

New Mechanism of the Production and Marketing of TV Series on the Basis of Big Data*

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Abstract—In recent years, based on a lot of use of big data analysis technology, the TV series adaptation of online novels has flourished day by day, and good artistic effect and economic benefit have been obtained. The participation of big data has greatly changed the production and marketing mechanism of TV series. Therefore, today's TV series show new aesthetic characteristics.

Keywords—big data analysis; network fiction; TV series; quantitative analysis; popularization

I. INTRODUCTION

In the second decade of the new century, the society started to enter the Age of Big Data. The big data, as a new technology, method and concept, affected all fields of the human society, from commercial technology, health, government, education, economy, to humanity and other areas of society [1]. Especially in the time of data explosion, the data had become a new production factor [2], and even equivalent to gold mine [3], just as Guojie Li said, the size and ability of a country to own data would become an important component of the overall national strength and the new competition focus among enterprises [4]. So the data collection, storage, operation, the analysis and mining had become important focuses of the present social competition. It can be said that to mine the potential economic value behind the data, as well as the new thought, new knowledge and new cognition, were important function of big data analysis. Today big data had also played an important role in making and promoting the TV series and brought new opportunities and challenges to the development of the TV series.

II. BIG DATA ANALYSIS AND THE DIVERSIFIED DATA SOURCES OF TV SERIES

What the most attractive of the big data was its data analysis method. Many scholars also defined big data era as "The Era of Data Analysis" [5]. Big data analysis (BDA) mainly referred to analyzing massive, diverse, fast-growing and real data (that is, big data), helping find out the hidden mode and make decisions from the process of unknown correlation and other useful information.[6] The prerequisite

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for big data analysis was the storage and retrieval of massive data. Today the TV series could provide massive data. The generation of these data was closely related to the popularity of cable television and network broadcasting platform rather than the sampling survey of the past Small Data Age.

According to the statistics of the National Bureau of Statistics, by 2016, the number of cable radio and television users in China had reached 228.3 million, of which the number of digital television users was about 201.6 million. [7] Cable TV, especially digital television, could collect the information from television users through cable digital TV set-top boxes, IPTV, OTT TV and other technical equipment. The frequency of turning on, operation marks, as well as TV channels and TV programs, watching time and length, even fast forward, backward, pause during the program and other viewing marks generated by the data information were collected and stored and formed a television information database. Besides cable television and digital television, nowadays TV series began to make more use of multimedia internet platform, computers, mobile phones, and so on. The viewers could also upload information into the database. The traces of television watching on the Internet were collected and sorted out. At present, Nielsen-CCData successfully obtained the accurate viewing rate through monitoring, collecting and analyzing the massive data. Major video sites also monitored users viewing data. Youku Tudou, mined more than 400 million video users viewing data through the search platform to, Sohu website can obtain more than 900 million user data per month. [8]

However, these data are relatively complex in structure, including not only structured data that can be represented by digital or unified structure, such as user comments, criticism, story speculation, etc., but also semi-structured and unstructured data, such as documents, pictures, images, audio, video, web pages and so on. These semi-structured and unstructured data often produce recognition difficulties in the processing of big data analysis. So digital conversion needs to be carried out in format. Digitization is mainly to re-input text, image, table, digital and other information into measured data information, which is convenient for computer information recognition, retrieval and processing. At the same time, this problem can be solved by improving information technology, such as OCR (Optical Character

Recognition) system which mainly uses electronic equipment or software to recognize characters into computer text to realize the task of character recognition. At the same time, it is also necessary to pay attention to the diversification of TV series data information sources, especially when carrying out big data analysis, the problem of multi-source data fusion should be emphasized. The so-called multi-source data fusion refers to the process of using a variety of acquisition methods to bring together the data from different channels and with different structures to form a data set with a unified format and facing a variety of applications. [9] Only by taking into account different types of data sources can it be available to ensure that of data information is comprehensive and the analysis conclusions are correct.

III. AUDIENCE USERS INVOLVED IN THE PRODUCTION OF TV SERIES

On August 20, 2018, the China Internet Network Information Center (CNNIC) released the 42nd Statistical Report on the Development of Internet in China (Report for short in the following paper) in Beijing. The Report showed that the number of China's Internet users was 8.02 billion, and the Internet penetration rate reached 57.7% by the June, 2018. [10] 8.02 billion of network users and 2.283 billion of cable-based broadcast television users jointly formed the potential and huge audience of Chinese TV series, which means the audience rating and the potential economic value. Therefore, how to make a TV series that meets the audience's aesthetic needs is the most important task. Here the big data analysis is used to fulfill the most difficult commission. Today TV play production basically needs to analyze the data information left by the audience through the cable broadcasting TV and the internet and to process further to find new values and new knowledge behind the data. [11] This is also a unique production mechanism of modern knowledge, which helps us to rediscover the data.

Taking the TV series named the Journey of Flower for example, this is a typical network IP play adapted to the same name internet fiction written by FreshGuoguo. The fiction had accumulated a large number of fans and got a certain amount of potential audience group before making the TV series. The data analysis found that the Xianxia plays had a certain market. The big data analysis method was also adopted in the selection of the character of the TV play. The actor and actress, Jianhua Huo and Liying Zhao, had high network popularity at the time, while the data in various aspects showed they were more close to the image of the hero Bai Zihua and Qiang U. In the course of concrete production, the advantage of big data analysis was brought into full play. the plots and characters were criticized, negative, dragged and fast-forward in the course of reading the network novel were deleted or reduced, and vice versa. The Big data made contribute to the success of the Journey of Flower, which has become the first of Chinese network to play a 20 billion-dollar TV series, and only the first round of broadcast rights were sold 1.68 million.

Under the background of big data, the audience groups' aesthetic needs were found and were respected. The audience

group began to participate in the production process of the TV series rather than being regarded as audience. In the big data age, the readers, who were also consumers, have got unprecedented high status. The reader's preferences determine the direction of creation of the works to a great extent. The market, as an invisible hand between the reader and the author, maximizes the reader's expectations [12]. The position of the ordinary readers and the audience in the four elements of art (works, universe, artists and the audience) is promoted to the greatest extent, and their aesthetic taste is also discovered to the greatest extent. The audience group has started to make a certain voice. If the voice is a kind of control force, it will embody the social power and corresponds to the specific power structure. [13] The voice of the production of the TV series in the big data era is no doubt inclined to the bottom layer. The big data found this voice.

The audience information, whether intentionally left or not, will play a role in the big data analysis. But the problem of those information is too complex, extremely volatile and with contradiction between data. The big data analysis method with the full data mode, analyzes all the data, and automatically corrects the data in the comparison and mutual authentication process of each other, automatically removing the useless information or the error to avoid the error of the analysis result. This is also the fundamental guarantee that big data analysis plays an important role in the production of TV series.

IV. QUANTITATIVE ANALYSIS OF TV SERIES BASED ON BIG DATA ANALYSIS METHOD

The advantages of BDA compared with other information analysis methods are mainly in the following three aspects: first, the full data mode. Compared to the sample analysis method of the Small Data Age, the whole data is beyond the limitation of the sample analysis on the amount of the data, the accuracy of the data is no longer necessarily a requirement, and the erroneous data in the full data mode can be ignored and corrected in comparison to each other. Second, the related relationship method, which is mainly directed to the traditional causality method, is focused on "What is it", the relationship between the data-to-data rather than "Why?" of the essentialism. The core is to quantify the mathematical relationship between the two data values [1]^{p71}. For example, the shifting of a class of data affects the shifting of another kind of data, so the change of latter kind of data can be predicted through the changing law of the former class of data. Third, the pursuit of rate effect: the big data analysis is the most efficient analysis method so far, which is most prominent at efficiency and success rate. It is good at capturing the data change and the fact that is hidden behind the change, and foreseeing the development direction of the things quickly and accurately.

The database involved in the data analysis of the TV series is also diversified, such as the reviews published by the professional reviewers in the paper-media journal, the relative professional film-fans' comments on the Douban, the rotten tomatoes, etc., random comments on the Internet, shooting and marketing data for various types of movies, and

so on. These different data sources are within the information collection range of the full data mode, so that the most detailed and comprehensive film and video information can be provided, and the ratio between them is more efficient.

In the whole data mode, the quantitative analysis of the film and television works was realized, which is one of the most important big data analysis methods. Quantitative analysis is used to re-classify and integrate the mass data by computer information technology, and the big data is transformed into small data, the potential value behind the data is excavated by the quantitative analysis method such as data mining, statistical analysis and document measurement. For example, the quantitative analysis of the marketing situation of the TV series type showed that the market share of the ancient plays was high. Further analysis of the ancient drama found the higher market share of the network IP plays due to the fans of original fiction. From *Empresses in the Palace* in 2010 to *Nirvana in Fire* in 2015, those network IP plays were basically small-cost and high-yield works. In the view of the correlation analysis, *House of Cards*, introduced by Netflix in 2013, adopted the big data analysis method, which had certain relationship with the hot-broadcasting of the Chinese network IP play on the internet of China. The appearance seemed to have a small gap, but there was a certain degree of communication in the aspects of in the political struggle, power and conspiracy theory.

V. CONCLUSION

Media is the extensions of man [14]. Negroo Ponty believed that the digital art was essentially an extension of human [15]. Nowadays, digital and internet-based television series extended the cognitive length, breadth and extent of the human being to a certain extent, and brought us new ideas and new knowledge.

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