

Visualizing the Intellectual Structure and Development Trend of Guidance Relationship Research in China: A Bibliometric Analysis

Ping Jiang¹, Xuebo Zhu^{2*}

1. Department of Public Health, Wenzhou Medical University, Wenzhou 325035, China.

2. Academic Affairs Office, Wenzhou Medical University, Wenzhou 325035, China.

Abstract: Since the 1990s, the guidance relationship (GR) has attracted the attention of Chinese academics, yielding fruitful research results. Employing CiteSpace software, 240 publications included in the China National Knowledge Infrastructure (CNKI) database core collection from 1996 to 2021 were analysed to reveal the current state, popular themes, and frontier issues of the GR field. The results showed that (1) the number of GR-related publications is swinging upward. (2) the most prolific authors mainly included Xu L., Wu D.J., Liu B.H., and Bei D.R., (3) while the School of Education and Marxism played a leading role in GR research. A key result was that a stable core group of authors has not yet formed in the GR field. (4) The principal research hotspots included postgraduate training, mentoring responsibility and guiding-learning communication.

Keywords: Guidance Relationship; Citespace; Research Hotspots

1. Introduction

Postgraduate education is the summit of nation-building for education, as it bears the weighty responsibility of cultivating high-calibre talent and fostering national competitiveness^{[1][2]}. In China, the tutor-in-charge is used for postgraduate education, and tutors directly affect academic research skills development and postgraduate personality growth^[3]. Because of this, Liu^[4] says that the key factor limiting the quality of postgraduate education is the GR, which is a stable social that lasts throughout the whole process and focuses on building morality and developing people^[10]. In recent years, there have been more and more problems between tutors and students. For example, a doctor at Xi'an Jiaotong University killed himself. This shows how important it is to repair the way tutors and students work together. Consequently, this study utilises CiteSpace to analyse GR studies from 1996 to 2021. Through a comprehensive visual analysis of China's GR authors, institutions, and keywords, we highlight research hotspots and follow development frontiers to give important information for deeper exploration and guidance for academics and educational practitioners.

2. Materials and Methods

First, we gathered data from CNKI, China's largest and most reputable database platform for scientific publications. Second, using the advanced search, the search strategy was term= guidance relationship, teacher-student relationship or tutor-student relationship, indexes= the Core journal of Peking University, the Chinese Social Sciences Citation Index (CSSCI), timespan=1996-2021. The search yielded 252 records and removed duplicate documents, reviews, newspapers, and conferences. Only peer-reviewed, published, quantitative and qualitative journal articles are retained. Finally, a total of 240 articles concerning GR were selected and processed. This paper uses CiteSpace 5.8.R3 to analyse networks of cooperation of GR. It clarifies the collaborative relationships between authors and institutions and finds the most influential authors and institutions in this field. Then we do a co-word analysis of keywords, and draw keywords clustering graphs, timezone graphs, and keyword prominent word graphs to quickly and accurately find important information.

3. Results

3.1 The Temporal Distribution of GR Research Publications

This study tallies the number of GR-related publications published in the selected database from 1996 to 2021. In terms of the overall trend in the volume of publications, the number of publications has increased over the past 25 years, although there have been notable fluctuations in certain years. During the years 1996-2002 and 2004-2005, for example, only two papers were published yearly on average. However, after more than 20 years of development, the field has grown dramatically, reaching its peak in 2021 with 28 papers. Regarding annual volume, the development process can be split broadly into three phases: the sluggish development phase(1996-2009), the stable development phase(2010-2017), and the rapid development phase(2018-2021).

3.2 Co-Authorship Analysis

3.2.1 Author Cooperation Network Analysis

To find the lead author in GR, the authors' network nodes in CiteSpace are used to map their cooperative network. The nodes(N)represent the authors, the line connecting the nodes(E)shows how they work together and how densely, and the font size shows how many articles the authors have written. The author cooperative network has 354 authors(N)and 230 lines in total. The network graph density is 0.0037. This means the links are weak and strong partnerships have not yet been formed in general, but some groups of larger partnerships have been formed among individual authors, like Wu D.J., Ma Y.H..From the point of view of an author cooperative network, small-scale, independent publishing is common in this field.After talking about how authors work together, we use Price's formula to find the core group of authors who lead in the field: $M = 0.749(N \text{ Max})/2^{[5]}$, where NMax is the number of articles written by the most prolific author^[15]. In the field, Max is 5, $M=1.8725$, and M is roughly equal to 2, which suggests that authors who publish at least two core journals or CSSCI papers on the topic of GR are high-yielding authors.

3.2.2 Institution Cooperation Network Analysis

The cooperative graph has 267 network nodes and 126 links. The network density is 0.0035. This explains that collaboration between institutions is weak. Nevertheless, there were a few notable cooperative linkages identified. For example,The CCYL Tsinghua University Committee worked with other institutions to form partnerships. As you can see, most institution-to-institution cooperation in this field happens between institutes at the same university. This article ranks the top five research institutions, which have put out 53 publications, or 22.1% of all publications. They are part of the organizations of colleges and universities of the 985 or 211 construction platforms. This reveals the type of research institution involved in this field is single and those well-known universities are the main force.

3.3 Research hotspots in the field of GR

Keywords are short phrases that show what the literature is about at its core. This article uses CiteSpace and sets the node type to Keyword and the time slice to 2 years to make the data more accurate and get a keyword co-occurrence map to find out what the most important research topics are in GR. The graph has 273 nodes and 384 lines. Meanwhile, We counted the 20 most frequent keywords using frequency and centrality data in CiteSpace(Table1).

Table 1 Keywords that appear more than 2 times

| Frequency | Centrality | Keyword | Frequency | Centrality | Keyword |
|-----------|------------|------------------------------|-----------|------------|--|
| 76 | 0.37 | Postgraduate | 4 | - | Ideological instruction by the supervisors |
| 70 | 0.62 | Teacher-student relationship | 4 | 0.02 | Harmony |
| 45 | 0.23 | mentor | 4 | 0.02 | Culture Quality |
| 34 | 0.27 | guiding relationship | 3 | - | Psychological contract |

| | | | | | | |
|----|------|---------------------------------|--|---|------|---------------------|
| 12 | 0.03 | Doctoral student | | 3 | 0.02 | Doctoral education |
| 10 | 0.07 | foster virtue through education | | 3 | 0.03 | Culture mechanism |
| 9 | 0.04 | Tutor-student relationship | | 3 | 0.03 | Culture mode |
| 6 | 0.05 | The innovation ability | | 2 | 0.01 | Professional style |
| 6 | 0.06 | Tutorial system | | 2 | 0.01 | Collaborative style |
| 5 | 0.03 | Influencing factor | | 2 | 0.02 | Creative Talent |
| 2 | 0.04 | Intersubjectivity | | - | - | - |

Only GR, postgraduates, mentors, and teacher-student relationships in Table 1 have centralities above 0.1. But the relationship between the teacher and student and the GR are retrieval issues for this study, they are left out of this study. Postgraduates and mentors remain kept. Further, we use secondary literature analysis to split and combine the hot theme terms so that their meanings don't overlap. Finally, research hotspots can be put into three groups: the macro level, which is postgraduate training, the meso level, which is mentor duties, and the micro level, which is interactive communication between tutor and student.

Research on Graduate Education. In this study, a secondary analysis of the literature on GR summarizes three aspects of postgraduate training: method, quality, and mechanism. With the training model, based on the current training model in China, which combines the responsibility of graduate tutors with group training, relevant scholars mainly focus on the characteristics of the GR during interactions. Such as Peng G.H.^[6] explored how the supervisory team, the academic and moral quality of the supervisors, and the basic growth environment all affect the quality of postgraduate training in the academic sector. With training quality, most of the relevant research focused on two topics: how GR can help graduate students improve their knowledge and skills as well as physical and mental health. On one hand, the tutor's age, educational background, professional title, and academic attitude^[7], as well as the tutor's guidance method, intensity, and style affect postgraduates' academic originality and writing skills^[8]. On the other hand, the tutor's free-range and demanding education model hurts graduate students' professional identities, leading to low self-efficacy^[9]. With training mechanisms, most researchers discuss how to setup and adjust the relevant graduate student training mechanism through the tutor's responsibility. It found interaction and cooperation between tutors and students, harmony in GR, and academic activities of postgraduate tutors. Which are related to developing the awareness regulation of graduate students' academic norms, the early warning scheme of mental health, the regime of tutor education and so on^{[10][11][12]}.

Research on Mentor Responsibility. Many scholars examine the mesoscopic problem of tutor talent training responsibility in GR from the three perspectives of academic guidance, ideological education, and moral demonstration.

First, the academic support of tutors is the most essential guiding behaviour in graduate education^[13]. The style, frequency and degree of academic advising on postgraduate students deeply affect their knowledge and research skills improving. Second, since 2020, when the Ministry of Finance released opinions on speeding up graduate education reform and development in the new era, graduate education has occupied a key part of national development. And yet carrying out ideological and political education in GR is the basis for finding out the main issue with postgraduate education^[14]. Ideological instruction by supervisors has once again become a hot topic of research. It is the tutor's responsibility to foster virtue through education, relying on ideological and political education elements in the interaction process between teachers and students, to achieve graduate students' value formation, knowledge transfer, and skill cultivation through ideological education^[15]. However, obstacles such as a lack of tutors' sense of duty and engagement, a lack of combined education, and the absence of school management have hampered tutors' involvement in ideological and political education^[16]. GR is about teachers' and students' personalities meeting and illumination^[17]. The relevant study focuses primarily on the fundamental goal of fostering virtue through education and discusses tutors' moral leadership role in postgraduate training as well as tutors' accountability requirements for fostering virtue through education^[18]. Instructors have a direct effect on developing postgraduates' quality through their strict academic attitude, honest academic evaluation, and other qualities. They also set

a deep educational model for postgraduates' personalities through ideological training, worldly conduct, and other personal trait^[8].

Research on Tutor-student interaction. Zhang B.L.^[19] say the two-way interaction between tutors and postgraduates is the main way to build, maintain, and develop GR. Most of the research on how they interact focuses on four things: the type of interaction, factors that affect interactions, alienation in communication behaviour, and having a good relationship.

With role orientation, interactions between teachers and students are changing from singularity to pluralism^[20]. These include classic teacher-student, research partner, distant and loose, employment, and mentor-friend relationships^[21]. Currently, the way teachers and students talk to each other in China is more slight equal-close and high equal-close than slight equal-far away and high authoritative-far away^[20]. At the same time, theoretical view like the interactive ritual chain theory, self-leading theory, and liberal education idea is rich. GR clarification isn't enough. A healthy GR is a basis and precondition for reaching the fundamental goal of growing morals and cultivating individuals in the practice of postgraduate education^[22]. So, researchers looked into what makes good communication between tutor-student from the points of view of tutor support, an academic agreement between teachers and students, the study, life, and mental health of postgraduates, and the postgraduate training environment^{[23][24]}. But GR concerns are significant in postgraduate education in China right now. For example, professors' actions of withholding student allowances and academic achievements, the lack of emotional care and communication, and the threat of a master-slave trap are all signs of bad behaviour^{[25][26]}.

4. Discussion and Conclusion

By drawing a visual map of GR research. This study aims to: (1) explore the basic characteristics and the current, (2) identify the core contributors and collaboration networks, (3) examine research hotspots, evolutionary paths and potential hotspots. Considering those conclusions mentioned, we suggest GR research subjects. First, existing relevant literature mainly highlights the influence of tutors while ignoring the initiative of postgraduates in GR. We propose research on making louder postgraduates' voices to explore the harmonious guiding connection. Second, most literature research objects are general, therefore we advise responding to the training demands of different sorts of graduate students to develop a personalized GR.

References

- [1] Hong DY. Build China into a strong country of graduate education. *Academic Degrees & Graduate Education*, (03), 1-7, 2019.
- [2] Yao JY. Essence exploration of postgraduate education from different perspectives. *Heilongjiang Researches on Higher Education*, (02), 13-16, 2018.
- [3] Zhang ZT, Li C. Research review on the supervisor-student relationship in postgraduate education. *Education and Teaching Forum*, (23), 84-86, 2020.
- [4] Liu Z. The internal regulation, object scope and essential features of supervisor -student relationship. *Academic Degrees & Graduate Education*, (12), 4-9, 2020.
- [5] Price, D. Columbia university press New York. *Little science, big science*, 1963.
- [6] Peng GH, Gan YT. Fully using the tutor group and improve the quality of postgraduate training—questionnaire survey and analysis on the relationship between teachers and students in postgraduate education. *Modern Education Science*, (01), 79-82, 2003.
- [7] Geng GL, Wang XH. Analysis on the construction of mentors in the cultivation of graduate innovation ability—take the construction of graduate tutor teams in various universities in Shandong province as an example. *China Adult Education*, (23), 133-135, 2015.
- [8] Xu L. The effects of supervisors' personalities and examples on the quality of doctoral training. *Research in Educational Development*, 39(23), 34-41, 2019.
- [9] Xu L. The effects of moral education on doctoral students' socialization. *Academic Degrees & Graduate Education*, (05), 49-58, 2020.
- [10] Qian CP, Xu YL. On the psychological activities of those doctoral candidates whose graduation is delayed. *Academic Degrees & Graduate Education*, (01), 78-83, 2021.
- [11] Lin YY, Shi B. Analysis of the training mechanism of postgraduates' academic norm awareness from the perspective of the mentoring relationship. *Academic Degrees & Graduate Education*, (12), 25-29, 2014.

- [12] Xu GB, Ma JY, Shan JH. Exploration of the mechanism of the educating role of postgraduate tutors from the perspective of "supervisors' duty of fostering character and civic virtue of postgraduates"—taking Zhejiang university as an example. *Academic Degrees & Graduate Education*,09),12-15,2014 .
- [13] Qin Y, Qu XT. Relationship construction between graduates and supervisors in the new era: A study based on moral education. *Journal of Liaoning University (Philosophy and Social Sciences Edition)*,47(05),174-178,2019.
- [14] Wang JY. On connotation, core elements and implementation strategy of ideological instruction by supervisors. *Journal of Graduate Education*, 06),63-67,2021 .
- [15] Liu Z, Zhang JN. The ideological and political education of postgraduates urgently needs to build an "ideological and political education" system. *Ideological & Theoretical Education*, 02),96-100,2022.
- [16] Shan JH, Ma JY, Qian Yang,et al. The evolution and realization of supervisors' "primary responsibility" in postgraduate ideological and political education. *Academic Degrees & Graduate Education*, 06),6-10,2017.
- [17] Ma MX, Bai D, Wang QS. Peaches and plums do not speak, and they form their way—Mr. Xu guanoxan's academic experience and educating people. *Academic Degrees & Graduate Education*,12), 29-33,2012.
- [18] Guo DX. Self-reflection: The mentor's responsibilities and obligations. *China Higher Education Research*,07),24-27,2006.
- [19] Zhang BL, Li W, Guo F. The influence of non-academic guided interaction on postgraduate ideological and political education. *The Party Building and Ideological Education in Schools*,02),67-69,2022.
- [20] Ma J, Dongrong Bie. An exploration of the supervisor-postgraduate relationship in China. *Journal of East China Normal University (Educational Sciences)*, 39(12), 81-98,2021.
- [21] Zhou WH, Zhang AX, Liu JQ,et al. A survey on the status quo of the relationship between graduate students and supervisors in colleges and universities in China. *Academic Degrees & Graduate Education*,09),7-14,2010.
- [22] Liu Z, Ma TJ. How to build a harmonious mentoring relationship? *Academic Degrees & Graduate Education*,10),43-50,2021.
- [23] Song C. On building up a good relationship between supervisors and graduate students. *Academic Degrees & Graduate Education*,03), 9-14, 2021.
- [24] Wang WW, Guo N, Wang Y. Study on the quo of the supervisor-postgraduate relationship and influence factors. *Journal of Graduate Education*,06)76-82, 2018.
- [25] Cheng HD, Cao YY. Reflections on constructing the harmonious relationship between supervisors and their students. *Academic Degrees & Graduate Education*, 06), 13-18, 2019.
- [26] Guo YB. Ways to improve the worsening relationship between supervisors and their students. *Academic Degrees & Graduate Education*,02),6-11,2019.