A Review of Research on the Deep Integration of Information Technology and Middle School Language Teaching

-- CiteSpace-based Visual Analysis

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Abstract

The integration and innovation of the new generation of information technology and education is constantly giving rise to the emergence of new forms of education and teaching. With the continuous promotion of China's education informatization construction, active exploration is being carried out at all levels and in all disciplines. To address the deep integration of information technology and middle school language teaching in China, Citespace visual analysis software is used to conduct relevant analysis and interpretation to comprehensively understand the current status and trends of research. Using the literature included in CNKI from 2005-2021 as the data source, we attempt to obtain suggestions for the future development of the deep integration of information technology and middle school language teaching from the hot topics, research trends, and research profiles of this research, with a view to providing experiences, methods, and ideas that can be used to accelerate the construction process of educational informatization, promote the change and transformation of education in the new era, and cultivate talents for all-round development.

Keywords

Information Technology; Middle School Language; CiteSpace Visualization; Deep Integration.

1. Introduction

The widespread use of modern information technology, especially the emergence of the Internet, has had a significant impact on language teaching. The Language Curriculum Standards for Compulsory Education (2011 Edition) advocates that teachers "flexibly use a variety of teaching strategies and modern educational technologies, and strive to explore new teaching methods in the online environment". At present, flipped classroom, micro-lesson teaching, online and offline blended learning, etc. have become hot topics in language teaching reform. Especially during the new epidemic in 2020, the online platform has become a solid guarantee for primary and secondary school students nationwide to "suspend classes without stopping school", highlighting the unique advantages of modern information technology.

Under the leadership of education modernization ideas, using information technology to change the face of teaching in the past, leading students to innovative learning and comprehensive development, and creating an open language teaching mode is an important idea to meet the requirements of innovative language reform in junior high school, and the openness of teaching needs to be supported by information technology, so strengthening the flexible application of modern information technology, supplementing teaching resources, and expanding teaching time and space is nowadays The focus of the development and innovation of language teaching in junior high school [1]. In education and teaching, the correct understanding of the application value of information technology, highlighting the diversified

educational functions of information technology, combining it with different aspects of language teaching, vigorously promoting the simultaneous and comprehensive development of students' information literacy and language literacy by giving full play to the advantages of information technology, creating good conditions for the growth and success of junior high school students, and in order to better promote the innovative reform of junior high school language, more and more researchers have begun to Emphasize the research on the deep integration of information technology and middle school language teaching.

This paper applies CiteSpace visual analysis software to sort out the relevant literature on the study of information technology and junior high school language teaching in China, analyze the research overview, hot spots and trends of the deep integration of information technology and junior high school language teaching from the visual presentation of data and graphs, and then provide references and suggestions for innovative junior high school language reform research.

2. Research Data and Methods

2.1. Data Sources

The literature master database of China Knowledge Network (CNKI) was used as the data search source, and the search formula was (keywords = "information technology") AND (abstract = "middle school language"), and the subject scope was limited to education-related subjects, because the integration of information technology and middle school language The search spanned from January 1, 2005 to July 1, 2021, because the integration of information technology and middle school language teaching has only gradually gained attention in China since 2005. After using the manual screening method to eliminate the literature, conferences and information that did not fit the topic, we finally obtained 709 articles as the research sample, exported them in refwork format and converted them to get the raw data suitable for CiteSpace analysis, and imported them into CiteSpace to draw the knowledge map.

2.2. Research Tools

CiteSpace is an information visualization software developed by Dr. Chaomei Chen in Java language, which is mainly based on the theory of Cocitation Analysis and Pathfinder Network Scaling (PFNET) to measure the domain-specific literature (collection) in order to explore the key paths and knowledge turning points in the evolution of the discipline[2]. The main functions of CiteSpace are to map the co-authorship (author, national and institutional) and co-occurrence (feature words, keywords, subject categories) of the cited literature, and to map the co-citation of the cited literature. CiteSpace is used to reveal the development of the scientific structure and even changes in the scientific structure, which can be used for frontier analysis, field analysis, research evaluation, etc. [3].

3. Research Results and Analysis

3.1. Analysis of the Number of Articles Issued

The annual distribution of the number of publications was obtained after searching the literature of journals related to the deep integration of information technology and language teaching in junior high school from 2005 to 2021 (of which 2021 is the predicted value) (Figure 1 Annual distribution of the number of publications from 2005 to 2021). As a whole, the research on the deep integration of information technology and language teaching in junior high school showed a fluctuating upward trend.

In terms of the time of literature research, two time periods are prominent in the annual trend of literature publication in Figure 1, namely 2008 -2016 and 2017-2019. In the former time period the number of papers published showed a slow growth trend, especially from 2008

when researchers became interested in the application of information technology in middle school language teaching, and the research trend has been slowly increasing in the last decade since then. In the latter time period, the research context of educational informatics also attracted the attention of a wide range of researchers as the full-scale implementation of the unified middle school textbook in 2017 shifted the attention of language education researchers to middle school textbooks. In the two years thereafter, the research showed a rapid growth trend, reaching a peak of 149 articles per year by 2019, with a growth rate of 204% compared to 2017, and by 2020, online education received wide attention from researchers due to the new crown epidemic, and consequently the research on the integration of middle school language teaching and information technology also increased in popularity.
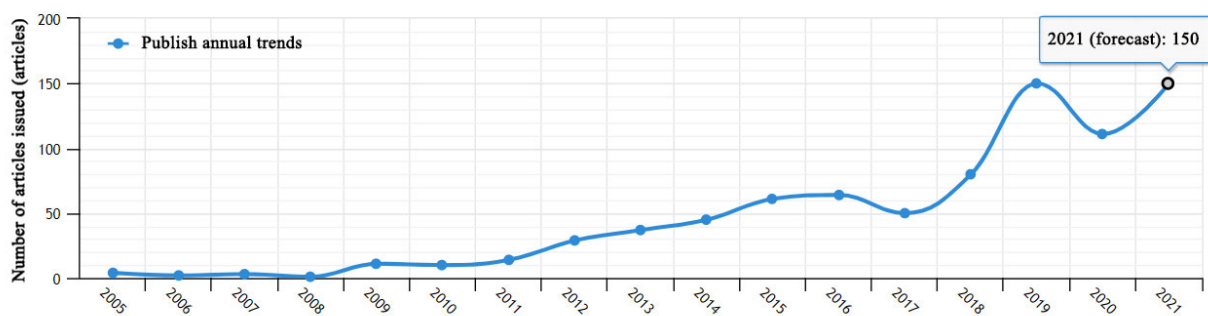

Figure 1. Annual distribution of the number of publications from 2005 to 2021

In general, the research on the deep integration of information technology and language teaching in junior high school in China is generally growing, but with fluctuations, with obvious national policy orientation, and without reaching a level of research that is a constant and conscious concern (see figure 1).

3.2. Analysis of Published Journals

In terms of literature structure, the research on the deep integration of information technology and middle school language teaching is mainly based on journals and master's theses. A total of 652 papers published in journals were obtained after CNKI search statistics, accounting for 92.0% of the total sample; 37 master's theses were published, accounting for 5.2% of the total sample; among the 652 journal papers, only 113 were published in academic journals, a small number were published in professional journals such as Chinese Journal of Education, and most of the rest were published in general journals.

The statistical ranking of the amount of literature and periodicals issued shows that the research on the deep integration of information technology and middle school language teaching is mainly concentrated in the academic and university fields, and the attention of the society is not enough, and the research groups are not extensive; secondly, the academic level of the papers needs to be improved, and the professional research is not deep enough, and there is a lack of in-depth research in the professional field category.

3.3. Research Hotspots and Keyword Analysis

Research hotspots are issues that are relatively concentrated in a certain field at a certain time, and the analysis of past hotspots can better guide the direction of future research, and the visualization mapping of CiteSpace can visually present the hotspots and their development trends using professional algorithms [4]. The 709 selected documents were exported in refworks format and transcoded to form the database of "deep integration of information technology and middle school language teaching", and CiteSpace.5.7.R2 software was used to

process the data of 709 documents, with keywords as nodes, time partition set to Using the minimum Chen tree algorithm, we created a knowledge map of the research hotspots of the deep integration of information technology and language teaching in junior high school from 2005 to 2021, which contains 440 nodes and 552 lines with a density of 0.0057.

3.4. Research Trend Analysis

Research hotspots are issues that are relatively concentrated in a certain field at a certain time, and the analysis of past hotspots can better guide the direction of future research, and the visu "Co-word analysis is an important analysis tool in bibliometrics, scientometrics, and webometrics, etc. By counting the frequency of two words appearing in the same literature for clustering and integration, the sparse relationship between co-occurring keywords is analyzed, and then the hot topics, frontier trends, knowledge base and evolutionary paths of the research field are explored. "The keyword time zone mapping (Fig. 2 Keyword time zone mapping) produced by using the Time View function in CiteSpace explores the trends of research from the changes of different keywords in each time zone.
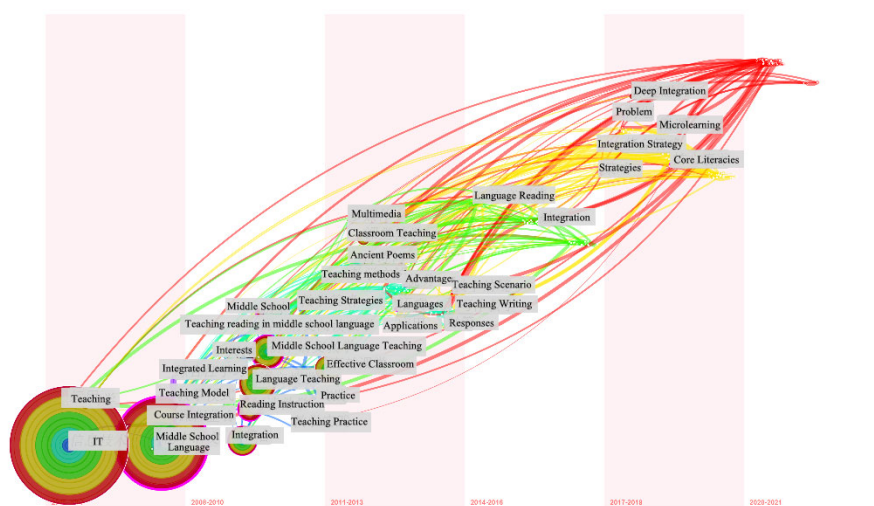

Figure 2. Keyword time zone mapping

According to the keyword time zone mapping in Figure 2, the research on the deep integration of information technology and language teaching in junior high school can be divided into three periods, which are the budding period (2005-2010), the transition period (2011 -2016), and the development period (2017-present).

3.4.1. Stage 1, the Budding Period (2005-2010)

During this period, information technology has just been developed in China, and its application in education and teaching also belongs to the exploration stage that no one has ever done before. Researchers' studies mainly focus on two aspects: theoretical exploration and practical application, with more emphasis on the reform of information technology in teaching mode and teaching practice, and more on students' integrated learning and how to add information technology in the classroom to arouse students' interest in learning at the practical application level. At the same time, some researchers have also focused on curriculum integration, laying the foundation for future research on the in-depth integration of information technology and teaching.

3.4.2. Stage 2, the Transition Period (2011 -2016)

In this period, many researchers began to try to apply information technology in classroom teaching, and the relationship between information technology and language learning was also

concerned in the Language Curriculum Standards for Compulsory Education (2011 edition), but the basic expression was "using information technology ......" and "using information technology ......", which means that information technology is still an element other than language learning, and the preliminary research is still limited to This means that information technology is still an element other than language learning, and the early research is still limited to the application of information technology tools in teaching, such as the use of multimedia. In the later period, the research direction of the majority of researchers began to shift from theoretical research to more practical research, exploring more teaching methods for language teaching, trying to use information technology in more teaching contents, creating teaching contexts, putting forward the concept of "integration", and putting forward corresponding countermeasures in reading and writing teaching. The concept of "integration" was introduced, and corresponding countermeasures were proposed in reading and writing teaching. These five years can be said to be a period of research momentum, many researchers are boldly trying the integration of information technology and language teaching, specific integration methods, teaching applications will become a hot spot for research.

3.4.3. Stage 3, Development Period (2017-present)

The "General High School Language Curriculum Standards (2017 Edition)" promulgated in 2017 pushed the integration of information technology and language teaching to a new stage, and researchers began to focus on "language life in the information age", which greatly surpassed the previous period The researcher began to focus on "language life in the information age", which greatly surpassed the level of "using information technology ......" and "using information technology ......" in the previous period, and began to consciously touch on the issue of language The problem of learning ontology [5].

In the context of national "education informatization", the discussion on how to integrate information technology with language education has always existed, only sometimes strong and sometimes weak, while online teaching in the context of the 2020 epidemic has almost completely pushed the majority of front-line teachers into the field of online teaching. The relationship between information technology and educational teaching has become an issue that every teacher needs to face head-on. Teachers need a process of continuous learning, improvement, and refinement as they move from accepting change to experimenting with application and then integrating innovation.In March 2019, the Ministry of Education promulgated the Opinions on Implementing the National Primary and Secondary School Teachers' Information Technology Application Ability Enhancement Project 2.0, which focuses on improving teachers' information literacy in practical applications. The research in this period has two main features: review and reflection, innovation and exploration.

First, the integration of information technology and language teaching is only mechanical use of information technology as a teaching tool is far from enough and does not meet the development needs of the modern information society. Researchers consciously go back to the past research, learn from the experience and lessons, and reflect on what kind of integration is really meaningful. Second, the Education Informatization 2.0 Action Plan promulgated by the Ministry of Education in 2018 began to lead researchers to explore the cultivation of informatization literacy and core literacy.

4. Conclusion

If you follow the "checklist" your paper will conform to the requirements of the publisher and facilitate a problem-free publication process.

The deep integration of information technology and junior high school language teaching has, to a certain extent, enriched the content as well as the form of junior high school language

teaching, which is conducive to the improvement of students' language literacy as well as their innovative ability and thinking ability.

At the present stage, China's social and economic development and progress, modern information technology has been widely used in various fields, especially for the teaching of junior high school languages. In order to achieve the purpose of further improving the level of junior high school language teaching and the efficiency of its use, it is necessary to strengthen the deep integration of information technology to ensure that information technology can better serve junior high school language teaching. However, it should be noted that although modern information technology has a very positive effect on language teaching in junior high school and can improve the efficiency of students' language learning, it is not a panacea, and in the process of application, it is necessary to grasp the right proportion and not to overuse it, which will restrict students' innovative ability and imagination.

The advantage and contribution that language education researchers can make to this is to look at the current situation of education from a higher and more scientific perspective, to clarify the direction of research, to summarize experiences and problems, so as to guide the implementation of policies and teachers' teaching and research. Therefore, it is still an urgent problem for researchers to pay attention to the deep integration of modern information technology and junior high school language teaching, to find better integration strategies, to apply them in practical teaching, to improve students' comprehensive quality, and to cultivate talents with good information literacy for the modern information society.

Acknowledgments

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