Recognition Method of News Dissemination Pattern Based on Computer-Aided Technology in the Era of Internet of Things

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Abstract. With the continuous development of social economy, culture and science and technology, the way of news dissemination has also undergone technical changes. In the process of news dissemination assisted by computer technology, data is the core, and news value is the final content that everyone pays attention to. Therefore, the value of data and the mode of computer dissemination largely determine the dissemination efficiency of news value. This dissemination process depends on the one hand on the exclusivity of the data source and the importance of the data quality. On the other hand, the dissemination of data resources and the processing of data information also require differentiated control of the data itself. Among them, the accuracy, authority, and relevance of data are the most important evaluation factors. It can be seen that computer technology-assisted news dissemination can produce different dissemination effects from traditional news value. Data exclusivity, publicity, objectivity, and visual legibility are the greatest contributions of computer technology in the current news resource dissemination work. Based on the existing research foundation of domestic and foreign experts, this paper analyzes the current conditions of computer technology-assisted news dissemination and development by means of literature research and case analysis. Based on this, the characteristics of news dissemination work aided by computer technology are further described. On the basis of the computer technology-assisted news production model, this paper focuses on the computer technology-assisted news dissemination model, including news producers, dissemination platforms, content characteristics, and dissemination effects.

Keywords: News dissemination; Computer technology; Auxiliary support; Internet of things technology.
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1 INTRODUCTION

Big data is becoming synonymous with the current information age. The Internet of Things technology has also developed rapidly in recent years. Especially with the gradual popularization of smartphone applications, Hrouga et al. [1] believed that the data of news users has become more fragmented and fragmented. The streaming and distributed characteristics of news information are more obvious. Mobile data has been rapidly accumulated in recent years, the trend of news data opening has become more and more obvious, and all walks of life in society have been penetrated by various emerging computer technologies to varying degrees. These emerging technologies continue to be used in all walks of life, and the news media industry is no exception. After entering the era of big data, Liu and Pan [2] believed that the huge amount of data and information relying on lengthy text reports can no longer meet the needs of user groups for quick reading, nor can it meet the needs of the public for data and information acquisition.

In recent years, under the background of the continuous development of computer technology and digital media, the way of news dissemination is gradually developing in a digital direction. At the same time, Xu and Wang [3] believed that computer technology-assisted media facilitates news dissemination by its unique nature. With the widespread use of computer technology, the traditional news media is also facing great challenges to the dissemination of information. The application of new technologies has a significant impact on news dissemination. Computer-aided news reporting technology was born in the 1950s. This technology refers to all reporting methods that use computers to obtain and analyze data and information. Although the press has adopted computer technology for assisted reporting a little earlier than accurate news, the technology has not been widely adopted over a longer period of time. Due to the fact that the Internet is not yet fully open to the public, Chen and Wang [4] believed that the limitations of computer technology, the promotion of this technology has been continuously delayed. After 1990, with the development and popularization of computer technology, the application ratio of this technology in in-depth investigation reports has further increased. The accuracy and technical level of news reporting has been greatly improved. The application of computers to news reports in the news industry can help reporters obtain news from more abundant channels, and ultimately improve the objectivity, authenticity and efficiency of news reports. Tu et al. [5] believed that computer-assisted reporting, on the other hand, emphasizes its accessibility. The technology favors an auxiliary means of reporting, rather than a full-fledged form of news.

The press has adopted computer technology for news reporting, and concepts such as "database news" and "news gathering and writing 2.0" have been rapidly promoted in the global press. Driven by computer science and technology, the production and reporting methods of news reports have also undergone tremendous changes. This change has also led to subversive changes in the way news is spread. After entering the 21st century, journalists began to try to extract valuable data sets from huge databases using computer technology. News practitioners use the database to mine valuable news information and report on selected topics [6]. At present, news reports based on computer technology rarely have in-depth data mining and analysis. At the current stage, the database only changes the way of storing data and increases the storage capacity of data. Computer technology and IoT technology have not been effectively integrated [7].

In news reports, part of the data is to confirm the views of supplementary text, and the data is only to enhance the persuasiveness of the text report. Current computer applications are relatively simple, which is fundamentally different from data-driven investigative reporting in the era of big data. In addition, the digital news, digital news, etc. appearing in the current news broadcast industry are supplements to the computer-aided news reporting technology in terms of form and content [8]. In the context of the Internet of Things era, massive amounts of data information in the news field are constantly being generated, and the development of data visualization technology, mobile devices and the Internet of Things has laid the foundation for the in-depth application of computer technology [9]. The current news broadcast technology inherits and

develops the reporting concept of accurate news, and applies the computer-aided news dissemination mode. In the era of the Internet of Things, computer-supported news dissemination technology has become a new form of news, representing the trend of future news development. Compared with the traditional news communication technology, the news communication and news reporting technology supported by computer technology is more advanced. This technology enables a wider range of data collection, more diverse reporting methods, and richer and more intuitive presentation methods. In addition, computer-supported news communication technology is also a change in the way of thinking, and it is the specific application of new technology in the field of news communication [10].

1.1 Research Progress of Journalism and Communication Based on New Technology

The work of computer supporting news communication technology originated in Western countries. As early as the 1960s, foreign scholars put forward the concept of accurate news. However, the in-depth application of computer technology in the field of news communication is developed on its basis. In 2010, the interventional research on computer technology in journalism and communication academia really began. In 2010, foreign scholars hosted the first International Roundtable on Computer Technology and Journalism. At the same time, scholars have conducted in-depth analysis of a large number of typical news case works and published research papers. The publication of related papers provides a range of working guidelines for journalists. In addition, some scholars have published the book "Facts are the Power of Sacred Data". The book details how the author uses computer technology in his work to support the entire process of news dissemination. Specifically, the book documents how the author uses computer technology to obtain data and use the data to describe news events more comprehensively. The specific operation mode of the computer-supported news dissemination technology is shown in Figure 1.
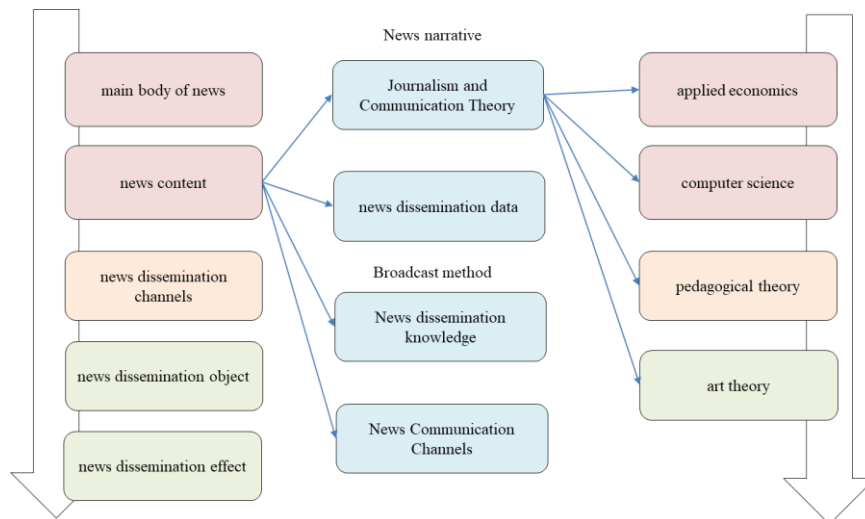
Figure 1: The specific operation mode of the computer-supported news dissemination technology.

At the same time, the relevant research directions have gradually changed with the deepening of time. Different environments have created diverse scenarios for the development of computer-supported news communication technology. First of all, the academic community has carried out a discussion on the origin background and related definitions of computer-supported news communication technology. For example, in early 2013, Chinese scholars wrote the book "The Era of "Big Data": New Shocks Facing Journalism. The book elaborates on the impact of big data

technologies on news production mechanisms, and predicts that the proportion of data-driven news reporting and predictive news will continue to increase. Some scholars expounded the conceptual connotation of computer-supported news communication technology by analyzing the whole process of the global mainstream media using computer technology to support news communication. The book also clarifies the differences and connections between accurate journalism and computer-supported news dissemination techniques. In addition, the book combs the generation and development of computer-supported news dissemination technology, and proposes the development direction of personalized news information dissemination in the Internet of Things era.

1.2 Basic Concepts and Theoretical Basis of Computer Supported News Communication Technology

It can be seen that the academic research on computer-supported news communication technology has gone through a process from shallow to deep, from theory to practice. The main contents of academic research mainly include the following aspects. First, the academic community discusses the impact and changes on the news production mechanism in the era of big data from a macro perspective; secondly, some scholars sort out and define the source development and concepts of computer-supported news communication technology; The production process, news products and website cases supporting news communication technology were analyzed; then, scholars paid extensive attention to relevant research teams and the training of computer-supported news communication technology talents; The bottlenecks and paradoxes encountered in the process are discussed and development strategies are proposed.

2 THE DEVELOPMENT STATUS AND REFORM MODE OF COMPUTER SUPPORTED NEWS COMMUNICATION TECHNOLOGY

2.1 Changes in Production Modes: Computer Technology Assists Efficient News Dissemination

It has been five years since the computer-supported news dissemination technology has been applied to the Chinese news media industry. China's major new media and Internet companies have applied this technology in depth, and these companies or departments have accumulated rich practical experience. For example, NetEase's "Digital Reading" magazine, Caixin Media Group's "Digital Talk" magazine, and Xinhuanet's "Computer-Supported News Communication Technology" and other publications are relatively excellent news and communication works at present. China's official news media also published and produced a number of high-quality computer media communication works. At the same time, computer-supported news communication technology has become a research hotspot in the academic circles in recent years. The researchers entered the keyword "computer-supported news communication technology" on academic websites to search. As a result, it can be found that this type of research results began to explode in 2013. The relevant research disciplines of this topic are mainly concentrated in the fields of computer software, computer applications and news media. The Development Framework and Comprehensive Trend of Digital Communication Technology is shown in Figure 2.

The core content of computer-supported news dissemination technology is to drive news dissemination through data. Data-driven is mainly reflected in three aspects: news business process, news practice effect, and information presentation effect. First of all, from the perspective of news business process, the integration of computer and news business is a systematic project. News media use big data technology to carry out in-depth data analysis. The process mainly includes three steps: collecting data, screening data and structuring news data. This technical solution realizes information filtering according to a specific reporting purpose, and then realizes the external presentation of information through related technologies.
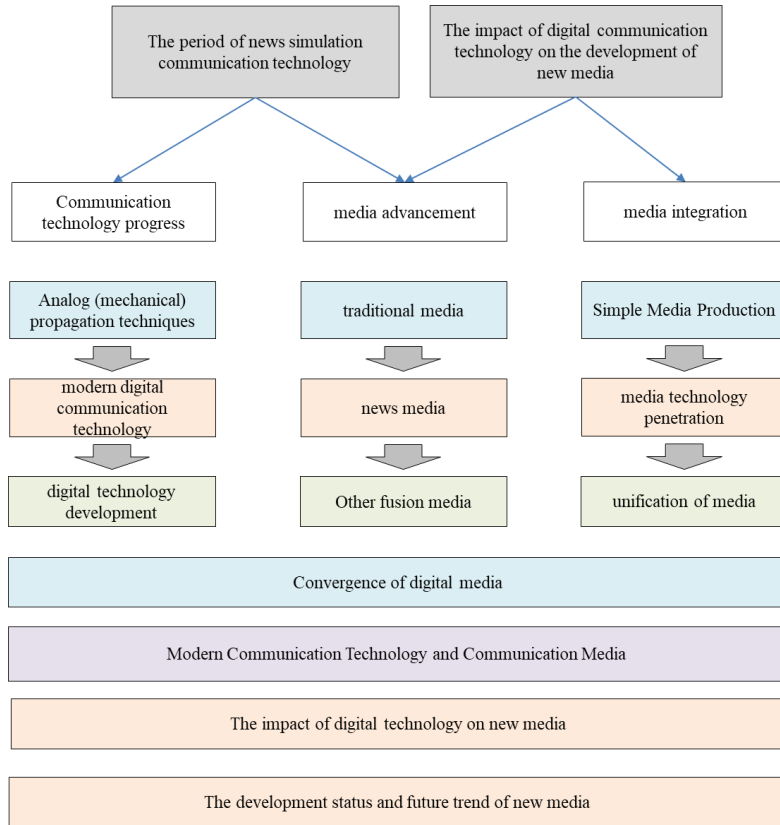
Figure 2: The Development Framework and Comprehensive Trend of Digital Communication Technology.

From the effect of news practice, news data mining and analysis work provides journalists with a new observation perspective. Different data produce different analysis results, which is beneficial for media to mine exclusive report content. From the effect of information presentation, computer technology supports researchers' analysis of news information events. Computer technology fully presents the reasons, meanings and trends behind events to users in a visual way. Judging from the existing research and development process, news and communication work is a report on recent facts. However, the computer-supported news communication technology mainly realizes data mining and data analysis.

2.2 Innovation of Expression Mode: Visualization of News Communication Assisted by Computer Technology

In the era of the Internet of Things, massive data resources provide the basis for data visualization. The development of the Internet of Things allows all behaviors in life to be quantified, and these data are important resources for the development of news visualization. In addition, data visualization technology is becoming more and more mature, and open-source software tools are widely used in the Internet field. With the continuous development of mobile media, the rhythm of life of the masses is accelerating, and the reading time of the public is constantly fragmented. The general public prefers a quick and easy way of reading. Data visualization technology brings users an intuitive, clear and simple reading experience. This reading experience is more effective than

the tedious text of the past. In 2013, a large private news media in China established a data visualization laboratory. This move by the media has received great attention from the industry. The medium converts tens of thousands of words of text manuscripts into visual interactive diagrams. The work not only won many awards at home and abroad, but also received huge hits and attention. This also fully applies the computer-supported news dissemination technology. The Comparison of the dissemination effects of computer technology-supported news media and traditional media is shown in Figure 3.
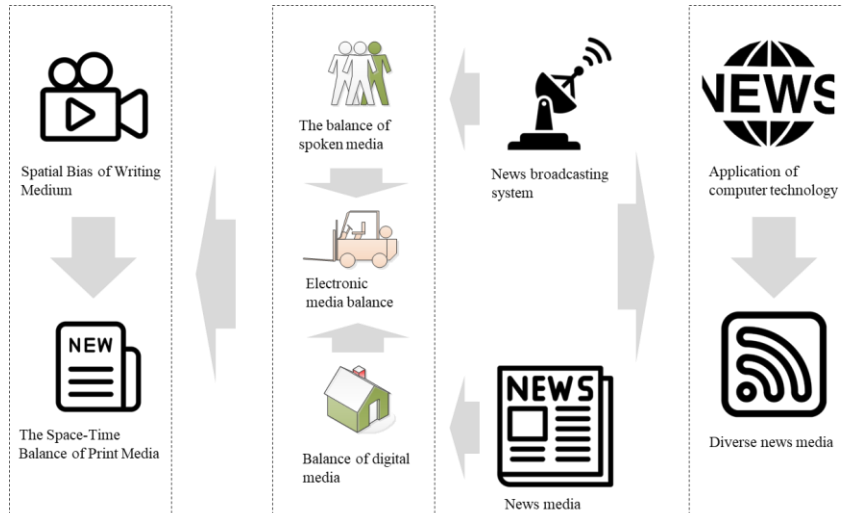

The interactive integration mode of news media and digital media
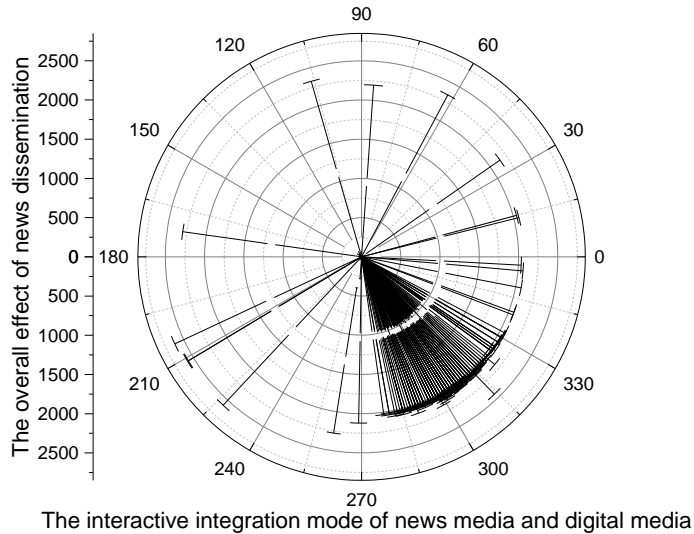
Figure 3: The Comparison of the dissemination effects of computer technology-supported news media and traditional media.

2.3 Iteration of Dissemination Mode: Computer Technology Assists Accurate Positioning of News Users

At present, China has entered an era of rapid reading and information explosion, and the public has more diversified requirements for information technology. This also means that the accuracy and pertinence of news dissemination have become stronger and stronger. News push and update are important tasks for news media workers. The traditional news dissemination work is based on user data, and the media conducts accurate delivery of news information through various channels. Various news media have jointly built a platform with the function of aggregation and distribution. News platforms use big data technology to push news according to users' preferences. This technical framework constructs a brand-new news dissemination mode. In the era of mobile Internet, a large amount of news information is delivered to the masses through different media. The interactive integration mode of news media and digital media is shown in Figure 4.

How to effectively filter information has become the core content of users' attention. Currently, Internet news software collects information in a variety of ways. On the one hand, the algorithm recommends news based on the age, occupation, gender, and hobby filled in by the user when registering; these contents form the software's depiction of the user's interest graph and even the user's portrait. The technology also breaks the long-standing pattern of news topic selection. In the computer-supported news communication technology, the depiction of user portraits has become a very important part.

**Figure 4:** The interactive integration mode of news media and digital media.

To a certain extent, the computer's search for user-related information enhances the media's cognition of users. This mechanism, in turn, strengthens the media's ability to control the news dissemination process. Compared with social news media, the algorithm recommendation mode mainly recommends news based on the user's interests. The method also inserts news that is irrelevant to the user's interests but has high popularity in the information flow to explore the user's new interests. However, at present, it is relatively difficult to solve problems such as poor information dissemination simply by relying on algorithms. Therefore, the computer algorithm recommendation model and the traditional editor recommendation model have formed a good complementary relationship.

3 THE MAIN MODES OF NEWS DISSEMINATION SUPPORTED BY COMPUTER TECHNOLOGY

3.1 Diversified Computer Technologies Support News Production and Dissemination

The computer-supported news dissemination technology has broken the monopoly of the news media on information and changed the traditional news production mode. Based on publicly available data, not only editors and reporters can mine and analyze the content of the data, but Internet users can also engage in the production of computer-supported news communication technologies. At the same time, Internet companies have a large amount of user data and become the exclusive owners of information. This provides a great advantage for media people to use computers to support news dissemination technology. The openness of computer-supported news dissemination technology is reflected in the ability to obtain data from users. The higher the degree of user participation, the richer the content of the computer-supported news communication technology. This feature provides a good foundation for crowdsourcing news dissemination and promotion. In addition to the opening of data content, the computer-supported news dissemination technology also presents other characteristics of open news. More and more collaborative journalism is being added to computer-supported news dissemination techniques. For example, news gathering and editing are constantly being collaborative, the public is involved in

text writing through multiple paths, and news dissemination is constantly being opened up. The Application effect of computer technology in news broadcasting system is shown in Figure 5.
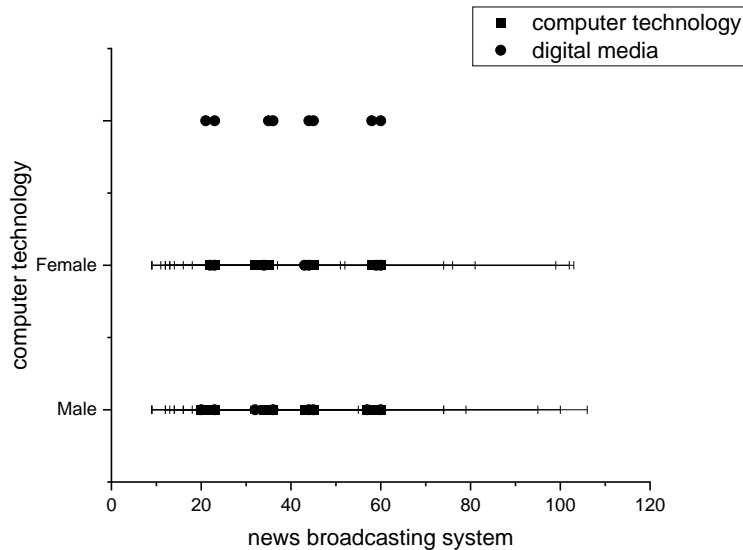
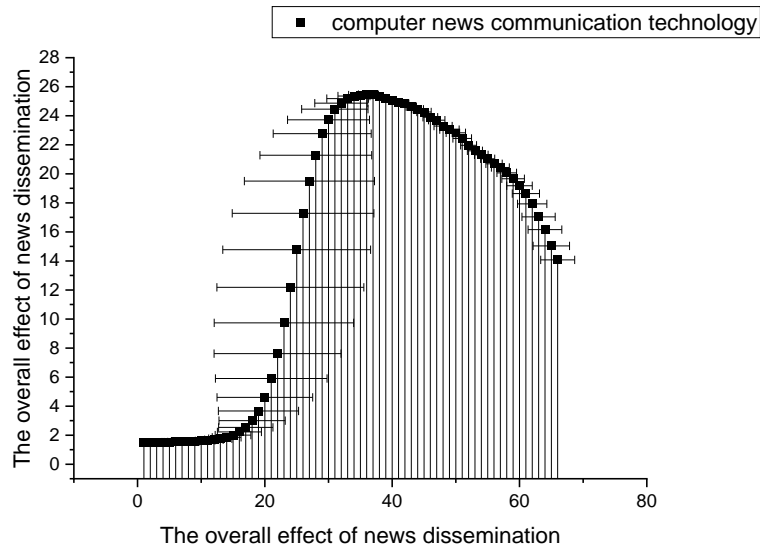**Figure 5:** The Application effect of computer technology in news broadcasting system.

In today's society, computer-supported news dissemination technology has become a normalized way of news reporting. The technology has become standard in news media coverage. This technology is involved in various fields such as current affairs, finance, sports and so on. At the same time, the computer-supported news communication technology is also of great help to journalists. This category of specialized reporters has been established as well as photojournalists and investigative reporters. In the era of big data, data not only changes all walks of life, but also changes the professional requirements of journalists in news media. Computer-supported news communication technology also requires journalists to have both big data thinking and a keen sense of news smell. The intuition and sensitivity of news depend on the journalist's news knowledge, level, experience and vision. The formation of big data thinking requires a long period of data knowledge accumulation to achieve.

3.2 Computer Technology Supports Journalists to Work Efficiently

Although the computer-supported news communication technology is of great help to the daily work of journalists. However, this does not mean that journalists need to be very proficient in all aspects. The computer-supported news dissemination technology project itself has a high time cost. If this matter is acted by journalists alone, its timeliness will be greatly reduced. Journalists should play the roles of organizers and freelancers in the computer-supported news communication technology team. The identity of the organizer is mainly reflected in the reporter's sensitivity and grasp of news topics. Freelancers refer to journalists who can temporarily take on the roles of designers and programmers. Only in this way can the project progress be more flexible and efficient. This prevents project stagnation due to personnel changes. The personnel engaged in the research of computer-supported news communication technology are mainly scholars in the field of journalism and frontier media practitioners. Few talents in the data field participate in the research of computer-supported news communication technology. At the same time, because the education of computer-supported news communication technology lags behind the development of

the industry. In the current social environment, there are very few talents who can do interviews, writing, design and programming at the same time. The effect of intervention and application of computer technology in the process of news dissemination is shown in Figure 6.

Figure 6: The effect of intervention and application of computer technology in the process of news dissemination.
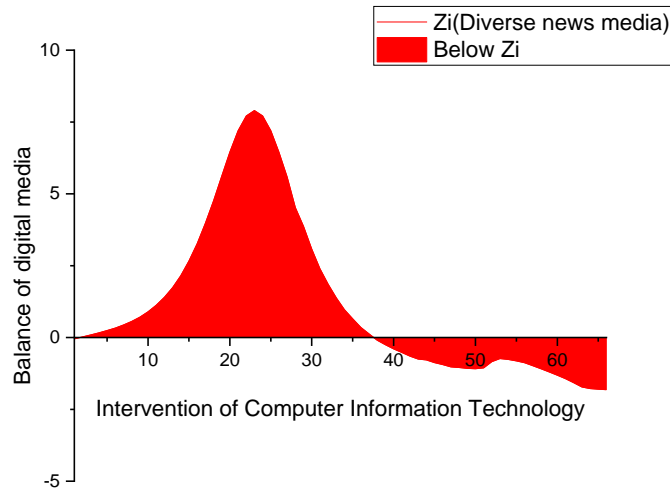
3.3 The Technical Channels of News Information Dissemination have Diversified Characteristics

The computer supports news dissemination technology as a news dissemination channel. The dissemination of this technology is very rich. Specifically, the subject content of computer-supported news communication technology can include different content such as video, text, comics, H5, and news product applications. The rich communication carrier also determines the wide range of application fields of computer-supported news communication technology. The channels of news dissemination are increasingly diversified. Portals, social media, professional media, and personalized push platforms have become the four most important news dissemination channels in the Internet age. These channels are the application methods of computer-supported news dissemination technology. Among the many communication platforms, the computer terminal and the mobile device terminal show different characteristics. The diversified technical channels and dissemination effects of news information dissemination is shown in Figure 7.

4 CONCLUSION

In the era of mobile Internet, short video is the product of the interaction of computer-supported news communication technology in content interactivity and mobile visualization. On the one hand, the current video production technology is quite mature, and smartphones are the main carrier of social media information dissemination. On the other hand, video is more vivid, specific and vivid than simple infographics, which helps computer-supported news communication technology to more comprehensively display the content to be expressed by data. The innovations of this paper mainly include: (1) Proposing the concept of developing computer-supported news communication technology to content products; (2) Systematically expounding the communication mode of computer-supported news communication technology; (3) Aiming at the development of

computer-supported news communication technology in China Insufficient, put forward coping strategies.

Figure 7: The diversified technical channels and dissemination effects of news information dissemination.

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