Research Article

Multiple Influences of Intelligent Technology on Network Behavior of College Students in the Metaverse Age

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The advent of the metaverse age has gradually transformed digital survival from a fantasy in science fiction to a reality. Especially in recent years, during the impact of the COVID-19 epidemic, college students rely on the Internet to study, socialize, enjoy entertain, and consume, during the special period, ensuring their basic learning and social needs. As the object of ideological and political education in colleges and universities, the college students, with the growth of the Internet, have become an urgent problem to explore the multiple influences of intelligent technology in the metaverse age on the network behavior of the college students.

1. Introduction

The term “meta universe” was first born in the science fiction avalanche published by the American writer Neil Stephenson in 1992. In the novel, a huge virtual network world parallel to the real world is constructed. Users communicate and entertain through their own “avatars,” and they live and work in the virtual network world. As a new form of the next generation Internet, meta universe is reshaping everyone’s way of working, studying, shopping, traveling, socializing, and obtaining information.

In 2021, Facebook officially changed its name to “Meta,” which was derived from the “meta universe” (Metaverse). CEO Mark Zuckerberg said, “the next platform and medium will be a more immersive and embodied Internet, and you will be in the experience, not just as a bystander, which we call the metaverse.”

Negroponte describes in digital survival: “digital existence is a state of social existence in digital form; a way of existence, a new way of living in digital space, the sum of actions occurring in the digital environment and its experiences and feelings.” [1].

With the arrival of the metaverse age, digital survival has gradually changed from a fantasy in science fiction to a reality. Especially in recent years, during the impact of the COVID-19 epidemic, college students rely on the Internet to study, socialize, enjoy entertain, and consume, during the special period, ensuring their basic learning and social needs. As the object of ideological and political education in colleges and universities, the college students, with the growth of the Internet, have become an urgent problem to explore the multiple influences of intelligent technology in the metaverse age on the network behavior of the college students.

2. Background Analysis of The Network Behavior of College Students in the Metaverse Age

2.1. From Web Portals to the Era of Smart Media. With the development of technology, the Internet has also experienced three eras, namely, portal era, search/social era, and intelligent Internet era. From Web 1.0, Web 2.0, Web 3.0, every era has a distinct technological development and era brand.

If the first generation of Internet is represented by PC Internet and the second generation of Internet is mobile Internet, then the third generation is the digital intelligent
Internet represented by VR glasses and other new wearable devices and technologies, which means that it will soon enter the metaverse age.

College students earliest contact is the Web 1.0 era, also called the portal age. At Sina, Sohu, and Netease, network communication is often one-way, for web information processing and editing and presented to network users for browsing and editing rights concentrated in the portal and mainstream media, and it can almost have little interaction.

The concept of “Web 2.0” began in 2004 in a brainstorming forum between press operators O’Reilly and Media Live International. This is also an era when college students have the most contact with the Internet. In the era of Web 2.0, social media emerged in an endless stream. The emergence of QQ, blog, RenRen, Weibo, WeChat, and other websites and apps makes the network communication change from one-way communication to two-way interaction. At the same time, the power of information collection and content release owned by professional news editors in the past has gradually weakened. With the advent of the era, everyone can have “microphone” and “voice.” As individual college students, they can also become the main body of content production. The institutionalized and organized centralized collection and editing of professional websites have been expanded into the content production with both the centralized gathering and editing of professional websites and the randomness and self-control of WeMedia. Grassroots power also began from this era and stepped on the stage. More and more online opinion leaders and online bloggers have millions of fans and have a voice that they did not have in real life.

The Web 3.0 era is a new era of big data, intelligent algorithms, represented by intelligence, openness, precision, and multidimensional characteristics. Nowadays, network carriers are not only limited to smart phones; smart glasses, watches, and other wearable devices have begun to put into the market and have a number of users. With the rapid development of smart devices, the real Internet of Things era will prevail. It is not difficult to imagine that, no matter which corner of the city, it will achieve intelligent interconnection through the Internet. Network becomes the user’s demand and provider, the network to the user, knowing what the user, wants and needs, resource screening, intelligent matching, and all-connected as college students, everyone’s received information is more accurate and personalized, gradually reaching “every individual, time networking, needed, real-time interaction” state.

2.2. From Cyberg to Digital Survival. The term cyberg (cyborg) originated in the 1960s, when Manfred Collins and Naesengram first proposed the concept in cyberg and Space. “Cyberg” is often described in science fiction works such as “RoboCop” and “The Matrix” as various mechanical or biochemical people like humans. To sum up, Cyberg is actually a closely combined function of man and man. Nowadays, with the rapid development of medicine, biology, bionics, and other technologies, we are gradually realizing the organic unity of human and artificial combination, such as mechanical prosthetic limbs.

Catherine Heller said in Why We Are Later People, “In the post-human opinion, there is no fundamentally different or absolute boundary between physical existence and computer simulation, between human structure and biological organization, and between robotics and human goals” [2]. “These devices existing in the human body promote the cyborgization of people, bringing enhanced human capabilities, including the connection between people, people and content, people and services, and human self-perception and environmental perception.” [2].

With the popularity of mobile and intelligent equipment, people with the help of intelligent equipment technology to strengthen their own functions, in a sense, have certain “berg” characteristics, especially as network indigenous college students, which are the mobile phone and all kinds of smart devices, such as smart head phones and smart watches. While these devices do not really combine with the human body, most people are already inseparable from these smart devices.

On the other hand, with the rapid development of technology, college students are also being “digitized” by equipment. Whether it is location information, personal preferences, purchase habits, consumption records, thumbs up, comments, expression patterns, etc., under the integration of big data of different dimensions, constitute the virtual digital identity of college students, reflecting the “virtual entity” of college students real life. The data of college students are easy to be leaked and controlled by technology. Therefore, as college students enhanced by intelligent device technology, in a sense, they are also constrained by these technologies and even carry out digital decomposition and deconstruction in different dimensions.

In the past, the digital information of college students still stayed in the symbol of simple communication on the network, but now, under the development of intelligent technology, the digital entities of college students are increasingly rich. All aspects of food, clothing, shelter, transportation, and life can be quickly solved through the network, and even the “second life” of the virtual world is realized in the network. It can be said that the “virtual entities” made of college students through digital mapping are gradually realizing the digital survival of individuals.

2.3. From the “Internet+” to the Metaverse. In the past, scholars discussed more about “Internet+,” such as “Internet + education” and “Internet + economy.” The Internet pointed more towards a platform and means, rather than forming an independent and complete virtual world. With the rapid development of information technology and the continuous upgrading of communication equipment, the line between the Internet and reality is also beginning to weaken. Through VR, AR, MR, and other media technology means, today college students can realize the original basic network functions such as online video, network broadcast, and network education, enjoy virtual reality, naked eye 3D, augmented reality, mixed reality, and other special
functions, equivalent to building a whole new virtual network world parallel to the real world, and make a connection between the virtual world and the real world, form a new human-computer interaction mode, greatly expanding the human sensory experience, enhanced to have the physical experience. The new technology not only changes the life of college students but also greatly changes their cognitive habits, lifestyle, and behavior patterns.

Facebook, Google, Microsoft, Apple, SONY, Tencent, Huawei, and other domestic and foreign technology giants have laid out the “metaverse.” The rapid development of science and technology has made many users feel the magic of the “metaverse” world. At present, in China, there are virtual students, metaverse campuses, and other real cases. In 2021, Tsinghua University became the first university in China to release original virtual students. As a research result of the Department of Computer Science of Tsinghua University, “Zhi bin Hua” was enrolled in the Department of Computer Science of Tsinghua University with a highly vivid image of young students and started his study and life in Tsinghua University. In January 2022, the Communication University of China cooperated with Baidu to create a virtual medium communication campus that was officially unveiled and open to the public. With the help of a street view map, 3D reconstruction, 3D engine, and other digital technologies, the virtual transmission campus vividly reproduces the real campus in the real world, realizing the accurate construction of the virtual campus.

3. Network Behavior Types and Characteristics of College Students in the Metaverse Age

3.1. Type of Network Behavior of College Students in the Meta-Universe Era. The arrival of the meta universe era has greatly enriched the types of college students’ network behavior. For college students’ network behavior research, due to the particularity of college students, they tend to involve in network entertainment, network social accord with their age, hobbies of network behavior, so the author thinks that these can according to the common purpose and motivation, divided into five main aspects, namely, network learning behavior, network social behavior, network entertainment, network consumption behavior, and network expression behavior. Through these five aspects, a relatively complete panorama of college students can be reflected. Among them, online learning behavior can be subdivided into online course learning, online information retrieval, and online work, online entertainment behavior can be subdivided into online audio and video and online games, online social behavior can be subdivided into online social platforms and online chat tools, online consumption behavior can be subdivided into online shopping and online payment, and online expression behavior can be subdivided into online speech.

According to the platform and content often browsed by college students, the five aspects of network behavior can be divided more carefully. For example, in Table 1, the specific content of college students’ network behavior is subdivided.

3.2. Network Behavior Characteristics of College Students in the Meta-Universe Era. According to the network behavior classification and behavior content of the college students of the “online generation” divided by the above table, it can be found that the college students, as the Aboriginal people in the network era, with the development of intelligent technology, their network behavior is also developing and changing, with a deep brand of the times.

3.2.1. “Touch the Net” Young Age, the Network Behavior Began Early. Since 2000, mobile network devices such as laptops, tablet computers, and smart phones have developed rapidly; basic communication equipment has also been constantly upgraded, mobile communication system from 3G to 4G, and then to 5G, with continuous upgrading iteration. With the upgrading and rapid development of technology and equipment, most of the college students have had the habit of network contact since childhood. They touch the Internet early, are especially familiar with the Internet, and have their own relatively stable network social circle and entertainment positions. Many students have owned their own social media accounts, such as QQ and Weibo, since primary school. Since childhood, they have been used to expressing their views through WeMedia, influenced by various online shopping platforms, accustomed to spending through convenient mobile payment means, accustomed to chasing stars through the Internet, discuss hot topics, express opinions, accustomed to watching dramas, games, and making friends through the Internet, accustomed to using the network to record their own mood and life drip. They go along with the development of technology; the degree of network participation is also growing. Network behavior has also gradually diversified from the beginning of the single. The web became their “second living space.” Even some college students are addicted to the Internet. The Internet replaces the real world and becomes their home life.

3.2.2. Intelligent and Diversified Network Equipment. While the development of smart technology has greatly improved the penetration rate of smart phones, the development and promotion of wearable devices such as smart watches, smart headphones, smart glasses, and so on have further intelligently diversified the network equipment of contemporary college students, which also brings intelligent network behavior. For example, in the past, college students could only conduct online entertainment in simple web games. However, now, with the help of intelligent devices, virtual reality, space interaction in the meta universe, and other more intelligent online entertainment behaviors can be realized. In online learning, it could only rely on desktop computers or laptop computers for traditional video viewing. Now, with the help of diversified intelligent devices, diversified online learning forms such as live broadcast courses, online virtual course interaction, and immersive virtual experience courses can be realized. And the behavior of network communication, network consumption behavior, and network expression behavior also have new
4. Multiple Effects of Intelligent Technology on College Students’ Network Behavior in the Era of Meta Universe

In the meta universe era of digital survival, people’s lives have been completely wrapped by the Internet. In addition to oneself in real life, once connected to the Internet, individuals will have another digital virtual subject identity. IP is the ID card of the digital world. With the identity of digital virtual subject, they enjoy a “second life” on the information highway.

Intelligent technology is a double-edged sword. It not only affects the cognitive mode of college students’ network behavior but also affects the virtual and real boundary of college students’ network behavior and also subverts the traditional network consumption habits. It not only brings a positive role but also has a certain negative impact.

4.1. Cognitive Reconstruction: Intelligent Technology Reshapes College Students’ Cognitive Model of Network Behavior

When college students are in the digital age and surrounded by various digital technologies, their thoughts and behaviors will naturally change. Different from the traditional Internet, intelligent technology has built an immersive network mimicry environment, which makes college students’ perception of themselves, others, and even the world come more and more from the virtual world, and their way of thinking and cognitive model are also being reconstructed by intelligent technology. This is especially reflected in college students’ online learning and online entertainment behavior.

On the one hand, intelligent technology has brought a new upgrade to college students’ network behavior cognitive model, which has a certain positive effect. In the era of intelligent media, the development of intelligent technology continues to affect college students’ cognitive habits. As the scholar Negroponte predicted in his book “Digital Survival,” everyone has his own “daily newspaper,” and the information you need is summarized and sorted in categories on the intelligent interface tailored for yourself for browsing. College Students’ access to information will be more efficient and targeted, and their access to information will be faster and more efficient. They will no longer search aimlessly in the massive information of the network as before. Relying on intelligent technology, we can quickly realize the “private customization” of information, which greatly improves students’ learning efficiency and work efficiency.

On the other hand, the capital, algorithm, and other logic behind intelligent technology will also have a certain negative impact on college students’ network behavior cognitive model. First, intelligent technology is easy to cause cognitive bias. The capital logic behind intelligent technology makes...
the major platforms take chasing traffic as the code of conduct in order to make capital profits, which makes the content of the platform vulgar and entertaining, and some of them are filled with bad network information such as network rumors, title party, and making rumors, which seriously deviates from the orientation of mainstream values. Marcuse mentioned in his book “one-way man” that “when technology becomes a universal form of material production, it restricts the whole culture; it designs a historical whole—a “world.” [3] When college students study and entertain through the network, the information retrieved and entertainment content received are often “tailored” behind the capital to please users. Intelligent technology relies on capital to develop and design accurate push. In order to chase traffic and please users, serious mainstream value information is difficult to be recommended preferentially by the algorithm. Once individual content is marked as “disliked” by ordinary users, it will even be completely isolated from the recommendation mechanism, resulting in the isolation of mainstream value information from users. Some content is rough, but eye-catching content is preferred. In the package of various good and bad traffic information, it is very easy to cause the value deviation of college students, and then affect their outlook on life, world outlook, and values.

Second, intelligent technology is easy to cause media dependence. The massive amount of information on the Internet can easily lead to “information overload” in the brain of college students. When people are inundated with more and more information, they are also more inclined to believe the information that supports them. This phenomenon is called “confirmation bias” in psychology. The social media takes advantage of this phenomenon and further uses algorithm technology to accurately push according to everyone’s interests and browsing records, so that people can only see the information they are interested in, thus forming the “echo room effect” and “information cocoon room,” which will affect people’s cognition and judgment. The formation of public opinion fields such as network hot search will further amplify the opinions of some opinion leaders, and some people who lack the ability of independent judgment will be affected, so as to become unconscious followers and affect the trend of public opinion.

With the support of intelligent technology, various subculture circles popular among college students are becoming more and more “self-sprouting,” and the barriers between circles are becoming stronger under the influence of big data such as intelligent recommendation and “guess what you like,” which is easy to form an “information isolation area,” isolate people outside the circle, and further aggravate the differentiation and solidification of different network circles.

Third, intelligent technology is easy to cause shallow cognition. In entertainment to death, Neil Postman proposed that different media ages represent different cultures, accompanied by different epistemology. For example, in the culture ruled by printing, the public often see the orderly type content, which is highly logical and has clear views. Therefore, the culture and epistemology in the era of the printing press rule also tend to be rigorous and meticulous. The birth of television overturned the previous epistemology and culture, followed by an overwhelming trend of entertainment. As a native of the Internet, college students’ cognitive model is already in an immature state. It is very vulnerable to the influence of the Internet and is easily wrapped by the complex information of the Internet. The fragmented reading model also disintegrates college students’ deep thinking and understanding ability.

They habitually rely on the recommendation of intelligent technology and are also used to straightforward and simple network content, all kinds of strange pictures, or video stimulation. They lose patience and interest in traditional classical paper books and cultural classics, gradually indulge in the mathematical model and mechanism of intelligent algorithms, and gradually lose their independent thinking ability and correct judgment under the subtle “manipulation” of algorithms and big data, and their cognitive ability is weakened.

4.2. Virtual Reality Interaction: Intelligent Technology Reshapes College Students’ Online Social Interaction and Expression. With the advent of the digital age, great changes are taking place in individual thinking modes and behavior habits.

On the one hand, different from the traditional Internet, with the rapid development of information technology, with the help of VR, AR, big data, cloud computing, artificial intelligence, blockchain, and other emerging new digital technologies, the boundary between the virtual world and the real world is becoming more and more blurred, gradually forming a new world of virtual real interaction. The network behavior of college students is essentially carried out by the “virtual avatar” composed of different dimensions of data information. With the help of bidirectional transmission of brain computer interface and the accurate docking and integration of virtual and real information that meets people’s needs on this basis, the network behavior of college students has completely broken the barriers between the real world and the virtual world and broken the “two kinds of virtual and real conflicts between reality and virtual control or virtual erosion of reality” with information as the medium [4]. Relying on intelligent technology and intelligent devices, they roam in the virtual world and enjoy technological convenience. Virtual reality technology is based on the perception of vision and touch. This multi-perception technology processing system can make college students more immersive and experience when they socialize and express online. At the same time, it is also more conducive to their online friends and free expression.

On the other hand, this virtual reality interaction technology will also make college students derail from reality. Some college students will even have different performances in the two spaces of virtual world and real world. When they conduct online social networking and network expression, they will use intelligent technology to package and beautify their virtual identity.
First, college students will also involuntarily beautify their digital avatars when they conduct normal network behaviors such as online social networking, such as beautifying their images through beautiful photos; decorating their circle of friends by publishing some beautified pictures; enhancing their online appeal by making up their identity; and so on.

Erving Goffman, an American sociologist, put forward the “pseudo drama theory.” He believes that society and life are a big stage, and social members are very concerned about how to shape an acceptable image in front of a large audience (i.e., others participating in interaction). In order to perform, people may distinguish between the front desk and the backstage. At the front desk, people present an image that can be accepted by others and society. The backstage is relative to the front desk. It is to prepare for the front desk performance and cover up the things that cannot be performed at the front desk. People will hide the unacceptable or unacceptable images of others and society in the backstage.

Sometimes the real self is often hidden. The “front desk” in real life often shows an image of abiding by various rules and regulations, while the “back desk” in the network virtual society will release the real self and express the real thoughts of the heart in a way of the “virtual avatar.” Some students will regard the self-expression in the network society as the “front desk” and beautify and package it through technical means, create a completely different “virtual avatar” from real life, and have their own “second life” in the network.

Second, because the network has the characteristics of concealment, virtuality, and symbolic interaction, especially with the support of intelligent technology, the network trace is more difficult to track, the network camouflage technology is more changeable, and the network immersion experience is more addictive. Therefore, college students sometimes break away from the constraints of existing social rules when carrying out network activities such as browsing bad network information, indulging in virtual online games, and only digitizes himself from the technical level, but the individual replaces the real self with a “digital identity” and so on.

With the development of intelligent technology and the era of the universe, all kinds of realistic network experience give people the illusion of “immersive.” However, it is this illusion that gives people behind the network more opportunities to beautify and package themselves. For example, the beauty in the webcast is actually a middle-aged man disguised through technical means, and the sweet voice behind the Internet phone is also made up by technology. Various network screenshots with pictures and the truth are likely to be pieced together and forged by various marketing numbers and jokes using technology, as well as the controversial intelligent AI face-changing technology, which makes it difficult for ordinary people to distinguish the truth from the false. In the era of intelligent technology, “what you see cannot be true, and what you hear may not be true.” In the face of the virtual and real interactive network world, it is difficult for college students to distinguish between the true and the false, and it is very easy to lose themselves in the middle.

4.3. Consumption Reform: Meta Universe Reshapes College Students’ Online Consumption Mode. On March 30, 2022, the “blue universe” marketing space under blue cursor was officially launched and settled in Baidu Xirang, becoming the first “meta universe marketing space” in China. 5g networks, artificial intelligence, big data, and cryptocurrency will build a new consumption ecosystem.

On the one hand, with the advent of the meta universe era and the support of intelligent technology, the online consumption mode of college students will change greatly. In the past, college students were more inclined to carry out online shopping rather than consumption in offline physical stores. Traditional online shopping platforms such as Taobao, jd.com, Netease koala, and Pinduoduo can no longer meet the needs of postcollege students who have diversified consumption and pay attention to experience. With the advent of the meta universe era, by building an immersive cyberpunk business district, it can not only meet the needs of immersive experience that college students can feel in offline physical stores but also meet their proposition of fast shopping without leaving home and also experience all kinds of fresh and interesting interactive activities brought by the meta universe world at the same time of shopping, which will be a major change in the future online consumption mode.

On the other hand, a more convenient and rich online virtual shopping experience may lead some college students with insufficient self-control to fall into the trap of consumerism, indulge in online consumption, and even go astray such as advanced consumption and online loan consumption.

5. Summary and Reflection

Facing the opportunities and challenges brought by intelligent technology in the meta universe era, to study the multiple effects of intelligent technology on college students’ network behavior, in the final analysis, we should do a good job in the education and guidance of college students, innovate the ideas and methods of ideological and political education on the basis of understanding the types, characteristics, influencing factors, and essence of college students’ network behavior, and adhere to creating a clean and positive cyberspace, in order to truly implement the fundamental task of building morality and cultivating people.

5.1. Explore the Essence: The Real Self Who has been “Present”

In essence, the behavior of college students on the Internet is also a kind of performance behavior in the foreground and background. However, no matter the “front desk” or “back stage,” or the behavior in real life or the behavior in network society, the essence of real and virtual subjects is the real “people” behind the identity. Even in the network society, the individual replaces the real self with a “digital identity” and only digitizes himself from the technical level, but the
behaviorsubject engaged in activities is still the person itself. Behind the network symbols and data, there is the "person" who is really present in real life.

College students’ network behavior, whose behavior subject is college students themselves, still has the group characteristics of college students in the real society. In essence, it also still has sociality. It is not an isolated network behavior independent of cyberspace. Relying on the rapid development of technology, in the special "social field" of network society, whether it is the college students’ network social behavior, network learning behavior, network consumption behavior, network entertainment behavior, or network expression behavior mentioned in the article, the causes, processes, results, and impact of these behaviors are the "actions" of the real physical subject in real life behind the network behavior. Although the “digital virtual avatar” of college students in cyberspace is divorced from the real flesh, it still highlights the ideological consciousness, values, and cognitive model of college students in reality. Although we can package, beautify, and even reshape a new image in the network virtual world through technical means, the shaping and realization of the “virtual form” of the network behavior subject and its behavior activities cannot get rid of the limitation of the authenticity of the behavior subject in the real society after all.

5.2. People Oriented: Dispel the Negative Impact of Intelligent Technology with the Humanistic Care of Ideological and Political Education. The essence of network behavior is the real “person” in the real society. The core of ideological and political education is to establish morality and cultivate people. The overuse of intelligent technology is easy to bring cognitive bias and the resolution of real emotions. With strong humanistic care, ideological and political education can realize ideological guidance with temperature and strength. We should value young people’s ideas and provide emotional support for students. At the same time, when conducting subtle education for students, help students temper their character in practice, improve their moral quality, strengthen the awareness of network security, and strengthen self-rationality and moral restraint. Through internal strengthening, we can resist the negative impact of technology and realize the two-way promotion and benign development of technology and people.

5.3. Innovative Methods: Promote the Deep Integration of Ideological and Political Education and Intelligent Technology. Intelligent technology not only brings a new upgrade to college students’ network behavior but also has a positive impact on the methods and ideas of ideological and political education. The traditional method of ideological and political education is relatively single, which can not realize the many to many, panoramic, and immersive interactive modes. It is also difficult to understand the real situation of each student through private customized data analysis, so as to formulate different learning plans and ideological guidance for each student. Through the deep integration of intelligent technology and ideological and political education, on the one hand, it can effectively improve the effect of ideological and political education; on the other hand, it can also help to organically combine the real world with the virtual world, so as to avoid students wandering in the virtual world and ignoring the real world, resulting in no distinction between virtual and real, indulging in the “beautiful fantasy” created by intelligent technology, losing their due judgment and self-knowledge, and causing the deviation of thought and behavior.

Data Availability
The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest
The author(s) declare that there are no conflicts of interest regarding the publication of this paper.

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