

Study on the Intension and Extension of Information Culture

Dai Jinping

Author Affiliation: 1.School of Humanities and Social Science, Xi'an Jiaotong University, Xi'an 710049, P. R. China;
2.Development Research Center, Chongqing University of Posts and Telecommunications, Chongqing 400065, P.R. China
Tel: +86-23-62460319, +86-13594102518
E-mail: daijp001@sina.com; daijp@cqupt.edu.cn

Abstract: Information culture can be defined as a kind of cultural morphology in the information era which is formed through the entire revolution of human living style that is caused by social informationization process. It's based on the application of modern information technology, uses information industry and knowledge industry as its backbone, and takes the production, distribution, transmission, communication and using of information and knowledge as the contents of human activities. The definition of information culture in its broad sense is the culture in information society and information era; while in a narrow sense, it refers to the general name of new type of cultural morphology which is formed around these new technologies as modern computer technology, telecommunication technology and network technology. Though there are differences between broad-sense information culture and narrow-sense information culture, they still contain internal relation.

Key words: information culture, intension and extension, new cultural morphology

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Information culture is the product of social informationization. Informationization not only refers to the process that people uses modern information technology, develops new information industry, rebuilds traditional industry and promotes the industrial structure, but also refers to the reconstruction of infrastructural facilities of social information and the transformation of technology, economy, and social patterns. This transformation must lead to the great change of mode of human existence and bring on the new form of social

cultur e-information culture. Furthermore, as a new mode of human existence, information culture has become the profound structure of human existence and development in the information era, which becomes the basic factor restricting the social development process and direction. Studying on information culture is of important significance for constructing Chinese advanced culture development strategy in the information era. However, since the development of information culture is barely in embryo actually and the new technology represented by information network

technology has great influence, high-speed, and wide extension, the definition on information culture is still under discussion. Hence, based on relevant research achievements at home and abroad, this paper studies the concept of information culture for getting the meaning of information culture and proposes some suggestions.

1. Definitions of the Concept of Information Culture

The impact of information technological revolution on society and social culture has attracted the scholars' attention at home and abroad. They have presented their definitions on information society and its culture from different perspectives. These definitions are of important value for us to understand information culture completely.

1.1 Foreign Theories about Information Society and Its Culture

There are mainly three theories about information society and its culture in western countries. The first is information economic theory. In 1934, Joseph Alois Schumpeter proposed his *The Theory of Economic Development*, and he thinks that the innovation of product, productive technique, market and corporate organization form is the main force for economic development. In 1961, George Stigler published his information economic thesis and presented the economic issue of information, exploring the new field of information economic research. In 1962, Fritz Marchlup put forward the concept of knowledge industry in his book *The Production and Distribution of Knowledge in the United States*. He analyzes the economic characteristic and rule of knowledge production and distribution and the important role of knowledge product to social economic development. Marc Uri Porat inherited and developed Marchlup's research achievements, and in his work *The Information Economy: Definition and Measurement*, he discusses the meaning of information economy and the theory and method for information economy measurement. These theories mainly study the information society based on the application of information technology, the development of

information industry and the development level of information economy. However, in a sense, they reveals that the information culture is the outcome of economy developing into a certain stage, and they illustrates that the reform of information society industrial structure and strategic position of information resources laid a good foundation for the research of information society and its culture.

The second is information society theory. Using the comprehensive method, some western scholars have made the research and forecast on future information society from the perspective of social civilization or cultural transformation. In 1973, American sociologist Daniel Bell analyzed the theory of post-industrial society completely in his work *The Coming of Post-industrial Society*. He divided the development of human society into three historical stages, namely pre-industrial society, industrial society, and post-industrial society, and he summed up the characteristics of post-industrial society at the same time. In *The Third Wave*, Alvin Toffler proposes that human being has experienced the waves of agriculture and industrialization, and the third wave—informationization—is coming. In 1982, American economist and futurist John Naisbitt presented the theory of information society marked by new economic mainstay industry in *Megatrends: Ten New Directions Transforming Our Lives*. In 1990, he published *Megatrends 2000* and pointed that American society has changed from industrial society to information society. These theories become a source of information cultural theory.

The third is corporate information culture theory. This theory mainly focuses on the difference between traditional corporate culture and new corporate culture after enterprise adopting the computer system for management. According to the textual research of Chinese scholar Dong Yan, "information culture" firstly appeared in Judy Labovitz and Edward Tamm's thesis *Building an Information Culture: A Case Study*. This paper describes the factors of information cultural development in enterprise, including corporate

strategic plan, organizational philosophy, attitude of using information and combining information with technology, and so on.¹

At the same time, some western scholars have studied the information culture from the aspects of computer culture, network culture, cyber culture and digital existence.

1.2 Chinese Scholars' Study on Information Culture

Chinese scholars have discussed the culture in the information age based on the concept of information culture more directly. Their main ideas are as follows.

Technological culture theory. This theory thinks that the information culture is the result of information technology pervading into the social life completely. For example, Lu Taihong said: "The support and root of information culture is not the character, religion, architecture, art, idea or moral, and it is primarily the technology. The information technology brings the revolution and products the information culture. Hence, in a sense, the information can be recognized as a kind of technological culture."²

Cyberspace culture theory. In *Information Superhighway: Concussion Faced with Future*, Yan Kangming and Lai Maosheng mentioned that the appearance of "information superhighway" will influence people's mode and content of life, especially people's cultural life. The new cultural method and content in the information age can be called as "cyberspace culture", namely "information culture". "The content of 'information culture' is not defined. Roughly, it contains two meanings: the first is that since the intrinsic cultural contents and practical modes have been brought into the system of 'information superhighway' and changed by facture, machining, transference, and communication, namely the 'computerization' and 'informationization' of the instinct culture; the second

refers that with the higher frequency and larger scale of using the 'information superhighway' in every trade and social activity, this method certainly will be more various, coming into a new and unique cultural form."³

Morphology of human civilization. Dang Yuewu said: "as a kind of cultural form that is full of particular content and means of expression, information culture is the material and spiritual wealth created by people in information activities based on information, information source, and information technology. Hence, in a broad sense, information culture can be understood from four aspects: information culture as material form, information culture as social rule, information culture as practical ways, and information culture as mental idea."⁴ Based on the idea that the information culture is primarily the spiritual culture, time-domain culture, global culture, and technological culture, Chai Qingyun proposed: "Information culture is the global culture that appears and develops in the information age, and supported by information technology, it can express voice, character, and image simultaneously."⁵

Information social culture theory. Dong Yan thinks that the concept of information culture has the branch of broad sense and narrow sense. The information culture in its narrow sense is a part of new corporate culture formed under the influence of information technology, and it is an approach for enterprise to use and spread information. The concept of information culture in its broad sense is defined from the perspective of information society. He said: "Information culture is the cultural form that people uses information, information source, information technology to engage in the information activities. It is a particular information form and people's life style in the information society."⁶

¹ See Dong Yan. (2003). *On Information Culture: Rethinking on the State of Being Digital*. Beijing: Beijing Library Press, pp.3.

² See Lu Taihong. (1990). Preface of *Introduction of Information Culture: What IT Will Bring to Us?* Changchun: Jilin Education Press, pp. 1-2.

³ See Yan Kangming, Lai Maosheng. (1996). *Information Superhighway: Concussion Faced with Future*. Jinan: Shandong Education Press, pp.123.

⁴ See Dang Yuewu. (1995). Study on Information Culture. *Information and Documentation Services*, (5), 1.

⁵ See Chai Qingyun, et al. (2003). *Information Culture: New Form of Human Civilization*. Beijing: Military Science Press, pp.26.

⁶ See Dong Yan. (2003). *On Information Culture: Rethinking on the State of Being Digital*. Beijing: Beijing Library Press,

2. Intension and Extension of the Concept of Information Culture

In terms of above theories about information culture and the practical development of information culture at present, I think we can define the information culture as a kind of cultural form based on the wide application of modern information technology and supported by the rise of information industry and knowledge industry. Its content for people's activities is the production, distribution, diffusion, communication and use of information and knowledge. It is formed in the overall transformation of human life style caused by social information. About this definition, we can understand it from following aspects.

Information culture is based on the rapid diffusion and application of modern electronic, computer, communication, network and media technologies to promote the new industrial revolution and the transformation of social technology and economic pattern. British scholar V. Kicon analyzed the factors that promote the new technological revolution of contemporary Internet economy. He thinks that these factors are the result of the three revolutions taken place in different technological fields simultaneously. The first is the digital revolution, namely based on the reassignment of 1 and 0 completely, thus all the economic information relies on the accurate expression and fast transference of these two numbers. The second is that the fiber has been used in the trunk of global telephone network, which greatly changes the capacity and speed of information transmission. The third is the sharp drop of computer cost, which makes the network terminal popularize among customers rapidly.⁷ Mr. Luo Peisen, academican of Chinese Academy of Sciences, pointed that the information revolution brought by the construction of information superhighway is essentially an industrial revolution in cultural field. The new industrial revolution based on electronic technology will form an advanced

cultural information technological system and bring many new cultural forms.⁸ These thoughts show that the appearance and development of information culture are based on the revolution of new information network technology and the new industrial revolution therefrom. Our study on information culture cannot deviate from its basis of technological and industrial revolution and ignore the great impact of modern information network technology on information culture. The application of modern information technological revolution and the development of information industry and knowledge industry construct the social and information infrastructure of information culture. Hence, the information culture has the characteristics of technological culture.

According to the information and knowledge as an important strategic source of information society, the production, diffusion, distribution and use of information and knowledge become people's important and common life style, which is the major characteristic and basic content of information culture. Western information economic theory reveals that like labor and capital, the information (knowledge) in information society has already become an important social strategic source. OECD defined the future economy as the knowledge economy, and it proposed that the knowledge economy is established on the production, diffusion and application of knowledge and information. The basic characteristic of knowledge economy is the knowledge becoming the driver of economic growth. In the information age, since information and knowledge change into the strategically economic sources, they have the effect of transference and multiplication and the characteristics of innovation, non-exhaustion and regeneration. Hence, the bottleneck that the growth of traditional economy depends on the consumption of material productive elements was broken, and based on the information technological revolution, the new economic form featured by informationization, networking and

pp.46.

⁷ See Zhao Weiliang. (2001). *An Introduction to Electronic Commerce*. Chongqing: Southwest Normal University Press, pp.22.

⁸ See Chai Qingyun, et al. (2003). *Information Culture: New Form of Human Civilization*. Beijing: Military Science Press, pp.22.

globalization appeared. The transformations of social strategic source and social technological and economic pattern profoundly affect people's life style, and make learning and using modern information, communication and network technologies to engage in the information and knowledge production, distribution, diffusion, communication and usage become people's common and important activity. If we lack the chance, ability and condition for using the information network technology, we may be excluded from the information network revolution and drop behind in the tide of informationization and networking. Hence, only using the concepts as "computer culture" and "cyberspace culture" to define the information culture may restrict people's perspective to review and understand information culture and to fully understand the influence of new technological revolution and industrial revolution on social culture.

The new information technological revolution is essentially a cultural revolution. Information culture means the change of people's life style in the information age. Kevin Kelly, deputy editor of *wired*, reveals the significance of information network technology for social economy and cultural development in *New Rules for the New Economy*. He said that communication is the basis for society, culture, humanity, and people's cognition. In a word, it is the basis for all economic systems. This is the magic of network. Communication has close relationship with culture and society. Communication technological reform exceeds the category of industrial section. Communication shakes the foundation of our life on culture, technology, and idea.⁹ The application of modern information network technology not only changes the foundation of social technology and industry, but also changes people's mode of production, exchange, distribution, consumption, communication, organization, learning and thinking. The new mode for people's existence in the information age appears. Professor Bao Zonghao,

⁹ See Kevin Kelly. (2000). *New Rules for the New Economy*. Translated by Xiao Huajing and Ren Ping. Guangzhou: Guangzhou Publishing House, pp.7.

director of Institute of Huaxia (China) Social Development, appraised the cultural value of information network. He thinks that the information technology promotes the formation of cultural network system, network creates the new cultural carrier for people, network accelerates the globally cross-cultural exchange, and Internet cultural language enriches the world of network culture. And he mentioned that the network brings the revolution of information diffusion, communication, education, consumption, leisure, and social organization.¹⁰ From the perspective of contemporary information social and cultural significance, we can see the new information technological revolution is actually a cultural revolution, which rebuilds people's life style profoundly and completely. Hence, information culture has technical and cultural characteristics. At the same time, we cannot understand information culture only on the technical level and simply equate the technical characteristic with information cultural characteristic. We should review on the impact of new technological revolution and new industrial revolution on people's mode of existence, or, the essence of culture may be lost.

Information culture is a new cultural form in the information age. Marshall McLuhan said the media is the message. The meaning of this sentence is that once a new medium appears, no matter what content it transfers, this medium will bring some information to human society and affect people's mode of existence.¹¹ Information culture appears in the transformation of industrial society to information society, and it has vivid characteristics of time. For the relationship between information culture and traditional culture, the emergence, existence and development of information culture are inevitably affected and restricted by traditional culture. In the process of the informationization, digitization, and networking of traditional culture, the forms of traditional culture must be changed. Hence,

¹⁰ See Bao Zonghao. (2001). *Internet and Contemporary Social Culture*. Shanghai: Shanghai Sanlian Publishing Company, pp.80-92.

¹¹ See M. McLuhan. (2003). *Understanding Media: The Extension of Man*. Translated by He Daokuan. Beijing: The Commercial Press, pp.33.

studying the information culture and understanding the value and influence of “being digital”, the best way is to think about the difference between “bit” and “atom”.¹² Otherwise, different from the concept of “culture” that is the active achievement of human material production, institutional innovation and mental production, culture is a complicated system composed by various models of existence. Every historically scientific and technological reform will bring new economic, social and cultural problems as well as large historical chance to human being. The impact of information network technology on people’s mode of existence is both positive and negative, and the content of information culture is both positive and negative. Hence, we cannot call the information culture as “advanced culture” or “new civilization” indiscriminately, and we should analyze on the content and impact of information culture on the premise that the information culture is the future trend of the development of social culture.

For the extension of information culture, Chinese scholars generally study the information culture from the cultural level of macroscopic information society, and based on the research achievements of anthropology, culturology, and sociology, they divide it into four subsystems, namely material culture, institutional culture, behavior culture, and spiritual culture. This theory will help us to reveal the commonness of various forms of information culture, but it is limited to its generality and principles, so the study should be combined with the concrete forms of information culture. I think the extension of information culture has branch of broad sense and narrow sense. The generalized information culture refers to the culture in information society and information time. It emphasizes on the pervasion and impact of modern information technological revolution on society and culture. The extension of culture covers people’s informationized, digitized and networking life in the information age, and it can be researched from the material culture, institutional culture, behavior

culture, and spiritual culture. The information culture in a narrow sense is the new cultural form centered on computer technology, communication technology and network technology. They have distinct features of new culture and construct the relatively independent cultural form, such as modern TV media culture, corporate information culture, network culture, and the rising “cell phone culture”. Although the information culture in a narrow sense is different from it in a broad sense on their research objects, I think, since the research object of information culture in a narrow sense has the new cultural characteristic in the information age, studying on the concrete form of information culture should be the important basis of information culture research.

3. Relationship between Information Culture and Various New Cultural Forms

In recent years, Chinese scholars have studied on some important forms of information culture from different aspects. The most influential concepts related to information culture that they proposed include “network culture”(network-controlled existence), “cyber culture”, “digital existence”, and so on. On the whole, the scope covered by these concepts is smaller than that of information culture study, but these studies have some internal relationship with it.

3.1 Information Culture and Network Culture (Network-controlled Existence)

In a broad sense, the network culture is a kind of new culture from the structural change of social culture that is caused by the overall transformation brought by new information infrastructure depending on the information technology and network technology. In a narrow sense, the network culture refers to the cultural activities on Internet. The connection of these two concepts is that both of them are established on the research of “cultural networking” and “network culturing” based on the analysis of the great influence of Internet on social culture.

From the emergence and development of information culture, information and network technology has played an important role in the

¹² See Negroponte. (1997). *Being Digital*. Translated by Hu Yong and Fan haiyan. Haikou: Hainan Publishing House, pp.21.

transition of human society from industrial society to information society and the relevant cultural transformation. Since the 1940s, based on micro-electronics, computer, optical fiber, and satellite communications, modern information technology forms a modern and huge hi-tech group and booms numbers of hi-tech industrial group centering on information industry. Especially in 1990s, with the commercial application and rapid spread of Internet, the countries in the world have competed fiercely for building "information superhighway" (national information infrastructure, NII). The development of global informationization and the popularization of information network in social organization, corporation, government, and customer highlight the large effect of information network on the economic, social and cultural transformations. And the virtual factuality, openness, mutuality, globality, timeliness, de-centralization, and autonomy of Internet have greatly influenced the human existence mode. Hence, though Internet culture is subject to information culture, based on the development of information culture, it is one of the new cultural forms with rapidest development, largest convulsion, most characteristics of times. "Network-controlled existence" has become an important mode for people's life. In the research of information culture, scholars usually take the Internet culture as the most typical model, and they have their practical basis.

3.2 Information Culture and Cyber Culture

At present, based on computer technology, communication technology, network technology, and virtual reality technology, the cyberspace and cyberculture are formed in Internet and other communication networks through people's social and information communications. On the form of cyberspace, it is a kind of virtual reality space. On the one hand, the cyberspace has virtuality, and it is the third "reality" constructed by electronic reality and symbolic reality. Cyberspace shows a reproduced and manmade world that is constructed by the information from our system and the

information we feedback to the system.¹³ On the other hand, cyberspace has the reality. The man in Internet, man's digital behaviors, thoughts, ideas, expression of his emotions, experience, and communication are real, and they will affect the real world. On the connotation, "cyberspace contains two aspects: the first is that the cyberspace is a digital and information flowing space; the second is that the cyberspace is a kind of culturally communicative space." "The significance of Internet revolution not only lies in that it leads to the appearance of cyberspace technically, but also lies in that it brings the new type of social space and makes the information mode and the virtual practice become the important practical form of man."¹⁴

The emergence of cyberculture forms a new type of "virtual reality" space and cultural space. "It changes people's mode of receiving, managing and sending information as well as the mode of emergence and existence for information itself. It expands people's communicative space and readjusts the relationship among people, the relationship between man and society, and even the relationship between man and nature."¹⁵ Cyberculture has completely changed the structure of modern society and culture and remarkably represented the cultural characteristics of the information age, which becomes the core cultural phenomenon in information culture. And the research on cyberculture, which is an important part of the research of information culture, discusses the change of the cultural form in the information age and its influence from the aspects of interaction between social culture and new technology.

3.3 Information Culture and "Being Digital"

The concept of "being digital" emphasizes on

¹³ See Michael Heim. (2000). *The Metaphysics of Virtual Reality*. Translated by Jin Wulun and Liu Gang. Shanghai: Shanghai Scientific and Technological Education Publishing House, pp.79.

¹⁴ See Zeng Guoping.(2002). *Philosophical Study on Cyberspace*. Beijing: Tsinghua University Press, pp.14.

¹⁵ See Zeng Guoping. (2002). *Philosophical Study on Cyberspace*. Beijing: Tsinghua University Press, pp.3.

the impact of modern information and network technology featured by digital technology on social life and culture.

Digital technology is using the coding of 0 and 1 to express and transfer all the information. It can transfer the information with the speed of light and solve the problems of data compression and correction. A series of "bits" that flow in modern information and network channel are constituted by 0 and 1. Digital network is the heart of infrastructure of information tide. Carl Shapiro and Hal Varian mentioned that we use the word "information" widely. Essentially, anything that may be digitized—be coded as numbers of bytes—is information.¹⁶ Modern information technology can not only code and transfer the text, sound and image but also digitalize the broadcast and movie. And the "digital city" rises quietly.

The global informationization and information digitization have already changed people's life into "being digital" to some extent. Negroponte said the computation is not only related to computer but also decides our existence.¹⁷ He emphasized that as the DNA of information, "bit" rapidly takes place of atom and becomes the basic factor of human society. Digital technology and digital process redefine people's mode of existence: the meaning of information superhighway is globally transferring the bit without weight at the speed of light. When these industries ask themselves "What is my future in the digital world", actually, their future is absolutely decided by whether they could transform their products into digitized forms.¹⁸ Esther Dyson summarized the life in the digital age as "digital life", and she regarded the digital network as "all the people's potential home" and an environment built,

¹⁶ See Carl Shapiro, Hal Varian. (2002). *Information Rules: A Strategic Guide to the Network Economy*. Translated by Zhang Fan. Beijing: China Renmin University Press, pp.2.

¹⁷ See Negroponte. (1997). *Being Digital*. Translated by Hu Yong and Fan Haiyan. Haikou: Hainan Publishing House, pp.15.

¹⁸ See Negroponte. (1997). *Being Digital*. Translated by Hu Yong and Fan Haiyan. Haikou: Hainan Publishing House, pp. 22-23.

defined and designed by thousands of small families and communities.¹⁹ However, from the perspective of transformation of traditional culture, Bao Zonghao pointed: "digitizing itself should be the trend for any traditional culture to adjust itself to the variable society. It can be asserted that any valuable traditional culture can find its position in the Internet age."²⁰

It is obvious that "being digital" not only discloses that the digital technology constructs the new platform for modern information revolution from a technical perspective, moreover, it reveals people's life style and life attitude associated with computer and information network all the time from the perceptive of culture. "Being digital" has become a chief sign of information culture.

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¹⁹ See Esther Dyson. (1998). *Releasee 2.0 A Design for Living in the Digital Age*. Translated by Hu Yong and Fan Haiyan. Haikou: Hainan Publishing House, pp.11-12.

²⁰ See Bao Zonghao. (2001). *Internet and Contemporary Social Culture*. Shanghai: Shanghai Sanlian Publishing Company, pp.29.

Negroponte, N. (1997). *Being Digital*. Translated by Hu Yong and Fan Haiyan. Haikou: Hainan Publishing House.

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About the Author

Dai Jinping (1964-), born in Yantai of Shandong Province of China, Ph.D. Candidate from School of Humanities and Social Science of Xi'an Jiaotong University, Professor from Chongqing University of Posts and Telecommunications, Director of Development Research Center of Chongqing University of Posts and Telecommunications, Vice President of Periodical Press of Chongqing University of Posts and Telecommunications, Deputy Editor-in-Chief and Vice Chairman of Editorial Committee of *Journal of Chongqing University of Posts and Telecommunications (Social Science Edition)*, Vice President of Association of Natural Dialectics of Chongqing, Researcher and Commissioner of Committee of Experts of Development Research Center of Chongqing Municipal People's Government.

