RESEARCH ON THE IMPACT OF ONLINE EDUCATION ON THE PSYCHOLOGY OF PUPILS IN TOWNSHIPS

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Abstract: With the advent of the digital and intelligent era, more and more teenagers are exposed to the Internet prematurely. Due to the intermingled network content, adolescents are psychologically affected in a mixed state. Using questionnaires and interviews, this study investigated the use of electronic products among fifth-grade students in elementary schools in the townships of Qionghai City, Hainan, China. The data found that electronic products can provide more learning resources for primary school students, more convenient access to knowledge, self-guided learning, and broaden their horizons. However, electronic products have the risk of making pupils addicted, wasting learning time and limiting their independent thinking. At the same time, electronic products have rich entertainment functions, and primary school students are more willing to use electronic products for entertainment when their self-learning consciousness is not stimulated. Therefore, schools and parents should play a role in guiding and supervising them.
Keywords: Online education; Elementary students; Psychology of minors; Chinese towns

1 INTRODUCTION

1.1 Research Background

In the digital development in recent years, more and more minors have become Internet users [1]. According to the Blue Book of Teenagers - Report on Chinese Minors' Internet Use and Reading Practices (2017-2018), the age at which minors in mainland China first contact the Internet continues to decline, with 64.2% of primary school students having their own mobile phones.
The impact of this phenomenon is diverse. From a pedagogical point of view, Internet education has a positive impact on minors' learning: increased sharing of learning resources, and portable learning [2]; at the same time, Internet education has negative impacts, such as learning dependence, copying of online answers, and misinformation about wrong answers on the Internet [3]. From a psychological point of view, Internet education also has positive effects on minors' learning: expanding the social circle, getting timely help and psychological relief from Internet users, opening up learning horizons, and breaking through the urban-rural information barrier [4]; conversely, minors' access to the Internet carries the risk of cyberviolence and lack of protection [5]. For example, according to the China Central Television Network website, Jia Jia (a pseudonym), a 13-year-old Chinese girl, was abused and slandered because of a misunderstanding with her classmates. False information appeared on multiple online social media and spread rapidly, and eventually became anorexic and suffered from depression.

1.2 Research Objectives

When Internet education is not fully popularized in rural China, primary school students have their own electronic products. Based on this premise, the goal of this study is to investigate the impact of the Internet on the psychology of Chinese rural primary school students, especially on self-discipline psychology.

1.3 Hypotheses

Electronic products can provide primary school students with more learning resources and information so that they can acquire knowledge more conveniently. Through electronic products, they can use educational applications, online learning platforms, etc. for self-guided learning and broadening their horizons.
Electronic products have the risk of making pupils addicted, wasting learning time and reducing the ability of independent thinking.
Electronic products have rich entertainment functions, and students prefer to use electronic products for entertainment, such as playing games, watching videos and socializing, when their self-learning awareness is not stimulated.

2 LITERATURE REVIEW

2.1 Theoretical Foundations

The theoretical foundations of this study are Self-Directed Learning Theory and Reinforcement Theory. Self-Directed Learning Theory means that learners have the ability and attitude of active learning and clear learning strategies so that

they can use metacognition, motivation and behavior to learn. Learners often have a strong intrinsic drive to explore a variety of learning possibilities and become the master of their own learning [6]. Therefore, independent learning is also a development process with strong initiative [7].

Reinforcement Theory includes Positive Reinforcement and Negative Reinforcement [8]. The former refers to the fact that when a behavior is followed by a pleasant stimulus, the frequency of that behavior increases. In Internet use, positive reinforcement may include winning games, receiving likes and comments on social media, watching interesting videos, etc. [9]. These positive experiences motivate individuals to keep using the internet repeatedly, which may lead to addiction. Negative reinforcement means that when a behavior removes or reduces an unpleasant stimulus, the frequency of that behavior also increases [10]. Individuals may use the Internet to escape negative emotions such as stress, anxiety, or boredom in reality. When internet use is able to reduce or eliminate these negative emotions, individuals are more inclined to continue using the internet, further increasing the risk of addiction.

The above two theories are suitable for the research objectives of this study because minors are in a state of self-directed learning when they use the Internet to learn and because Internet use involves emotional changes that are associated with addiction due to psychological reinforcement.

2.2 Status of Primary School Students in China's Towns

For the purpose of this study, Chinese township elementary school students are children aged 7-13 living in township areas with relatively low family economic conditions and parental education levels, and limited educational resources and opportunities. They are between urban and rural areas in terms of education and living conditions and face unique challenges and opportunities.

The China Rural Education Development Research Institute, affiliated with China's Northeast Normal University, released the China Rural Education Development Report 2020-2022, with findings showing that in 2021 there will be 11.992 million rural left-behind children in compulsory education across China, a decrease of 10.7187 million compared to 2012, a reduction of 47.20%. At the preschool and compulsory education stages, many development indicators of rural education have made obvious progress, but there are still imbalances in the construction of teachers' teams and funding expenditures. For the first time, the growth rate of the urbanization rate of compulsory education was lower than that of the urbanization rate of the resident population, and the process of urbanization of compulsory education has entered a relatively stable stage of development [11].

Compared with the level of education in urban areas, the level of human capital and the level of education in China's townships are still relatively low [11]. During the Chinese '13th Five-Year Plan' period, the government of mainland China has coordinated the reform and development of integrated urban and rural compulsory education in counties, mainly investing in education in weak areas, and has made new progress in the reform of integrated urban and rural compulsory education [11].

As a result, the quality of education in China's townships has risen, and the teaching environment and teachers have been greatly improved. Township schools have been able to use technology such as multimedia and computers for teaching, and the cognitive scope of students is gradually expanding.

2.3 Online Education

Based on Self-Directed Learning Theory, online education in this study means that learners use Internet tools to complete autonomous learning without teacher guidance. The Internet learning platform used for self-study has the characteristics of autonomy, flexibility and interactivity, and provides learners with a variety of learning resources, including online courses, e-books and blogs [12]. Learners can develop personalized learning plans as needed to make learning more efficient.

3 RESEARCH METHODS

This study adopted a mixed research method. Because the research objective of this study required a broad and in-depth understanding of student situations, quantitative questionnaires and qualitative semi-structured interviews were appropriate for this study.

3.1 Questionnaire

A total of 28 questions were designed in this questionnaire, covering the duration of students' use of electronic devices, parents' attitudes towards students' use of electronic devices and students' main uses of electronic devices. After making the questionnaire via Questionnaire Star (a free app for releasing questionnaires in China), students in this class were informed in advance that they should bring their electronic devices to fill in the questionnaire, and finally 21 valid questionnaires were collected, of which 13 were for male students and 8 were for female students.

3.2 Semi-structured Interview

In the interview, the researcher used flexible interview guidelines that predetermined open-ended questions, but allowed for spontaneous exploration and follow-up questions based on the interviewee's answers. In this survey, six students

were selected, including five female students (Participants A, B, D, E) and one male student (Participant C). One researcher posed questions to students, while another research assistant was responsible for recording. A total of six questions were interviewed to gain a detailed understanding of students' use of electronic products. All were conducted one by one after students had completed the questionnaire.

3.3 Data Analysis

The data of the questionnaire has been statistically analyzed to calculate the distribution and proportion of participants' choices in multiple-choice questions. The interview results were organized through textual content and thematic analysis. The researcher conducted multiple checks on all the data to determine its reliability. All participants had been informed and consented in advance, and all information was anonymous.

4 RESULTS

4.1 Source of Electronic Products: Obtaining Source and Starting Age

According to the questionnaire, as shown in Table 1, the main way for students to obtain electronic products is through parental purchases (85.71%). This indicates that parents have a more lenient attitude towards pupils using electronic products. Moreover, in this survey, none of the students used electronic devices by borrowing their friends' electronic devices, indicating that all students have their own independently owned and freely used electronic devices.

Table 1 Sources of Electronic Devices Used by Elementary School Students in Townships

Sources of electronics	Numbers	Percentage
Parent purchase	18	85.71%
Borrowed from a friend	0	0%
Others	3	14.29%

In addition, most students use electronic products prematurely (see in Table 2). The age range of contact is between 5 and 10 years old (85.71% in total), which indicates that Chinese children are more likely to be affected by the Internet prematurely than American children who are 11 years old [13].

Table 2 Age of Onset of Electronics Use Among Elementary School Students in Townships

Starting age of exposure to electronic products	Numbers	Proportion
3-4	1	4.76%
5-6	7	33.33%
7-8	5	23.81%
9-10	6	28.57%
Above 10	2	9.52%

4.2 Duration of Using Electronic Products

As shown in Table 3, most of the students use electronic devices for one hour or less on weekdays, with a small minority (4.76%) exceeding 5 hours. On weekends (seen in Table 4), 60% of the students used electronic devices for 1-3 hours, and 19.05% of the students used electronic devices for more than 5 hours per day. Overall, the usage duration on weekends is significantly higher than that on weekdays.

Table 3 Hours of Electronic Device Use by Pupils in Townships on Weekdays

Hours of use of electronic devices during the working day	Numbers	Proportion
< 1	13	61.9%
1-3	4	19.05%
3-5	3	14.29%
Above 5	1	4.76%

Table 4 Hours of Electronic Device Use by Pupils in Townships on Weekends

Hours of use of electronic devices on weekends	Numbers	Proportion
< 1	13	61.9%
1-3	4	19.05%
3-5	3	14.29%
Above 5	1	4.76%

This result is roughly in line with other scholars' surveys that have found that teenagers use electronic devices for about 2 hours, such as in European countries where the average usage time is also around 2 hours.

4.3 Main Purpose of Internet Access

In this questionnaire, when asked "What do you usually do with your phone", students expressed a rich and relatively homogeneous range of purposes in this multiple-choice question. According to Table 5, students use electronics mainly for studying and relaxing. Among relaxation, they use social platforms mostly for chatting and entertainment, including listening to songs, watching videos and playing games. In contrast, the number of those who actually used it for studying, although more than half (52.38%), is still the smallest percentage of the purpose of accessing the Internet.

Table 5 The Main Purpose of Internet Access for Primary School Students in Townships

Main purposes	Numbers	Proportion
study	11	52.38%
chat	14	66.67%
listen to the music	16	76.19%
watch videos	16	76.19%
play a game	16	76.19%
other	0	0%

In addition, in the interview, the investigator asked the main purpose of participating students to surf the Internet. Participant A said: "Help study and relax properly, and chat with classmates". Participant E also indicated a similar situation. Participant D reported, "I read some novels mainly for socializing." However, Participant C replied, "Sometimes when I don't understand questions, I just use my phone to look them up". The interview results indicate that the main purpose of students going online is for learning and social entertainment, with social entertainment surpassing learning, which is basically consistent with the results of the questionnaire above.

4.4 Self-control in the Use of Electronic Products

Self-control in the use of electronic products mainly includes two aspects, namely, controlling the duration and frequency of use by themselves, and stopping the use at regular intervals either actively or passively. According to the questionnaire, students are not fully self-disciplined in using electronic products. This means that the majority of them still require parental supervision and control. According to Table 6, 57.14% of the students are able to control it sometimes, 33.33% can mostly control it, and only 9.52% are able to control it occasionally. No student is completely uncontrollable. Similarly, Table 7 indicates that no students use it involuntarily and have difficulty stopping it. On the contrary, most of the students (52.38%) were able to use electronics regularly but needed parental supervision to stop. Only 47.62% of the students could stop automatically at the designated time.

Table 6 Degree of Self-Control over Electronic Products Among Pupils in Townships

The degree of self-control over electronic products	Numbers	Proportion
Most of the time, it can be controlled	7	33.33%
Sometimes it can be controlled	12	57.14%
Occasionally able to control	2	9.52%
Completely uncontrollable	0	0%

The degree of self-control in stopping the use of electronic products	Numbers	Proportion
Timed use, automatically stops at time	10	47.62%
Regular use, parents urge to stop	11	52.38%
Unconsciously using, difficulty in stopping using	0	0%

In the interview, when asked whether using electronic devices makes you feel happy, Participants A, B, D, and E all agreed with this viewpoint, while Participant C felt "sometimes happy, sometimes sad". It can be seen that the impact of the Internet on users is positive and negative. Proper use will produce positive emotions, while excessive or wrong use will make users feel sad and depressed.

From the perspective of reinforcement theory, positive reinforcement is widely present in online education for primary school students in rural areas of China, while negative reinforcement is relatively rare.

4.5 Students' Perceptions of the Impact of Electronic Devices on Their Studies

When asked "the influence of electronic products on you", students gave different proportions of answers in this multiple-choice question. As can be seen from Table 8, on the whole, the majority of students think that the Internet is helpful to learning (including broadening horizons and increasing knowledge; reducing pressure and relaxing themselves) and contacting parents and ensuring safety. There are still a small number of students who believe that the Internet has a negative impact on learning, including affecting physical and mental health (e.g., reduced attention span, decreased eyesight, and difficulty in indulging in the Internet) and wasting time, and slipping grades. However, the largest number (47.62%) supported that the use of electronic products can broaden horizons and increase knowledge. The least option is wasting time and slipping grades with 19.05%.

Table 8 Impact of Electronics on Elementary School Students in Townships

Impact of electronics	Proportion
Broaden horizons, increase knowledge	47.62%
Reduce stress, relax	42.86%
Contact parents, make sure safety	38.1%
Loss of concentration, loss of eyesight	28.57%
Waste of time, grades drop	19.05%
Addicted to it, hard to get out of it	23.81%

In addition to the questionnaire, the study continued with interviews to investigate the views of the students in the township on whether or not using electronic devices for learning was helpful. All of the interviewees indicated that it was helpful, but the degree of helpfulness varied, with some indicating that it was only a little helpful.

During the interview, the investigator asked about the participants' parents and teachers' attitudes toward their use of electronics. Participant A responded, "Generally, but it only lets me look up information while I'm studying, I can't do anything else, and it usually lets me relax on my own". Similar to Participant A, Participant B also indicated that their parents' attitude towards it was average. Participant C answered, "I will let me use it for my homework, and I don't react a lot when I play it." Meanwhile, both Participant D and Participant E said that their parents did not react to this. It can be seen that only a few parents control the use of electronic devices by their students and supervise their children's studies in the township. Most parents do not specifically regulate their children's use and have a more relaxed attitude. Internet education is not fully popularized in the township, and parents have not established the awareness of online education for primary school students. Based on the Self-Directed Learning Theory mentioned above, the current elementary school students in China's townships lack the intrinsic conditions for self-directed learning because they are unable to take full responsibility for their own learning.

When the investigator asked the interviewees whether they would recommend electronic products to their peers, Participant A said, "No, I'm afraid that they will get addicted to the Internet and their parents will come to blame me." Participant E held the same view. On the contrary, Participant B would recommend it because it can be used for proper relaxation. Similarly, Participant C would recommend it as he feels that electronics can be used as a learning tool when they do not understand. Participants have different levels of knowledge about the functions of electronic devices and their effects on learning, so there is a rich variety of opinions expressed when confronted with the question. At the same time, the two opposite sets of views represent the coexistence of the facilitating effect and potential risk of electronic products on learning. It can be found that, according to the reinforcement theory, the current Chinese elementary school

students in townships show positive reinforcement when facing online education because they have a higher risk of Internet addiction.

5 RECOMMENDATIONS

Based on the results of the above analysis, this study makes recommendations from the following three perspectives to improve the use of electronic devices by primary school students in towns.

5.1 Family

Parents, as the guardians of the pupils, have the longest contact time with the students and are the best candidates to set up guides of the concept of correct use of the Internet by minors. First of all, in daily life, parents should play a leading role, try not to use electronic products for a long time in front of students, and accompany students to cultivate hobbies in their free time, such as reading, drawing and sports.

Secondly, parents have the right and responsibility to control the time and content of their students' Internet access, so that students can develop the habit of self-discipline and proper Internet access. Let the Internet become a powerful tool to help students grow. According to the Family Education Promotion Law of the People's Republic of China 2021, parents or other guardians of minors have the obligation to educate their children about healthy Internet access and bullying prevention and other aspects of safety. They should reasonably arrange the time for minors' study, rest, recreation and physical exercise, so as to prevent minors from becoming addicted to the Internet.

Finally, parents need to pay more attention to the psychological condition of students, usually communicate with them more, understand their inner needs and face difficulties together with them. Only then will students have a healthy body and mind and enough courage to cope with future challenges.

5.2 School

Schools are the place where students' development is nurtured, and they should strengthen online education for students, so that students know clearly how to use the rich resources of the Internet correctly for learning, and guide them to be quality Internet users and avoid the negative impacts brought by the Internet.

Schools can carry out relevant lectures, organize students to make handbills and blackboards, and distribute leaflets. They can cultivate students' judgment of Internet information, and find true and credible information among the good and bad. Teachers in schools should educate students on how to use self-learning websites to help them learn. This is in line with the requirements in Digital Literacy for Teachers published by the Chinese Ministry of Education, which include developing students' digital literacy, guiding students to appropriately select and use digital technology resources to support their learning, focusing on developing students' computational thinking and digital social responsibility, and paying attention to digital security protection [14].

5.3 Government and Society

The government should pay more attention to online education in township schools, understand the shortcomings of educational resources in townships and increase investment in publicity. Operators of supervised and controlled electronic products need to provide underage protection modes to control the duration of use or page browsing in a timely manner. For products that are mainly sold to minors, children should be reminded not to use electronic products too early or for too long. They can build public psychological counseling related to underage Internet addiction, and those with serious cases can be admitted to Internet addiction rehabilitation centers set up by the government and society for treatment. In order to solve the issue that learning resources in the Internet are of mixed quality and that learning materials need to be paid for, the government and society can expand the free platform of education, through which students can obtain complete, accurate and free extracurricular learning guidance through the website or applications.

6 CONCLUSION

This study uses a mixed research method to conduct a field survey of primary school students in Chinese towns. It is found that at present, Chinese students have prematurely owned electronic products and lack the correct guidance, which leads to the fact that students do not fully understand the advantages and disadvantages of the Internet, but only know the role of the Internet. The main purpose of students' use of the Internet is still entertainment rather than learning, mainly for social interaction and relaxation. Moreover, most parents still have a relaxed attitude towards students' use of electronic products, and do not strictly control their use time and content, which will cause many hidden dangers, including students' Internet addiction and mental illness caused by overuse. Although the Internet has been widely popularized in towns, online education has not been fully carried out in towns. The publicity and education of the school in this regard are relatively inadequate. The three hypotheses proposed in this study have been verified. Electronic products can provide more learning resources and information for rural primary school students in China, but at the same time, there is a risk of making primary school students addicted and interfering with learning. Electronic products themselves have rich entertainment functions, and students are more willing to use electronic products for

entertainment when their self-learning consciousness is not stimulated. Therefore, students' effective learning using electronic products also needs correct guidance and supervision.

This study has some limitations. Due to time constraints, this survey did not conduct a large-scale sample collection. The sample of the questionnaire is only 21, which is relatively small. If the sample is too small, it may not effectively represent the overall characteristics, so that the data obtained cannot reflect the real situation of the whole group. In addition, the questionnaire was not designed comprehensively, resulting in the screening of some irrelevant data when analyzing the data. There are no multiple recorders in the interview, which is easy to cause investigator bias. When interviewees were asked, they did not further obtain favorable information.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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