Research on Information Processing Model Construction and Countermeasures of Moral Education in Colleges and Universities Under Information Technology

Shihong Cao[a]
School of Marxism, Beijing Jiaotong University, Beijing 100044, China

Keywords: Information Technology, Moral Education, Information Processing Model, Data Mining.

Abstract: With the wide application of information technology and the development of moral education in colleges and universities, the information processing of moral education shows a single information processing method, imperfect system, "semantic gap" in the process of information interpretation, educators do not pay enough attention to information processing, and the level of information technology is not high. Based on this, an information processing model is constructed. The model uses image description, digitized text, data mining and other information technology means to summarize and process the image and text information, and then with the help of data output, feedback and adjustment, so as to realize the creation, dissemination and sharing of moral education information. At present, in order to make moral education information processing achieve benign development, WE should continue to optimize the information processing model, perfect the information processing method, change the information processing concept, and constantly provide a high-level information environment.

1 INTRODUCTION

From the technical point of view, information technology is mainly used to manage and process information all kinds of technology. As far as computer technology is concerned, information technology is the technology involved in the process of information collection, processing, storage, transmission and utilization. At present, information technology has created a new position of network moral education (Ding 2013). Under the condition of information technology, fast and efficient digitized can make the information quantified, image description technology can objectively interpret the content of the image, and data mining technology can also dig out the connection between different elements. In short, all these technologies provide technical support for valuable information in the mass information of moral education in colleges and universities and guarantee the validity and authenticity of data analysis results. This study combines traditional information processing methods such as literature collation method and inductive analysis method with computer algorithms such as information technology and data mining, and integrates the technology of digitized text and image description to construct the information processing model of moral education in colleges and universities and puts forward relevant countermeasures and suggestions.

2 CURRENT SITUATION AND EXISTING PROBLEMS

2.1 Current Situation of Information Processing of Moral Education in Colleges and Universities under Information Technology

(1) The extensive application of information technology and the development of moral education in colleges and universities

According to *The 50th Statistical Report on China`s Internet Development* released by the China

[a] https://orcid.org/0000-0001-8049-5581

Cao, S.
Research on Information Processing Model Construction and Countermeasures of Moral Education in Colleges and Universities Under Information Technology.
DOI: 10.5220/0011915200003613
In *Proceedings of the 2nd International Conference on New Media Development and Modernized Education (NMDME 2022)*, pages 527-531
ISBN: 978-989-758-630-9

Internet Network Information Center in August 2022: as of June 2022, the number of Internet users in China was 1.051 billion, and the Internet penetration rate reached 74.4 percent. By comparing the data of the past two years, it can be seen that the scale of Chinese Internet users and the Internet penetration rate are increasing year by year (as shown in Table 1). The report also showed that 94.6% of users use online video, 75.0% use online news, 68.1% use online live broadcast and 43.8% use online office work. The rich information and various resources brought by the rapid development of information technology broaden the cognitive vision of moral education educators and students in colleges and universities. In addition, affected by the COVID-19 epidemic, the Ministry of Education organized and launched 22 online course platforms, offering 24,000 online courses, which provides a good opportunity to promote the transformation of education classroom from offline to online, and gradually realize the informational and modernization of education.

Table 1: Size of Internet users and Internet penetration rate from June 2020 to June 2022.

year	Number of Internet users (ten thousand)	Internet penetration rate (%)
2020.6	93984	67.0%
2020.12	98899	70.4%
2021.6	101074	71.6%
2021.12	103195	73.0%
2022.6	105114	74.4%

From: CNNIC China Internet Development Statistics Survey.

(2) Information processing methods and current situation of moral education information processing in colleges and universities

Moral information processing in colleges and universities is mainly divided into image information processing and text information processing. Among them, image information processing of moral education mainly collects image materials related to moral education extensively, and extracts relevant images according to relevant keywords for education in the process of moral education. This has higher requirements for the ability of collecting image data and the image processing technology of educators. Currently, about text information processing, some scholars have proposed that a typical text screening network SummaRuNNer can be used (Nallapati et al.2017). The text information processing of moral education mainly uses big data, cloud computing, data mining and other technologies to collect the text information related to moral education, and uses the information processing system to classify and store it, so that relevant information can be retrieved for education at any time.

2.2 Problems Existing in Information Processing of Moral Education in Colleges and Universities Under Information Technology

(1) Single information processing method and imperfect system

Under the condition of information technology, most moral education educators in colleges and universities already have the consciousness of data processing of image information and text information, and have begun to use big data and data mining technology to solve the problem of information processing in the process of moral education. However, due to the single information processing method and the limited level of information technology, it is difficult to implement the ability of using information technology means to process moral education information, so the overall information processing problem of moral education educators in colleges and universities has not been comprehensively solved.

In the process of information processing, moral education educators in colleges and universities often only see the advantages of a certain information technology or information processing method, and ignore the advantages of other information technologies and information processing methods. In addition, due to the lack of comprehensive and systematic information processing model, it is difficult to solve the problems existing in the process of moral education information processing, so that the information processing work is difficult to effectively promote.

(2) "Semantic Gap" in the process of information interpretation

Under the condition of information technology, moral education educators in colleges and universities often use images, words and other information resources to carry out education, with personal subjective judgment and emotional color. In other words, in the face of the same picture, the same piece of content, due to the differences in the views of educators, often adopt different ways of expression, resulting in different educational effects. If the description with personal feelings is very different from the meaning of images and words themselves, the effect of education will be biased,

which is the "semantic gap" in the process of information interpretation. This "semantic gap" is the problem existing in the process of moral education in colleges and universities.

(3) Moral education educators do not pay enough attention to information processing and the information technology level is not high

Although the information technology develops rapidly, the information technology level of moral education educators in colleges and universities is not good, and they also lack special information technology ability training. In addition, moral education educators in colleges and universities have weak awareness of digitized information. Some moral education educators still use traditional information processing methods, such as simple use of office software such as word, excel and slide, and lack of understanding of information technology such as big data, data mining and cloud computing. In the face of massive moral education information resources, many moral education educators can not effectively process and use moral education information resources.

3 INFORMATION PROCESSING MODEL CONSTRUCTION

3.1 Purpose of Model Building

The information processing model constructed in this study is to convert image information and text information related to moral education in colleges and universities into data, and analyze the dissemination trend of moral education information according to the output of data, so as to understand which moral education information is more popular among educators and educators. Then we should consider the current trend of information technology of moral education in colleges and universities and take corresponding measures to avoid the marginalization of effective moral education information. At the same time, according to the development of moral education in colleges and universities, combined with the current popular new media, moral education information will be pushed to moral education educators and educated in the form of network tweets, audio, short videos, etc., and moral education information exchange platform will be built to interact with the majority of educators and educated. In a word, the combination of information technology and moral education in colleges and universities is conducive to the dissemination and sharing of valuable moral education information.

3.2 Approach to Model Building

(1) Data mining

Under the condition of information technology, with the help of big data, a large amount of moral education data information with potential educational value can be mined from massive information. Using key words to carry out data mining can not only search for accurate and comprehensive moral education information, all-round display of moral education related information resources, but also improve the speed and efficiency of information acquisition, so as to provide an important guarantee for the effectiveness of moral education.

(2) Digitized of text

Digitized of text is to combine text information with moral language and convert it into data, so as to solve comprehension problems caused by the complexity of text expression through text information processing. Digitized of text is mainly to extract the key words and statistical word frequency of moral education. Among them, key words are filtered out without distinction and important words are retained. Statistical word frequency is mainly to count the frequency of a word in the keyword database. The type of statistical graph can be selected as needed, and its purpose is to visualize the data. The efficient, fast and accurate information data processing provides technical support for the information processing of moral education in colleges and universities.

(3) Image description

Image description is a combination of computer vision and natural language. Image description is similar to "look at the picture to talk", which is to show the content information conveyed by the picture by describing the picture. Although image description is subjective, it is also objective under the condition of information technology. Using information technology to describe pictures can deal with the problem of "semantic gap" in the process of information dissemination, so as to provide technical support for the effect of moral education in colleges and universities.

3.3 Information Processing Model and Workflow

The traditional information transmission mode of moral education is a one-way education mode (as

shown in Figure 1). It is characterized by limited time, limited space, oral instruction, and limited feedback and evaluation. With the continuous development of information technology, the mode of moral education in colleges and universities has gradually changed from unidirectional to multi-directional (as shown in Figure 2) and vertical (as shown in Figure 3). In the multi-directional model, educators make full use of network resources to carry out education, and teachers and students can also communicate with each other through network media. In the vertical model, moral education gradually integrates online and offline education and attaches importance to evaluation feedback and intervention correction.

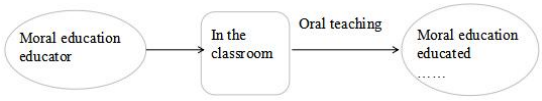

Figure 1: one-way education model.

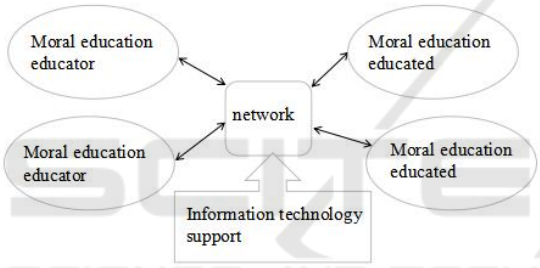

Figure 2: multi-directional education model.

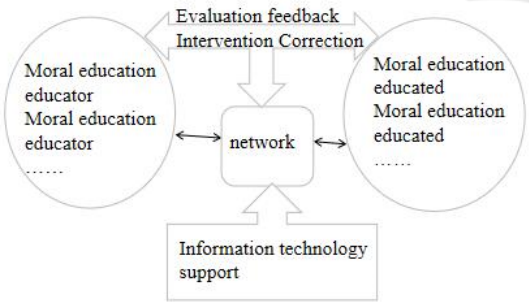

Figure 3: vertical education model.

With the continuous development of information technology, the traditional mode of moral education in colleges and we were not able to identify media comments suggesting the need to improve moral education throughout the system (Petru & Mihia, 2016). That is to say, construct a new educational information processing model (as shown in Figure 4). This model is mainly composed of artificial (educator) and computer, combining human brain power with computer's information processing ability, using image description, text data, data mining and other information technology means, fast, accurate and efficient processing of moral education information resources.

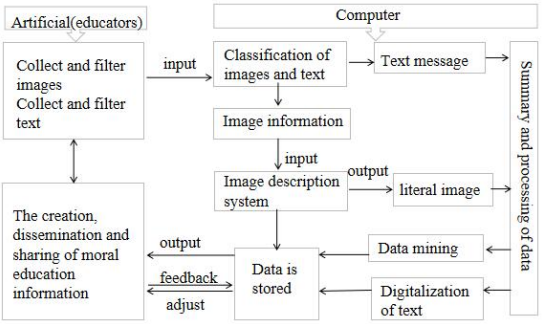

Figure 4: educational information processing model.

4 COUNTERMEASURES AND SUGGESTIONS

4.1 Optimize the Information System and Perfect the Information Processing Method

In the process of educating the educated, how to select and impart information is related to the effect of moral education. Through the above information processing model, it can be seen that the collection and screening of image and text, image informational and digitized text play a key role in the output of information. Therefore, we should constantly optimize the information system, especially strengthen the collection and screening of images and words, and pay attention to the selection of keywords. Only by using accurate keywords to describe the image, can the image be better digitized. In addition, more attention should be paid to feedback. Only by constantly adjusting relevant information according to timely feedback can the whole process of moral education achieve a virtuous cycle of interaction.

4.2 Change the Concept of Information Processing and Provide a High-Level Information Environment

Under the condition of information technology, in order to continuously improve the effectiveness of

moral education, colleges and governments should change the concept of information processing of moral education, constantly improve the ability and level of information technology, and gradually skillfully use information technology to solve the consciousness of moral education. At the same time, it is necessary to increase the funding investment of data mining and image description technology research, and establish a special management organization of moral education information processing model to ensure the stable operation of information processing model. In addition, the current COVID-19 epidemic has made educators realize that the Internet platform is the supporting space of education, which has rapidly transformed college teaching from "two Spaces" to "three Spaces". Therefore, we should strengthen the cooperation between universities and enterprises, the cooperation between government and enterprises and the whole society, and constantly improve the modernization level of information technology of moral education in colleges and universities.

5 CONCLUSIONS

In the era of information technology, the use of computers to deal with traditional problems conforms to the requirements of The Times. At present, the traditional mode of moral education in colleges and universities can no longer meet the needs of educated. So Colleges and universities should increase guidance of the application of new media to acquire knowledge and information (Dong 2016). Aiming at the deficiency of unidirectional moral education mode and multi-directional moral education mode, this paper proposes an information processing model which combines image description and digitized text. This model can quickly realize efficient, rapid and convenient processing of information, information technology can retrieve, store and share educational data information, and can also analyze these information data, which are conducive to promoting the application and development of information technology in college moral education.

REFERENCES

Feiyue Ding. (2013). Analyse challenges and countermeasures of network moral education in universities of "Microblogging era" [J]. Electronic Test.

Lisievici Petru. &Andronie Mihai. (2016). Teachers Assessing the Effectiveness of Values Clarification Techniques in Moral Education [J]. Procedia - Social and Behavioral Sciences,400-406.

Nallapati, R. M, Zhai, F, & Zhou, B. (2017). SummaRuNNer: a recurrent neural network based sequence model for extractive summarization of documents. National Conference on Artificial Intelligence.

Ying Dong. (2016). University N. Opportunities, Challenges and Countermeasures of New Media in Ideological and Political Education in Colleges and Universities[J]. Journal of Changzhou Vocational College of Information Technology.