.5, p.1755-1764. Information on.
- [15] Dan Yongjun Li Jipeng: Visual Analysis of innovative education research, *Innovation and entrepreneurship education*, 11 (2020) No.6, p.112-119.