



Phenomenon of Digital Addiction among Rural Digital Juveniles: A survey in rural China

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Abstract

Digital addiction among China's rural juveniles escalates and hampers the harmony and stability of families and society. This paper investigates digital addiction among rural juveniles in China. Semi-structured interviews selected six relevant respondents in rural Shaanxi Province as samples. The study explores the degree, characteristics, causes, effects, and prevention and control of rural juveniles' digital addiction. The findings reveal the importance of digital literacy education, parent-child cognitive dislocation, and the complexity of rural juveniles' digital addiction. The study has limitations, including its limited research perspective and the need for more typical cases for analysis and discussion.

Keywords: Digital addiction; Rural juveniles; Social work; Digital literacy

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1.0 Introduction

In recent years, with the successful conclusion of China's poverty alleviation campaign and the accelerated pace of rural revitalisation, China's rural areas have achieved full coverage of the Internet and the popularisation of digital equipment and information and communications technology (ICT) infrastructure. The public gradually accepts new information acquisition and utilisation methods, communication, and recreation with the advent of the Internet.

Unlike those older generations who strive to integrate into the digital society, the present generation of juveniles has lived with these new devices, technologies, and ideas since they were born and are referred to as "Digital Natives." They enjoy abundant information resources and convenient digital technology but also carry the negative impact of digitisation.

The Internet penetration rate is increasing yearly, and the trend of younger minors accessing the Internet is increasingly apparent (China Internet Network Information Center, 2022). Juveniles' excessive dependence on digital devices has significantly increased in learning, entertainment, social interaction, access to news and information, and other aspects of life. Meanwhile, juveniles displayed different degrees of the pathological phenomenon found in short videos, network broadcasts, fan support and electronic games, and other entertainment content consumption. The above phenomenon of "digital addiction" in different forms has aroused parents' alarm. In addition to parents, juvenile digital addiction has also been a broad concern of society. The relevant legislation has been advanced in an orderly way to help juveniles access the Internet healthily and avoid digital addiction. In particular, since 2014, the Cyberspace Administration of China has started legislative work on online protection for juveniles, aiming to mobilise society to help juveniles improve their Internet literacy, create a healthy online environment and prevent juveniles from excessive Internet addiction (China National Internet Information Office, 2022). At the end of 2019, the China National Press and Publication Administration issued the Notice on Preventing Minors from Becoming Addicted to Online Games, which allowed real-name registration through online game accounts. Measures such as strictly limiting the time for businesses to provide online game services to juveniles and standardising payment services for juveniles would be able to guide the industry, society, and families in helping juveniles in reducing digital abdication (China National Press and Publication Administration, 2022). On 1 June 2021, the revised Law on the Protection of Minors of the People's Republic of China was officially implemented, which added a chapter on Internet protection, further improving relevant laws and regulations to prevent Internet addiction in juveniles.

Due to rural residents' economic conditions and the rapid increase in ICT access, it is no longer difficult for rural juveniles to access the Internet and digital devices. Compared with urban areas, there are more left-behind children in rural areas, uneven quality of educational resources, low education level of guardians and limited energy, and other problems. Therefore, the issue of digital addiction in rural juveniles is becoming more pessimistic.

Relevant research shows that digital addiction has been spreading in recent years from cities to suburbs and county towns to rural areas. At present, the rate of digital addiction among rural juveniles is higher than in urban areas (Zhang & Cheng, 2019). Hence, researchers have selected the digital addiction of rural juveniles with a conservative perspective.

2.0 Literature Review

2.1 Definition of digital addiction

The issue of digital addiction has attracted the attention of scholars in psychology, psychiatry, computer science, sociology, and other fields, but no consensus has been reached on the definition of its concept. Some scholars judge digital addiction according to the duration of users' use of digital devices. They believe that users' use of digital equipment for more than 4 hours a day or more than 30 hours a week can be judged as digital addiction. The definitions and discussions of the terms are as follow. Addiction is when users cannot find alternatives to perform the same function. The users will compulsively and impulsively continue using specific software (Almourad et al.,2020). Alternatively, some scholars define digital addiction as dependency and believe that digital addiction should include computer games and Internet addiction, social media addiction, and smartphone addiction (Ali, 2018). The above discussion of definitions provides a foundation for further investigation and description of digital addiction.

As for the subject under investigation, the China Civil Code defines juveniles as natural persons under 18. On the contrary, adults are people with mature thoughts and total capacity for civil conduct who are fully responsible for their behaviour. The definition of "juveniles" in this paper will be based on the relevant provisions of the China Civil Code on minors. In this stage of adolescence, juveniles are curious and eager to learn new things and receive knowledge quickly, but their self-care and self-control abilities are weak. Juveniles' values and outlooks on life and the world have not yet been fully formed, and adolescents are still facing the moment of self-consciousness awakening. Therefore, the growing process of juveniles is full of contradictions brought by the indoctrination of new content and the change of thinking.

For the scope of the research, rural as a regional concept refers to where workers take agricultural activities as their source of living. In China, rural areas are often regarded as the equivalent of towns. Compared with urban areas, rural areas have a lower population density, generally poor economic development, underdeveloped infrastructure, relatively backward means of information exchange, and relatively low educational levels of rural residents (Gao, 2022). However, with the acceleration of rural revitalisation and the development of the economy and society, rural residents show a migration trend from agriculture to industry and from rural areas to cities. Their economic conditions, ICT access, and utilisation levels gradually move closer to cities. Therefore, researchers treat rural issues differently in the new environment.

Consequently, this study focuses on rural juveniles. Under the constructs of the double dimensions of rural and juvenile, this group present significant particularity. Their parents' neglect of direct supervision, changes in living environment, unequal access to resources, loneliness, anxiety, and other emotions make rural juveniles rely more on digital devices to acquire knowledge and communicate with society. The separation from the guardian and the unstable living environment make the rural juveniles lack psychological quality training, personality concept shaping, ideological and moral guidance, living habits education, and other aspects, aggravating the digital addiction of rural minors. This paper takes the phenomenon of digital addiction among rural minors as the research content. The researchers define digital addiction as the pathological overuse of digital tools, technologies, and services such as computer games, the Internet, social media, and smartphones among permanent rural juveniles.

2.2 The manifestation and influencing factors of digital addiction

At present, scholars summarise the indicators of digital addiction mainly from the specific aspects of device use behaviour, duration, frequency, habits, senses, users' social relations, career development, mental illness, and so on (Ali, 2015). Given the influence mechanism of digital addiction, some scholars tend to conclude with strong universality. For example, Liu and Chang (2016) divide the motivations for online game addiction into intermediary and interpersonal motivations. Intermediary motivation includes killing time, entertainment, information search, and escape, while interpersonal motivation has interpersonal utility, social utility, interaction, and chat. Some scholars also pay special attention to the influence of more specific environments and objects on digital addiction. For minors, guardians and family environment are the research objects that have received much attention. Scholars generally believe that the behaviour of guardians represented by parents and the mode of getting along with juveniles have a significant impact on juveniles' digital addiction, and domestic violence, guardians' addictive behaviour, and peer guidance all have an effect on juveniles' digital addiction (Sohp et al.,2018; Jin et al.,2018). For adults, some scholars also pay attention to the phenomenon of addiction to mobile reading, which is dominated by mobile phones. According to the research, college students are prone to addiction to mobile reading due to the induction of mobile service providers and college students' weak self-management and discrimination abilities (Jia, 2022).

2.3 Regulation and guidance of digital addiction

Since the start of the 20th century, scholars have gradually paid attention to the impact of digital addiction, especially the negative impact. In existing studies, the adverse effects of digital addiction mainly focus on the following aspects: psychological problems such as sleep problems, anxiety, and depression; physical health problems such as cervical spondylosis and vision impairment; interpersonal issues, economic problems, and work and life problems. For students, there are adverse effects such as declining academic performance and difficulties in integrating into the real world (Demirci et al.,2015; Hawi et al.,2016; Wang et al.,2017; Aderinto,2022). Scholars' studies on the prevention and control

of juvenile digital addiction primarily focus on the subjects of families, schools, communities, experts, libraries, children's homes, other fields, cultural service institutions, and game platforms. Relatively comprehensive and scientific suggestions have been put forward for the intervention of digital addiction for minors, involving information literacy, mental health, social entertainment, value realisation, and other aspects (Docharkhehsaz et al.,2022; Horita et al.,2022; Fan,2022).

Social work scholars try to integrate preventing digital addiction among juveniles into their work. They believe social workers must start from the empowerment theory and intervene at multiple levels, such as individuals, families, peer groups, schools, and society, so minors with digital addiction can control their lives and integrate with their environment through empowerment. Some scholars, starting from the ecological perspective theory, fully consider the social climate of juveniles' problem with digital addiction and comprehensively intervene in social work practice from the micro, meso, and macro levels (Dang,2020; Huang,2020; Tan,2021).

The digital addiction of juveniles has become an essential hotspot of social attention, and researchers have also paid attention to the manifestations, causes, effects, prevention, and control of addiction. However, current research has unclear group division and lacks in-depth research on the phenomenon and problems of digital addiction in rural juveniles. Juveniles, especially rural minors, have weak self-control ability, shallow experience, and an unformed world outlook on life and values. They also encounter problems such as significant changes in the living environment, a large gap in emotional needs, poor mental health, and ideological and moral education. Researchers should pay attention to their behaviour, performance, and thinking logic of digital addiction (Ji, 2021). Education, psychology, computer and software engineering, and other fields have paid more attention to digital addiction, and most of the available research focuses on the above disciplines' perspectives. However, in addition to the views of pathology, education, and psychology, the problem of adolescent digital addiction is also a problem of digital device use and information acquisition and utilisation with the progress of social development and science and technology. How can rural juveniles make healthy use of digital equipment and digital technology? The social work community needs to educate juveniles on appropriate and effective information acquisition and prevention of digital addiction, which are vital topics that need more attention.

Based on the research scope above, this paper focuses on rural juveniles. It intends to answer two crucial questions for social workers to help juveniles with digital addiction effectively:

- 1) What are the awareness level of rural juveniles and their guardians about digital addiction?
- 2) What are digital addiction's characteristics and influencing factors among rural juveniles?

3.0 Methodology

Given the above research questions, this study mainly adopted the form of semi-structured interviews in rural areas of China from January 2023 to February 2023. Considering the possible limitations in juveniles' language expression and cognitive concepts, this study also included the primary guardians of rural juveniles in the scope of interview objects and selected 16 respondents by convenient sampling. Before the formal interview, the researchers learned the respondents' basic information, such as their living conditions and educational level. They used these factors as auxiliary factors to evaluate the digital addiction of rural juveniles. Then, the researcher introduced the definition and measurement of digital addiction to the respondents and determined the situation of juvenile addiction based on the responses of juvenile respondents and their guardians. The basic information and addiction of the respondents are shown in Table 1.

Table 1: Basic information of interviewees

No.	Gender	Age	Addiction status	Work/study status	Family condition
SH1	Female	16	No	Rural juveniles, boarding at High school in the city	Two juveniles, father working mother no fixed job, family conditions are average
SH2	Female	39	Undetected	No fixed work	Two children, the husband working, family conditions are average
SX1	Male	17	Yes	Rural juveniles, boarding at High school in the city	Two children, father working mother no fixed job, family conditions are average
SX2	Male	45	Undetected	Urban migrant workers	Two children, father working mother no fixed job, family conditions are average
GL1	Female	12	Yes	Rural primary school	The father of the three children works in the city, and the mother does odd jobs. The family condition is average
GL2	Female	34	Undetected	Odd jobs in the rural	The husband of the three children works in the city and does odd jobs. The family condition is average
JC1	Female	15	Yes	Urban junior high school	Two children, the parents work in the city, the family conditions are better
JC2	Male	40	Undetected	Urban migrant workers	Two children and his wife work together in the city, so the family conditions are better
SB1	Male	12	Yes	Rural primary school	Two children, parents go out to work, grandpa care
SB2	Male	69	Undetected	Retirement	The son and daughter-in-law go out to work and take care of the grandson at home, so the family conditions are better
SJ1	Male	12	Yes	Rural primary school	Two children, the father is a migrant

					worker, the mother takes care of, the family condition is average
SJ2	Female	39	Undetected	No fixed work	Two children, the husband goes out to work and takes care of the children at home, and family conditions are average
SA1	Female	16	Undetected	Rural juveniles, boarding at High school in the city	The father of the two children works as a labourer, and the mother works as an odd worker, and the conditions are mediocre
SA2	Female	40	Undetected	Odd jobs in the city	Two children, her husband works in the city, and she does odd jobs
SL1	Male	15	Yes	Rural middle school	Two children. His father died, his mother went to work, and his grandmother cared for him daily. Low-income family conditions
SL2	Female	67	No	Odd jobs in the rural	Taking care of two kids at home, doing odd jobs. Low-income family conditions

(Source:) respondents

This study fully considers the physiological and psychological conditions of rural minors and their guardians, with the primary purpose of exploring the degree, characteristics, causes, effects, prevention, and control of digital addiction of rural juveniles, and sets interview questions accordingly. The interview content for rural juveniles mainly includes the use of digital devices, the reasons, and purposes of using digital devices, the influence of digital addiction, and the relevant restrictions and reactions. The interview content for guardians includes the situation and causes of digital addiction of juveniles, the coping measures and effects of parents, and the requirements and expectations of other social forces in preventing and controlling digital addiction. After the interview, NVivo qualitative data analysis tool was used to conduct qualitative coding on the interview data and relevant concepts were continuously extracted.

4.0 Results

This researcher conducted open coding on the interview texts preliminarily screened and processed to extract relevant conceptual categories. Based on this, the relationship between concept classes and genera is further explored, and the combination structure of concepts is constructed. At this stage, the researchers summarised the impact of digital addiction, equipment use and addiction prevention and control characteristics of rural juveniles, concept and cognitive factors, and environmental factors, including four main categories.

4.1 Influencing Factors of digital addiction among rural minors

Through data analysis, it can be found that the main influencing factors leading to the addiction of rural juveniles are cognitive factors and environmental factors, and the specific contents are shown in Table 2.

Table 2: Coding example of influencing factors of rural juveniles' addiction

Primary category	Sub-category	Concept
Concept and cognitive factors	Cognition of guardians	Little expectation of external intervention
		There is a process of cognitive change
		There are key nodes in cognitive transformation
		There is a cognitive bias
		Lack of cognitive confidence
		Cognitive differences between generations of guardians
Environmental factors	Cognition of minors	The need for digital devices crystallises with age
		The understanding of digital addiction becomes more apparent with age
	Influence of family	Traditional festivals and customs factors
		Guide by guardian
		Other family members lead
	Influence of Peer group	Peer guidance
	Influence of School level	Method of teaching
	Influence of Community level	Community advocacy and children's homes play a role
Influence of social environment	Influence of opinion and public opinion	
	Impact of changes in the living environment	

(Source:) respondents

The limitation of juveniles and their guardians on the cognitive concept of digital devices and digital addiction is a more profound factor leading to digital addiction. In interviews with juveniles, the researchers found that some minors insisted they were "not addicted" and "could control themselves." Still, their guardians said that "the child has been seriously addicted to mobile phones." Referring to scholars (Jin,2018; Aderinto,2022; Docharkhehsaz,2022; Fan,2022) studies on the premise of the research, most juveniles In this case, the guardian's control is essential. However, in raising children, many guardians initially believe that "children are just playing" and "children themselves are very self-control." They cannot correctly understand digital addiction, pay limited attention to the growth and development of minors, and even have little understanding of the characteristics of juveniles. At some point, the custodian is shocked that the child has become addicted to digital devices. At the same time, due to many left-behind children in rural areas, alternate guardians (grandparents or maternal grandparents) also have an important impact on the growth of juveniles. These relatively older guardians are already struggling to adapt to the expansion of digital technology, are even less aware of the functions and effects of digital devices, and are even less able to cope with the addiction of minors in the process.

In addition to psychological and cognitive factors, the environment can significantly affect juveniles' digital addiction. Juveniles are mainly affected by three environmental factors: family environment, peer group environment, and social environment.

Family members and family atmosphere play a dual role in inducing and controlling minors' digital addiction. In addition to the influence of guardians, the interviews of SX1, GL2, SB2, and SL2 also show mutual influence on using digital devices among brothers and sisters in non-one-child families. Such an effect reflects the apparent characteristic that the elderly are more dominant. The discipline and guidance that children receive from family members when they are growing up will affect their digital device use behaviour. In addition, some underage respondents also indicated that other social relationships represented by neighbourhood relationships and teacher-student relationships also impact their digital device use behaviour.

4.2 Characteristics of digital device use and addiction prevention and control among rural minors

In terms of the use of digital equipment, rural minors are characterised by solid substitution of digital devices, diverse sources of the device, diversified uses of devices, high frequency of contact with digital devices, various types of devices, earlier contact with digital devices, and controlled duration of use of digital devices. See Table 3 for details.

Table 3: Coding examples of digital device use and addiction prevention and control characteristics of rural juveniles

Main-Category	Sub-category	Concept
Characteristics of device use and addiction prevention and control	Equipment usage characteristics	Digital devices are highly alternative
		Various sources of equipment
		Multiple uses of equipment
		Digital devices have a high frequency of contact
		Variety of equipment
	Characteristics of addiction prevention and Control	Exposure to digital devices is getting earlier
		The duration of digital device use was controlled
		Parents dominated the external control
		The means of control are simple and rough
		Schools have some control
		The role of community children's home
		The role of platform minor mode

(Source:) respondents

Many of the characteristics identified are related to the influencing factors explained above. For example, in the interviews with interviewees JC2 and SB2, researchers learned that digital devices such as mobile phones and their use rights are often initially given to minors as rewards until the addiction problem appears, and the guardian will feel remorse. Early exposure to digital devices among rural adolescents is related to guardians' lack of knowledge of digital addiction. The high frequency of contact with digital devices and the

controlled use time of digital devices are related to the prevention, control, and guidance of guardians and other relevant personnel.

In the interviews with juveniles, researchers found that most of juveniles' initial digital device exposure and use habits came from their guardians, mainly parents. In addition, in controlling the use of digital devices by minors, guardians represented by parents are also the most critical force. They mainly prevent juveniles from digital addiction by confiscating mobile phones and disconnection from the Internet, and such measures are relatively easy to cause minors to form rebellious psychology. Under such criteria, respondents JC1, SX1, and SL1 like to "secretly switch their mobile phone or tablet to watch videos when they are doing homework" or "stay up late to play with their mobile phone while hiding in bed," which also contributes to the high frequency of contact with digital devices of rural minors, but at the same time has a particular hidden characteristic.

Due to a large number of left-behind children in rural areas, sometimes the intergenerational guardians are the ones who spend the most time with minors. Interviews with guardians of SB2 and SL2 also show the influence of intergenerational education on minors' digital addiction. Due to the limited energy or the doting of the children, the children's grandparents cannot make effective interventions when the minors fall into digital addiction, which leads to the digital addiction of some rural minors. Due to the close relationship with juveniles, the main guardian seems to play the most crucial role in generating, preventing, and controlling minors' digital addiction. In such cases, guardians have a strong sense of responsibility for minors, feel remorse and anger because of minors' digital addiction, and have low expectations for the intervention of other social forces.

In the interview, respondents SH2 and SX2 said that preventing digital addiction was their responsibility, and they had shallow expectations for external forces. GL2 expressed dissatisfaction with the school and other powers and thought controlling the child's digital addiction was very difficult. However, the school always arranged group work, video production, and projects that could only be finished using mobile phones and other digital devices, seriously affecting their control of the child's digital addiction. However, in fact, in the process of actual intervention of juvenile digital addiction, not only guardians, schools, game-based platforms, and other social forces also have a contribution that cannot be ignored. Some respondents said in interviews that the school would confiscate mobile phones and contact parents to control the digital addiction of underage students. Respondent SX1 also said: "I used my ID card to authenticate 'Honour of Kings'. The teen mode only allowed me to play it on Friday, Saturday, and Sunday from 8 to 9 pm." "The Honour of Kings is getting stricter." In August 2021, China's National Press and Publication Administration issued the Notice on Further Strict Management and Effective Prevention of Underage Addiction to Online Games, requiring strict limits on providing online game services to minors. Since then, the "youth model" of game platforms has become complete. In fact, before this, all kinds of high-traffic online game operators represented by "Honour of Kings" had launched relatively scientific and complete "time limit orders," and these platforms have demonstrated a certain sense of responsibility in limiting and protecting minors relatively early.

In the interviews with minors, the words such as "school," "teacher," "classmates," and "adolescent model" repeatedly mentioned by minors indicated that they had a vague perception of intervention powers from sources other than guardians. However, in the interviews with guardians, guardians showed less perception and expectation of other authorities. They see themselves as the main body to stop children's digital addiction and ignore other forces. It can be seen that the current forces of all parties have not yet had enough cooperation, nor have they formed a joint force. In some families, such relatively thin interventions have succeeded in controlling the addiction problem of rural children, while in others, little has been achieved, and many children remain addicted to cyberspace and digital devices, with consequences for their future development, physical and mental health, and family and social relationships.

4.3 The impact of digital addiction among rural minors

The impact of digital addiction on rural juveniles is deeply affected by their device use and prevention and control characteristics, which are reflected explicitly in future development, physical health, personality building, and social relations. The coding content is shown in Table 4.

Table 4: Coding examples of the impact of digital addiction on rural juveniles

Main-category	Sub-category	Concept
Digital Addiction Effects	Future development	Academic performance
		Study habits
		Interest in learning
	Physical health	Eye health
		Spine health
		Other health
	Personality building	Recognition of beauty
		Vanity and comparison personality
		Solitary personality
		Negative attitude
	Social relationships	Family conflict
Less social life		

(Source:) respondents

When asked about the impact of digital addiction in the interview, more respondents paid attention to its effect on eye health and academic performance. Some respondents mentioned its impact on family conflicts and its influence on shaping juveniles' personalities and value judgement. "Eye health" was a negative effect that almost all guardians were concerned about. In addition to eye health, a few guardians also raised concerns about the child's cervical spine, shoulder and back health. Guardians also showed great concern for the juveniles' academic performance in the interview. Words such as "examination", "homework", "study", and "test paper" were frequently mentioned in the interview. In addition to academic performance, others, such as learning habits and learning interests, are also the focus around academic performance. Interviewees SX2, GL2, and JC2 also

expressed concerns about their children's future development during the interview. They often link their children's future with their academic performance and also use the reasons of "playing mobile phone can not go to college" and "poor family, you have to rely on their own to change their fate" to persuade and intervene minors. In addition to the above-concerned influences, many guardian respondents also mentioned personality building and family relationships of juveniles. Juvenile respondents SJ1, JC1, and SL1 all expressed conflicts with parents over the use of digital devices. When their guardians restrain them, they will feel angry, feel that their privacy and freedom are violated, and even lead to physical conflicts with their guardians in severe cases.

5.0 Discussion

5.1 The cognitive dislocation of digital addiction between guardians and rural juveniles

Most rural guardians are limited by their ideas and tend to think that the influence brought by digital devices is mainly negative. They are more likely to worry that the complex network environment will hurt their children's pure and young minds, that digital devices will affect their children's health and school work, and that they will quickly acquire bad habits. However, it ignores the benign influence of digital devices on personal thinking mode and knowledgeability. However, rural juveniles feel more excited and fresh when it comes to mobile phones and the Internet. They are addicted to the "other world" of digital devices and believe using them can help them solve loneliness and increase their knowledge (Wang,2022). It can be seen that for the use of digital equipment, most rural guardians and minors have entirely different views and standpoints.

In terms of the definition of digital addiction, given a juvenile's use of digital devices, juveniles often think that they do not have digital addiction. In contrast, their guardians often do not think so. In this regard, due to age, experience, and education limitations, most minors cannot recognise the harm of excessive use of digital devices or even feel whether they have digital addiction. However, adults are relatively more mature and have relatively acute cognitive abilities to represent digital addiction, even with limited educational levels and energy.

In the interview regarding "Do you have the phenomenon of digital addiction" some juvenile respondents also appeared to shift their eyes, pause, and so on. These juveniles may have some understanding of digital addiction, but they do not want to face the harm of digital addiction and the chastising of their guardians and deliberately lie. Whether it is not aware of it or unwilling to admit it, it can reflect that juveniles are prone to active or passive cognitive ambiguity on the issue of digital addiction. In rural areas, mental health and moral literacy education in schools and families are relatively marginal. Rural juveniles are more willing to conduct such "defense" and subjectively refuse to identify with their digital addiction problems for self-protection. The guardian's rush to talk and blame for

children's digital addiction also shows the guardian's anxiety and care for minors' digital addiction. Such cognitive dislocation is also easy to cause the outbreak of family conflicts.

Through investigation, researchers also found that guardians and juveniles had entirely misplaced quantification and definition of digital addiction but had a tacit understanding of the carrier of digital addiction. When it comes to digital addiction, respondents generally assume that "digital addiction" here refers to the addiction to mobile phones, computers, and other devices and subconsciously regard smartphones as the primary contradiction. In the above study, researchers defined digital addiction into three categories: computer game and Internet addiction, social media addiction, and smartphone addiction, following the research of Ali et al. (2018). It can be seen that rural minors and their guardians do not have a clear understanding of digital addiction but are only defined according to life experience and universal concepts. Regarding the cognitive impact of digital addiction, the guardian's cognition is relatively long-term, and they pay more attention to the irreversible damage caused by digital addiction to the physical health of minors. Their attention to children's academic performance and learning habits is also out of their concern for their future development and achievements. However, the "fun" and "social interaction" that minors pay attention to are mainly based on the need to obtain the moment's pleasure.

Based on the physical health and future development of juveniles, guardians who have negative emotions towards children's possession and use of digital devices and juveniles who have relatively poor self-control ability and high interest in digital devices are more likely to have conflicts due to cognitive dislocation, which also brings difficulties to the prevention and regulation of digital addiction of juveniles.

5.2 The key role of parents in the intervention of digital addiction

Under the wave of urbanisation, the growth environment and growth mode of rural minors are more complex than those of ordinary urban juveniles. Normal and intergenerational guardians may play an important role in their growth, and the change in the family environment will also impact their immature minds.

In the interviews, the researchers found that minors' use of digital devices is mainly influenced by peers, guardians, and intergenerational guardians. Those siblings also affect non-only children in the family. Among these forces, peers and juveniles' siblings have dual roles in promoting and alleviating juveniles' digital addiction, intergenerational guardians often express their willingness and weakness for juveniles' digital addiction, and main guardians represented by parents mainly play a role in dissuading, intervening, and forcing control. They are the leading force in preventing and controlling rural minors' digital addiction. When the problem of digital addiction is found, schools, society, and other parties will first communicate with parents, reach a consensus on educating juveniles on digital device use, and then cooperate with parents to intervene. This communication is also crucial for the guardian to produce the idea that "the management of children is the matter of their own family, not the management of others."

However, with the increasing number of migrant workers from rural areas to cities, the primary guardian lacks energy. In some families, juveniles depend more on alternate

guardians' (grandparents) education. The intergenerational guardians have more advantages due to their richer experience, gentler and inclusive temperament, and ability to provide more company. However, the backward concept of tradition, the difficulty of ICT access, and the problems of education methods and goals also lead to defects and hidden dangers in intergenerational education. In the survey, the researchers found that most of the intergenerational guardians had a cold, harmful, or even indifferent attitude to the digital addiction of minors. Such a mentality is undoubtedly not conducive to the intervention and prevention of digital addiction among juveniles. Therefore, the education of rural juveniles needs more attention from young guardians, and they strive to achieve the same goals and methods as the intergenerational guardians to promote educational synergy and complement each other's advantages.

5.3 The dynamics and complexity of digital addiction

In the investigation, the researchers found that digital addiction in rural juveniles is complex. It is characterised by a high frequency of contact with digital equipment, controlled use of digital equipment, and short use time. In the life of most minors, the central theme is "education," that is, education from parents and schools to help children establish a complete and correct world outlook, outlook on life, and values. Due to the influence of historical and realistic factors, even though "burden reduction" has been running through the development and evolution of minor education since the reform and opening up, the current school education still brings a heavy academic burden to primary and middle school students. In the interview, it can also be found that many juveniles in junior and senior high schools have gone to urban middle schools. The stricter control and lifestyle of urban middle schools, which differ from those in rural areas, have significantly influenced them. It can be seen that rural minors are currently not only under heavy pressure from examination scores, study time, and extracurricular learning tasks but also bearing the parents' expectations to "change their destiny" and the influence of changes in the living and learning environment, and their learning pressure and mentality problems are becoming more serious (Wang,2022). Researchers have found differences in students' academic burdens between academic periods in related studies. As students go to higher education, more and more students perceive the pressure from academic work. At the same time, there are regional differences in academic pressure, and the academic pressure of rural school students is relatively higher than that of urban school students (Long,2013).

The characteristics of a high frequency of exposure to digital devices and a short duration of use of digital devices among minors showed prominent features of dual influence from self-pressure and external intervention. In the environment of too long study time and heavy academic pressure, guardians and schools have increasingly strict control over students with enrollment or relocation. Under such circumstances, minors may be significantly less likely to use digital devices, but this does not prove that digital addiction has ceased to exist in them. It can be seen that the general standard cannot mechanically measure the researchers' judgment on the digital addiction of rural juveniles, and they need to consider their disposable time and daily discipline. In urbanisation, the change in living

and learning environment, the change of academic difficulty, and the change in school education concept make the digital addiction of rural minors show the characteristics of multiple factors.

On 24 July 2021, the General Office of the CPC Central Committee and The General Office of the State Council of China issued Opinions on Further Reducing the Burden of Homework and Off-campus Training of Students in Compulsory Education (referred to as the "double reduction" policy). With the gradual implementation of the "double reduction" policy, school education will pay more attention to cultivating students' comprehensive quality. The extracurricular and in-class learning contents mentioned by some guardians in the interview, such as "reciting ancient poetry and caging" and "traditional Chinese studies education," are the efforts made by schools to cultivate comprehensive quality. These new ways are also spreading from urban to rural areas. In the future, rural minors may have more leisure time and need more digital devices, such as smartphones, to complete after-school tasks (Fang,2021). As parents fear, such measures, while reducing students' burdens, may also provide space for the penetration of short videos, games, and online texts, thus aggravating digital addiction (Zhou,2022). The digital addiction of rural minors is affected by too many external factors, so it is complex and dynamic.

5.4 Digital Addiction and digital literacy education of juveniles

Currently, rural juveniles' demand for digital equipment mainly focuses on entertainment, social interaction, and access to information. More minors responded "no" when asked whether their current use of digital devices meets their needs. When pressed further, they said they were "not playing enough" because they were under too much control daily, but they did not express their dissatisfaction with access to information and knowledge. And those who said they didn't play enough were mainly people who showed a tendency toward digital addiction during the interview. It can be seen that what the current digital device use of the respondents fails to meet is the needs of addicts for entertainment rather than their need for knowledge acquisition.

During the interviews, the researchers found that most of the respondents' families could provide ICT equipment. Due to digital addiction, some minors still use digital devices for a long time every day, even under the control of parents and teachers. Neither in terms of ICT access nor the amount of time they spend with digital devices do they seem to be regarded as "information poor." However, rural minors with digital addiction mostly waste their time on online games, novels, and social media. Even if they participate in digital behaviour, they fail to produce substantial improvement and promotion in their and other people's lives, studies, work, and other fields. Still, they have a negative impact on themselves and their families. At the level of digital impact, this phenomenon should still be viewed as a form of digital poverty (Yu,2015; Yan,2017). Addiction to online games, social media, etc., attracts most of the attention of minors, making them less sensitive to the needs of information acquisition and self-improvement, resulting in such atypical and easily overlooked digital poverty. The digital addiction of rural minors is mainly manifested as excessive dependence on digital devices for leisure and entertainment rather than

addiction due to the need for knowledge acquisition and self-improvement. It also reflects the phenomenon caused by the lack of digital literacy. To adapt to the increasingly complex situation, society needs to cultivate not only the ability of minors to find needs, operate digital equipment, and effectively use information but also their judgment, control, reflection, innovative thinking, and problem-solving ability in the complex digital environment (Wang,2020). Sufficient and adequate digital literacy education can help coordinate the relationship between minors and digital devices and networks, help them establish the right and wrong view of rational use of digital devices, and effectively reduce the occurrence of digital addiction among minors. However, the digital literacy education of juveniles has not attracted enough attention. Rural juveniles lack systematic solutions for digital literacy education, urgently needing society's attention.

6.0 Conclusion

In the digital society, access to digital devices and technologies is integral to people's integration into the community and self-improvement, including minors. However, the problems caused by the unhealthy use of digital devices are gradually emerging with access to ICT. With the increasing attention paid to the problem of digital addiction among minors, the healthy use of digital devices by juveniles has become the standard expectation of parents and society. Through semi-structured interviews in rural China, this paper outlined the current status of digital addiction among rural juveniles from influencing factors, prevention and control characteristics of digital device use and addiction, and the impact of digital addiction. At the same time, the researchers also discussed the parent-child cognitive dislocation of digital addiction, the critical force to prevent addiction, the dynamic and complexity of rural minors' digital addiction, and the importance of digital literacy education, and came to the following conclusions:

1) There is a cognitive dislocation of digital addiction between guardians and rural minors. Affected by many factors, guardians and rural juveniles have different starting points and goals for digital devices. They also have different standards for quantifying and defining digital addiction, which is a fundamental reason for the poor control effect of guardians on minors' digital addiction and conflicts.

2) Due to minors' natural dependence and obedience attitude to their main guardians - parents, parents play a key role in the intervention of rural minors' digital addiction, which intergenerational guardians and school education cannot replace. In preventing and controlling rural minors' digital addiction, the main guardians should take the initiative to shoulder the responsibility, communicate actively, and cooperate with the intergenerational guardians, schools, and cultural service providers to help minors use digital devices correctly.

3) The digital addiction of rural minors is dynamic and complex. The use of digital devices by rural juveniles is affected by changes in learning difficulty and time, changes in education policies, and changes in living and learning environments, leading to dynamic changes in the duration and concentration of digital device use. Researchers need to

consider many factors when studying the problem of digital addiction in juveniles rather than simply judging their digital addiction.

4) The problem of digital addiction among rural adolescents reflects the inadequacy of current digital literacy education. Guardians, public libraries, and other social forces should strengthen the cultivation of rural minors' digital equipment control ability, information screening ability, self-control ability, and other literacy to help them cultivate the consciousness and habit of scientific and rational use of digital equipment.

Based on the dual perspective of rural minors and their guardians, this paper explores the phenomenon of digital addiction of rural minors, enriches the existing research, and analyses the dimensions of representation, factors, and regulation. At the same time, it can also play a particular reference value for preventing and controlling minors' digital addiction. In addition, there are still some limitations in this paper. For example, the research perspective of this paper is mainly based on the position of rural minors and their guardians. Due to the close relationship between minors and their guardians and the education and influence of guardians, the results produced by interviews could be much higher. One problem that needs to be solved in the follow-up research is to realise the breakthrough of perspective. In addition, this study only selected some areas of China as the field survey objects. The relevant findings need to be further analysed and discussed with more typical cases to provide more powerful direct evidence for the construction of solutions for rural minors' digital addiction.

Article Contribution to Related Field of Study

The study contributes to understanding how to address digital addiction in rural juveniles through the characteristics and influencing factors of digital addiction in rural juveniles. It can serve as an early signal indicator of social, school, and family concerns to help address digital addiction among rural juveniles.

Authors Declaration

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