

The Influence of Information Technologies on Adolescent Personality Traits

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Today's teenagers are a generation born with the advent of computer technologies, known as the "electronic natives"; their life style and way of thinking have been affected by computer technologies. Unlike the past, when the maturation of teenagers mainly depended on the living environment, learning environment and social environment, in today's society, computer technologies and shaping adolescent personality are inextricably related. This determines the relevance of studying the features of computer technologies influence on the personality and life of adolescents.

The research purpose is to identify and describe the nature of the information technology influence on the personality traits of adolescents.

Material and methods. The study was involved 200 urban and rural middle and high school students in Guang'an area in Sichuan province in China. The age of the participants is distributed between 12 and 18 years old. We used such methods as: theoretical study and analysis of scientific literature; a complex of social and psychological research methods: conversation, questionnaires, the "Computer use style scale", UCLA Loneliness Scale and SAS Self-Rating Anxiety Scale, the Positive and Negative Suicide Ideation developed by Sman, Gutierrez, Kopper, Barry and Chiros et al., methods of mathematical statistics which provide a qualitative and quantitative analysis of the results.

Findings and their discussion. 6,5 percent of the teenagers surveyed, scored above the threshold to the PANSI Chinese Revised Adolescent Suicidal Ideation Scale, indicating a preference for negative suicidal ideation. 93,5% adolescents scored below the critical value, and they tended to have active suicidal ideation. Students with high loneliness accounted for 43%, accounting for 32% of the students who were more lonely; moderate loneliness accounted for 11%, and students with low loneliness accounted for 10%. Zung's Self-Rating Anxiety Scale (SAS) allows us to see that adolescent anxiety is less common, but still about 6% of them are in an anxious state.

Conclusion. According to the research statistics, using Internet technologies has a small impact on suicidal ideation among adolescents. However, a small number are still under the risk of negative suicidal ideas.

This research allows us to draw conclusion, that using Internet technologies has a weak correlation with adolescent loneliness, the level of statistic significance of about 0,03, which indicates the presence of correlation with 0,24 coefficient.

The research has shown that Internet technologies use can affect adolescents' emotional anxiety to an 18–32% degree.

Key words: information technologies, adolescence, anxiety, loneliness, suicidal ideation.

Влияние информационных технологий на личностные качества подростков

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Сегодняшние подростки – это поколение, известное как «электронные аборигены», рожденное в эпоху компьютерных технологий, на образ жизни и мышления которых они, безусловно, повлияли. В отличие от прошлого, где развитие подростков в основном зависело от среды проживания, обучения и социального окружения, в современном обществе компьютерные технологии и формирование личности подростков неразрывно связаны. Это определяет актуальность изучения особенностей воздействия компьютерных технологий на личность и жизнь подростков.

Цель статьи – выявить и описать характер влияния информационных технологий на личностные качества подростков.

Материал и методы. В исследовании приняли участие 200 учащихся городских и сельских средних и старших классов школы в районе Гуанджань провинции Сычуань в Китае в возрасте от 12 до 18 лет. В работе использовались такие методы, как теоретическое изучение и анализ научной литературы; комплекс социально-психологических методов исследования: беседа, анкеты, Шкала стиля использования компьютера, Шкала одиночества UCLA и Шкала самооценки тревожности SAS, опросник «Позитивные и негативные суицидальные идеи», разработанный Sman, Gutierrez, Kopper, Barry and Chiros et al., методы математической статистики, обеспечивающие качественный и количественный анализ результатов.

Результаты и их обсуждение. 6,5% опрошенных подростков набрали балл выше порога китайской шкалы суицидальных мыслей PANSI, что свидетельствует о наличии негативных суицидальных мыслей. 93,5% подростков имели баллы ниже критического, однако у них отмечались активные суицидальные мысли. Ребята с высоким уровнем одиночества составили 43%, со средним – 32%, с умеренным – 11%, с низким – 10%. Шкала самооценки тревожности Зунга (SAS) позволяет нам увидеть, что около 6% подростков, принявших участие в исследовании, находятся в тревожном состоянии.

Заключение. Согласно статистике, использование интернет-технологий мало влияет на суицидальные мысли среди подростков. Однако небольшой процент все еще подвержен риску возникновения негативных суицидальных мыслей.

В корреляционном анализе между уровнем чувства одиночества и использованием Интернета уровень статистической значимости составляет 0,03, что указывает на наличие корреляции с коэффициентом 0,24 (слабая корреляция между использованием интернет-технологий и чувством одиночества подростков).

Исследования показали, что использование интернет-технологий может влиять на эмоциональную тревогу подростков в 18–32% случаев.

Ключевые слова: информационные технологии, подростковый возраст, тревога, одиночество, суицидальные мысли.

With the rapid development and widespread application of network technology, people's daily work, social communication and entertainment activities are increasingly internet-based. Although the Internet started from the military and academic fields extending strong will and popularize to our daily life, so far only more than 20 years of time, but surf the net, browsing the web, email, online chat, online entertainment, online publishing, online discussion, online communication, online games, online shopping, such as network activity, already no longer is the patent of a few people, but is woven into the everyday life of the ordinary Internet users, become the basic content of network gens everyday life.

Internet Society of China and China Internet Network Information Center published a report in China Internet Development in 2021 February, in the report, CNNIC stated that the number of Chinese netizens reached 989 million by December 2020, the number of network news users reached 743 million, and the number of instant messaging users reached 981 million. Each person spent 26,2 hours online every week. This shows that computer technology affects the lives of most people [1].

Today's teenagers are a generation born with the advent of computer technology, known as the "electronic natives", their life style and way of thinking have been affected by computer technology. Unlike in the past, the growth of teenagers mainly depended on the living environment, learning environment and social environment, in today's society, computer technology and the formation of teenagers' personality are inextricably related. To study features of computer technologies influence on the personality and life of adolescents.

Computer technology is in full swing, but there is concern in the mainstream about its effect on young people. There are great conflicts and contradictions between the positive and negative effects of computer technology on the shaping of adolescent personality. The computer application of teenagers has become an obvious and contradictory social phenomenon.

The influence of information technology on human development is very great. The superiority of information technology itself is beyond doubt, but it cannot be ignored that in the process of combining with the real society, information technology has also produced many problems and brought about negative effects. The double-edged nature of information technology is reflected in all aspects that can be touched by the network, which also affects the way of thinking and behavior of human beings. This influence may be so positive and so negative.

The most direct and prominent influence that network culture brings to individuals, especially teenagers, is the expansion of space. People have a more convenient channel of information exchange, with a broader space for making friends and entertainment.

For teenagers, the development of information technology has increased the channels for them to learn knowledge and changed the traditional learning model. Network culture includes network news, search engines and other ways to obtain information. Among them, the quickness of network news and the capacity of various images, texts, audio and videos are beyond other forms of news media, which plays an important role in expanding the horizons of teenagers and enlightening their thinking. The search engine with the improvement of search technology has also had a great development, there are maps, translation, dictionaries and other categories of search forms, especially the emergence of knowledge Q&A search tools. This tool refers to that the questioner can send the question in the form of a post to a search tool, and attached with a reward for the answer of virtual gold coins, reward their most satisfied answer, Baidu know, Yahoo knowledge, Sosouask belong to this search tool. This form is very able to stimulate young people's interest in learning, explore the curiosity of the unknown [2].

According to the statistics of the Survey Report on the Internet Behavior of Chinese Teenagers in 2020, the utilization rate of search engine and network news among young Internet users is 73,9% and 72,0%, both of which have increased compared with the previous year and both are higher than the overall level of Internet users. This shows that the various forms of network culture have become an important channel for teenagers to obtain information and increase knowledge. In addition, there are all kinds of educational websites on the Internet, which can provide online video teaching, problem solving and other learning ways for young students. In a word, the development of information technology has made the learning mode of young students no longer mainly limited to classroom teaching in school. The network learning mode formed has brought greater autonomy and more choices to young people [3; 4].

The purpose of the study is to identify and describe the nature of the information technology's influence on the personality traits of adolescents.

Material and methods. The study carried out on the basis of 200 urban and rural middle and high school students in Guang'an area in Sichuan province in China. The size of the surveyed sample is 198 persons. A total of 200 questionnaires were sent out this time, and 198 were effectively received

with a recovery rate of 99%. According to the questionnaire collection, the age of the participants in this questionnaire is distributed between 12 and 18 years old, with the median age of 15 years old and 14 years old being the most. The other specific performance is that there are more female students surveyed, with male students accounting for 44% and female students accounting for 56%. Junior high school students accounted for 58%, and senior high school students accounted for 42%. The family situation of the respondents is that the proportion of students from rural areas is 62%, and the proportion of students from urban areas is 28,2%. Five percent of the participants were from single-parent families. In addition, there are some students for the campus boarders, some for home-stay students. We used such methods as: theoretical study and analysis of scientific literature; socio-psychological research methods complex: conversation, questionnaires, the “Computer use style scale”, UCLA Loneliness Scale and SAS Self-Rating Anxiety Scale, the Positive and Negative Suicide Ideation developed by Sman, Gutierrez, Kopper, Barry and Chiros et al., methods of mathematical statistics, providing a qualitative and quantitative analysis of the results.

Results and discussion. According to the China Internet Report 2021 edition, as of December 2020, netizens aged 10–19 accounted for 13,5% of the total population (figure 1), which is lower than that of other age groups [1].

According to the research report on the Internet behavior of Chinese teenagers, the first time that teenagers contact the Internet is earlier. The penetration ability of the Internet to the younger age group is increasing, and more and more minors begin to use the Internet before school age. According to the survey, the proportion of high school students and secondary vocational students

using the Internet for the first time at preschool age was 15,9% and 10,7%, while the proportion of junior middle school students using the Internet for the first time increased to 18,8%. The proportion of primary school students using the Internet for the first time at preschool age was the highest, reaching 32,9%.

That says that problem of influence of information technology on the personality traits of adolescents is actual in China.

According to the statistics, Internet technology use has a small impact on suicidal ideation among adolescents. According to the PANSI Chinese Revised Adolescent Suicidal Ideation Scale, there are 14 items, on a scale of 1 to 5, including positive and negative suicidal ideation. After handling the reverse scoring questions, higher scores were associated with more negative suicidal ideation, while lower scores were associated with more positive suicidal ideation, with a cut-off value of 42. Thirteen of the teens surveyed, or 6,5 percent of the total, scored above the threshold, indicating a preference for negative suicidal ideation. There were 187 adolescents with scores below the critical value, accounting for 93,5%, and they tended to have active suicidal ideation. Thus, although most adolescents show positive effects, a very small percentage are still at risk for negative suicidal ideation.

The 14 items of the Adolescent Suicidal Ideation Scale (ADSI) were added together. After dealing with reverse scoring questions, the creative variable was adolescent suicidal ideation. To detect the normal distribution of suicidal ideation, check the normal graph with detection and the descriptive stem and leaf graph under the 95% confidence interval, and get the following Q-Q graph. The overall bias is straight, presenting a normal distribution state.

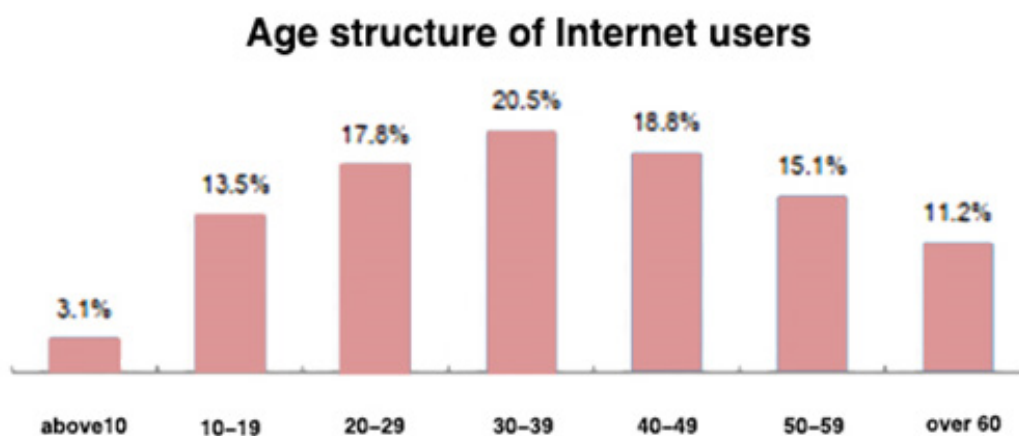


Figure 1 – Internet users age distribution table

When the use of Internet information was set as the independent variable and the suicidal ideation was set as the dependent variable, the detected R value was 5,9%, and the significance was $0,135 > 0,05$, showing no statistical significance. However, after controlling for age, gender, place of birth and single parent family, the R value with a significant value $< 0,05$ can be changed to 12,6%–18,7%. It can be concluded that Internet technology use affects adolescents' suicidal ideation to an extent of 18,7% after controlling for demographic information variables. The more unconscious the use of Internet information is, the higher the suicidal ideation is.

According to the UCLA Loneliness Scale, after processing the reverse scoring questions, the total scores of 20 items were added up. A score above 44 was considered high loneliness, 39–44 was generally upper loneliness, 33–39 was the middle level, 28–33 was generally lower loneliness, and a score below 28 was considered low loneliness.

Among the 200 questionnaires collected, 86 students scored more than 44 points, that is, students with high loneliness accounted for 43%. 64 in the range of 39–44, accounting for 32% of the students who were more lonely; 33–39, 22 students, moderate loneliness accounted for 11%; There are 8 students in stage 28–33, generally lonely students account for 4%; only 20 students scored below 28, and students with low loneliness accounted for 10%. It can be seen that most of the teenagers surveyed feel lonely, and most of them feel lonely to a high degree. Only 10% of teenagers do not feel lonely.

The 20 questions in the loneliness scale were combined with the network technology to form the loneliness variable. The normal distribution test of the two variables was carried out in SPSS respectively, and the following two Q-Q graphs were obtained. As can be seen from the results, the distributions of the two variables used by loneliness and Internet technology are generally around the straight line, so they can be considered to conform to the normal distribution.

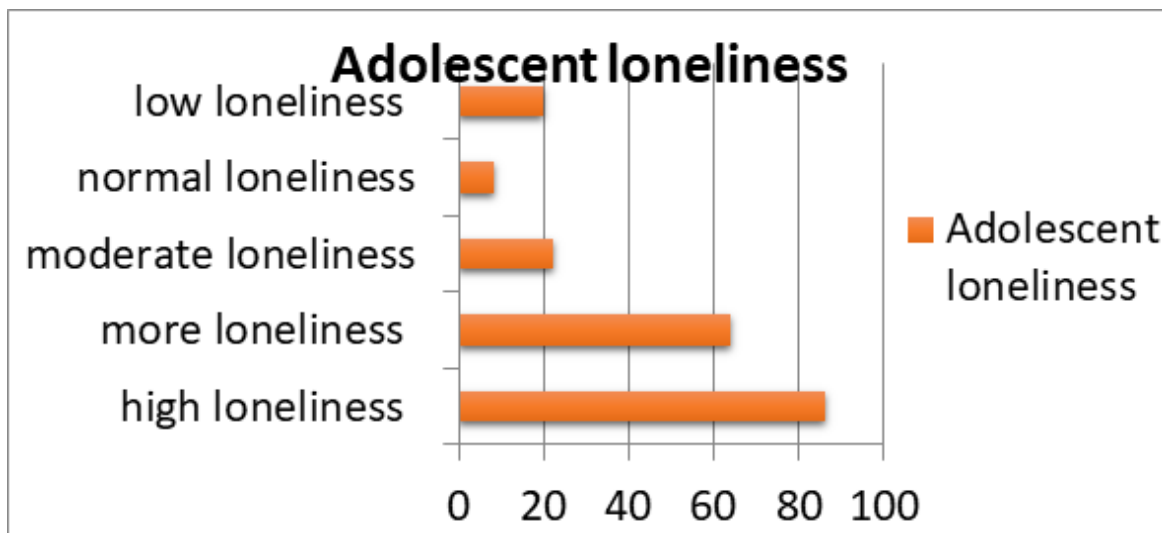


Figure 2 – Adolescents loneliness level (UCLA Loneliness Scale)

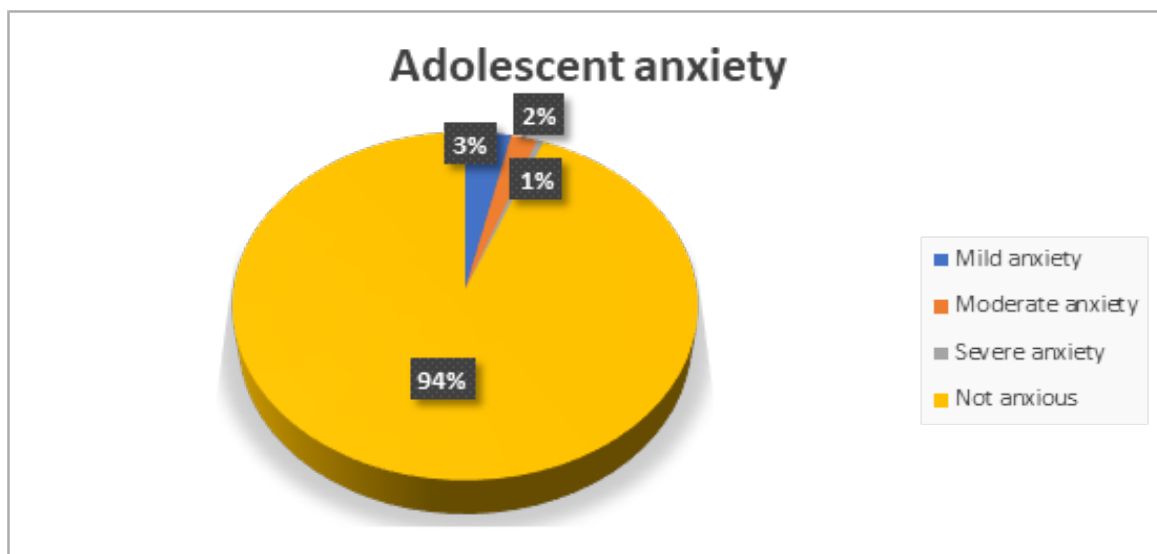


Figure 3 – Adolescent's anxiety level (Zung,s Self-Rating Anxiety Scale)

In the correlation analysis between loneliness and Internet use, the significance value is 0,03, indicating a correlation, and the correlation coefficient is 0,24, indicating that the use of Internet technology has a weak correlation with the loneliness of adolescents.

According to the scoring rules of Zung's Self-Rating Anxiety Scale (SAS), the scores of the 20 questions were added to the rough score after the reverse scoring questions were handled. Multiply by 1,25 and round up to the standard score, 50 is critical, 50–59 is mild anxiety, 60–69 is moderate anxiety, and 70 or above is severe anxiety. Seven teenagers, or 3,5 percent of the total, were in a state of mild anxiety. 4 students were in a state of moderate anxiety, accounting for 2%, and 1 student was in a state of severe anxiety, accounting for 0,5%. It can be seen that anxiety is less common in teenagers, but there are still about 6% of them in an anxious state.

To examine the influence of Internet technology use on adolescents' emotional anxiety. Using Internet technology as an independent variable and adolescent anxiety as a dependent variable, linear regression analysis was carried out. The R value is 18%, and the significance is 0,01. Therefore, there is a significant linear correlation between Internet technology use and adolescents' emotional anxiety. After controlling for variables such as gender, education background, family status and age, the R value can reach 32% in the

case of significant significance. Therefore, Internet technology use can affect adolescents' emotional anxiety to an 18–32% degree.

Conclusion. According to the statistics, Internet technology use has a small impact on suicidal ideation among adolescents. Thus, although most adolescents show positive effects, a very small percentage are still at risk for negative suicidal ideation.

In the correlation analysis between loneliness and Internet use, the significance value is 0,03, indicating a correlation, and the correlation coefficient is 0,24, indicating that the use of Internet technology has a weak correlation with the loneliness of adolescents.

Research has shown that Internet technology use can affect adolescents' emotional anxiety to an 18–32% degree.

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