Features of Digital Leisure for Students of Schools with Different Learning and Upbringing Conditions During the Covid-19 Pandemic

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Abstract

Introduction. There are a large number of facts in the scientific literature demonstrating the increasing influence of digital technologies on the involvement of adolescents in Internet activity. However, contradictions in the experimental material and the heterogeneity of research methods make it difficult to formulate certain conclusions about the nature of the impact of the Internet on adolescents. The peculiarity of our study is to study the behavior on the Internet of school students who are characterized by different learning and upbringing conditions using the same methodology in similar conditions of social restrictions due to the Covid-19 pandemic. We relied on the fact that every teenager has certain preferences for virtual leisure, and the choice of online activities is characterized by certain similarities in different educational institutions, but at the same time it may be related to the quality of physical and social activity in a real environment. Methods. The approved author’s questionnaire “Digital preferences of modern teenagers” was used, which allows quantifying the features of different types of students' activities in a virtual environment. 96 students from three schools in Lipetsk took part in the survey, differing in learning conditions, different contributions of additional education (sports classes in sections) and active participation in public life of the city. Results. The activity of students in social networks is characterized by differences in preferred leisure activities and time spent on communication on the Internet. For the first time, it was established that overly enthusiastic visiting of social networks, which means using the Internet for 4 or more hours a day, is due to both the humanitarian specifics of the school’s educational program and the neglect of students outside of school life. Discussion. The article establishes the fundamental features of the activity of Russian teenagers on the Internet during the Covid-19 pandemic in comparison with their peers from other countries: Russians prefer communication in social networks to all other types of leisure in the virtual space. The practical and significant
role of teenagers’ activity in real social life, passion for sports and physical culture as ways to prevent the formation of Internet addiction is discussed.

**Keywords**

teenagers, learning conditions, digital preferences, social networks, online games, questionnaires, Covid-19 pandemic

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**Introduction**

**Problem statement**

Digital technologies are rapidly gaining not only the educational and professional sphere of activity in all developed countries, but also the everyday life of people, especially the younger generation. If the inclusion of information technologies in education is seen as a positive trend in the development of society, then the use of gadgets and the Internet in everyday life has mixed assessments. Initially, the Internet acted as a system of fast communications and communications in the form of e-mail, which greatly facilitated the communication of people over long distances. It is generally believed that social networks are a natural result of the development of the Internet and currently “life” in social networks has become common among teenagers and young people (Veraxa, Kornienko & Chursina, 2021; Kamenskaya & Tomanov, 2022; Gareht, 2018; Kamenskaya & Tomanov, 2019, Sobkin & Fedotova, 2021). Statistical reports from 2019-2021 prove an increase in the use of social networks in all countries. Statistical surveys show that 60% of the world’s population in 2020 used social networks at least once a day, on average Internet users spent 144 minutes a day on social media applications and messaging, which is more than half an hour more than in 2015 (Statista, 2021).

The growth of the audience of social networks continued in 2021, and the time spent on the Internet also increased: the average user spent almost seven hours a day on the Internet, that is, more than 40% of his daily activity (Global Digital, 2022). The process of immersion in virtual reality is accompanied by increased involvement in Internet communication of adolescents and young people, which cannot but worry the pedagogical community and many parents (Kamenskaya & Tomanov, 2022; Soldatova, Rasskazova & Chigarkova, 2020, Sobkin & Fedotova, 2021). If we follow the cultural and historical concept of L. S. Vygotsky, it is obvious that fundamental changes in the development environment of children and
adolescents due to the intensive introduction of digital technologies into public life cannot but affect the formation of the mental functions of the younger generation. It is shown that the introduction of computer games into the education and leisure system of children changes their cognitive functions (Center on Media and Child Health, 2020, Cheng, Cheung & Wang, 2018; Statista, 2018, Zhu, Zhuang & Lee, 2020).

The positive impact of the technological gaming environment on the development of the intelligence of preschoolers of the 2011-2012 testing years compared to their peers of the “pre-Internet” era is described (Kamenskaya & Tomanov, 2019).

As digital products and technologies are introduced into the social environment, the negative aspects of the Internet and various digital devices are increasingly being recorded: smartphones, tablets, personal computers (Baeva, 2019, Kamenskaya & Tomanov, 2022, Kamenskaya, Tomanov & Tatiana, 2020; Tereshchenko & Smolnikova, 2020; Cheng et al., 2018). The creation of numerous blogs and accounts in social networks that have formed the main means of leisure and entertainment for children and adolescents is reflected in the psychological characteristics of fans of social networks (Tereshchenko & Smolnikova, 2020, Cherenkov, 2015; Groarke, Berry & Graham-Wisener, 2020; Kuss & Lopez-Fernandez, 2016). In addition, digital forms of entertainment are increasingly replacing the usual and previously encouraged leisure activities: physical activity, sports, interest classes in clubs and sections (Baeva, 2019, Von Der Heiden, Braun, Müller & Egloff, 2019).

The impact of technologically innovative leisure on the physical and neuropsychic development of children and adolescents turned out to be ambiguous during the Covid-19 pandemic (Tereshchenko & Smolnikova, 2020, Groarke et al., 2020, Luchetti et al., 2020, Mental Health Foundation, 2020). According to the researchers, the pandemic turned out to be an additional stressful factor for children and adolescents (Keya, Rahman, Mur & Kamal, 2020; Mental Health Foundation, 2020, Zhu et al., 2020), which pushed many users to use social media and video games more intensively.

It is possible to assume a different reaction of adolescents to the pandemic, which may correlate with the peculiarities of the educational environment at school, but international experience does not allow us to unambiguously highlight the correlations of learning and living conditions with the degree of enthusiasm for virtual leisure (Baeva, 2019, Cheng et al., 2018, Park, Kim & Cho, 2008). Occasional references to the relationship between the behavior of adolescents in a virtual environment and academic success, socio-cultural living conditions and education have very contradictory interpretations (see the review Kamenskaya, Tomanov, 2022). These problems are of significant relevance due to the global impact on the younger generation of a new and socially significant technological factor, therefore, the subject of our study is related to the study of behavior in the virtual environment of students of the eighth grades of schools in the city of Lipetsk, having different learning conditions during the Covid-19 pandemic.

The aim of the work is to statistically assess digital preferences and leisure time using different types of leisure, the degree of Internet involvement of students from three
schools in the same city, which are characterized by different learning and upbringing conditions and are influenced by the general factor of social isolation due to the Covid-19 pandemic. It is assumed that, firstly, every teenager has certain preferences for virtual leisure, and, secondly, the choice of a strategy for behavior on the Internet. It is also assumed that the time spent on digital leisure has a high degree of similarity in different educational institutions, but at the same time may be associated with the quality of physical and social activity in a real environment.

Methods

Experimental methodology and sample description

The study used the author’s questionnaire “Digital Preferences of modern teenagers”, previously tested on schoolchildren in Moscow (Kamenskaya et al., 2020, Kamenskaya, Tomanov & Tatyana, 2021), which allows quantifying the preferences of different types of student activities in a virtual environment. The formulation of the four main questions of this questionnaire assumes the choice of one answer from three to four options, which allows students to get a differentiated assessment of the main characteristics of Internet use in the field of leisure. The time of interaction with digital products and the method of their application were evaluated.

These features of the questionnaire proved useful in studying the specifics of information leisure of students of the same age living in different cities of Russia and who took part in similar testing during the first wave of the Covid-19 pandemic (Kamenskaya et al., 2021). In this paper, the questionnaire served as a way to study the relationship of students’ behavior with the peculiarities of the educational environment of three different schools in Lipetsk.

The study was conducted in the period from December 2020 to January 2021 in the format of online testing on the Google Forms platform using four main questionnaire questions assessing the choice and specifics of various activities on the Internet and the time spent on leisure in cyberspace. The percentage of responses for the sample as a whole to each question under the correct conditions of testing and statistical processing should be 100% for each question. The process of statistical evaluation of the results of the study consisted of calculating the percentage of participants who chose specific answers in the questionnaire. All the respondents’ answers were formed into a single table and processed in Microsoft Excel 2013. The SPSS Statistics 22.0 software package was used to assess the statistical reliability of the differences in the results of the survey of schoolchildren from different schools. 96 students from three Lipetsk schools took part in the survey, which are characterized by different learning conditions, different contributions of additional education in the form of sports classes in sections, as well as different degrees of participation in social activities.

In the first municipal educational institution secondary educational school (MEI SES) No. 14 in Lipetsk, a cadet corpus was examined, in which only teenage boys (28 people,
average age – 15 years) are trained. The training program involves an in-depth study of the history of Russia and the mandatory inclusion of additional educational programs (physical and military drill). Extracurricular activities are also provided: volunteer movement, museum pedagogy, search teams, unarmy, sports tourism. The priority direction for cadets is the principle: "To be the best in studies and in sports!" Students with excellent academic performance are encouraged by officers-teachers with certificates of honor, medals, badges of distinction, vouchers to summer camps, the opportunity to engage in parachuting. Cadets regularly take part in all city, municipal and all-Russian events of military, sports, and creative subjects. All teenagers additionally play sports in different sections in accordance with their interests.

In the second MEI SES No. 22 of Lipetsk, from which 23 teenagers (12 girls, 11 boys, average age – 15 years) took part in the testing, she was in a socially and economically disadvantaged area of the city, characterized by an antisocial climate, high turnover of the population. According to the plans of the city authorities, the school is subject to disbandment. The school has a poorly developed field of additional education, most students rarely participate in the social life of the city.

The study also involved students of the eighth grades of the third MEI SES No. 24 named after M. B. Rakovsky (n = 45 people: girls – 32 people, boys – 13 people, average age – 15 years). The school gained its unique image during the creation of pedagogical classes; the teaching staff of the school for many years was distinguished by the modern formulation of educational work and such an organization of relationships with students, in which the choice of a teaching profession by students became natural for many of them. The creators of the school S. A. Shmakov and M. B. Rakovsky developed an educational program that includes psychological and pedagogical theoretical and practical training. At the moment, the practical training of high school students is carried out in the process of working with younger students during the school year and during the summer holidays in health camps. The school has various sports sections, museums and creative workshops that teenagers attend outside of school hours. Students of the school are participants and prize-winners of numerous competitions at the city and regional level.

Thus, the study involved adolescents from two prosperous schools (the first and third) and one with less favorable conditions for the development of adolescents. In prosperous schools, intensive work is carried out on pre-professional training: military in the first and pedagogical in the third; no such events were noted in the second school.

Results

An important part of the information about the behavior of modern students in cyberspace concerns their preferred activities on the Internet. Table 1 shows the number of teenagers who have chosen one or another leisure option in general for all schools.
Table 1

<table>
<thead>
<tr>
<th>Types of behavior on the Internet</th>
<th>Number of selections</th>
<th>Percentage of the total, %</th>
<th>Valid percentage, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Games</td>
<td>9</td>
<td>9,4</td>
<td>9,4</td>
</tr>
<tr>
<td>Search engines</td>
<td>22</td>
<td>22,9</td>
<td>22,9</td>
</tr>
<tr>
<td>Internet-Shopping</td>
<td>10</td>
<td>10,4</td>
<td>10,4</td>
</tr>
<tr>
<td>Social Media</td>
<td>55</td>
<td>57,3</td>
<td>57,3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>96</strong></td>
<td><strong>100,0</strong></td>
<td><strong>100,0</strong></td>
</tr>
</tbody>
</table>

The materials in Table 1 show that the maximum number of teenagers choose social networks as their preferred leisure (57.3%), online games are the least popular among teenagers, and only 9.4% chose this type of leisure.

At the same time, a statistical assessment of the distribution of priority interests of adolescents on the Internet of three Lipetsk schools showed heterogeneity of results. In two schools (No. 22 and No. 24), teenagers prefer social media communication to all other types of digital leisure. Equal groups of teenage cadets (School No. 14) use social networks and Internet messengers. These features are reflected in Figure 1, which shows the number of schoolchildren from three schools who choose certain types of leisure activities on the Internet.
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A qualitative visual analysis of Figure 1 gives reason to believe that the distribution of schoolchildren by priority forms of leisure in the three schools differs. It is obvious that the students of the cadet class of school No. 14 do not have a certain priority in choosing their favorite vacation compared to the students of the other two schools, at the same time, a small part of the teenage cadets play online computer games. Students of the humanitarian school No. 24 are not fond of online games at all. Students of schools No. 22 and No. 24 most often choose social networks as the main type of digital leisure. The statistical assessment of the reliability of the differences in these distributions was carried out using the nonparametric criterion $\chi^2$-Pearson, which confirmed that the use of digital leisure activities on the Internet of three schools is highly reliable (the calculated value of the criterion is 15.984 with a significance level of 0.014).

**Figure 1**
*Distribution of the number of digital leisure choices by students of the surveyed schools*

![Figure 1](image)

*Note. School 1 – cadet corps of school No. 14, school 2 – school No. 22, school 3 – pedagogical class of school No. 24.*

Processing of the results of the evaluation of the time spent on leisure on the Internet showed that the majority of schoolchildren (37%) spend 1-1.5 hours with gadgets, while the maximum time (4 hours or more) is spent on leisure in virtual space by only 27%. At the same time, it is shown that these distributions are also different in different educational institutions (see Figure 2).
It is obvious that in the cadet class (first school No. 14) there are practically no teenagers who can be conditionally classified as overly enthusiastic, that is, aboutspending 4 hours or more on the Internet. Almost all cadet boys spend acceptable time with gadgets (68% – from an hour to an hour and a half and 32% – from two to three hours a day). Students of the pedagogical classes of the third school (No. 24), on the contrary, are characterized by active use of the Internet, since 89% of students of this school spend on the Internet from two hours to four hours or more. Teenagers from the socially disadvantaged district of Lipetsk also spend a significant percentage of their time on the Internet (87%). Calculations show that a high level of significance of the $\chi^2$-Pearson criterion was recorded (59.180, $p = 0.000$), which allows us to draw a reliable conclusion about the reliability of the differences in the three distributions. Students of the three schools have different attachment to the Internet: the maximum number of cadets in the first school (No. 14) spends the least time on gadgets, the largest number of teenagers of the humanitarian school No. 24 and school No. 22 spend significantly more leisure time with gadgets.

**Figure 2**
Distribution of percentages of students in three schools by time spent interacting with gadgets

Due to the fact that, according to our data, social networks have priority in the form of a favorite activity during the Covid-19 pandemic for many teenagers, a study was conducted on the competence of students in communicating with a teenage audience through social media accounts and various blogs. The percentage of teenagers from three surveyed schools who have accounts in one or more social networks has been calculated. The results of processing the questionnaire are shown in Fig. 3.
Histograms illustrate a monotonous pattern in all three schools: almost all students have accounts in several social networks, a significantly smaller part of teenagers own one account. The absence of differences in the distribution of responses of students from the three schools was also confirmed by Pearson’s criterion $\chi^2$, which is equal to 1.251 at $p = 0.535$. Teenagers’ social media activity is carried out through personal pages created by them, the content of which includes discussion of friends, social, sports events, photos, videos, music that fully correspond to age interests.

At the same time, a significantly smaller number of teenagers have their own blogs, which are usually dedicated to a certain audience and have their own topics. This type of activity requires more time compared to other leisure activities, as well as a certain competence in the digital environment. Obviously, such leisure should not be too popular, which is confirmed in Figure 4, where it is shown that from 35% to 75% of schoolchildren do not have their own blog.

**Figure 3**

_Distribution of students (in percentages) of different schools by creating accounts in social networks_
With friends or alone, different numbers of students in three schools answered the question about their ability to create content that attracts other teenagers. Moreover, it can be noted that the maximum percentage of such competent students is recorded in a humanitarian school with pedagogical specialization. The minimum percentage of students who have their own blog is noted in the cadet class of school No. 14. These differences were also checked for validity by Pearson’s criterion \(\chi^2\), which confirmed the validity of these differences (the calculated value of the criterion is 11.11 at \(p = 0.004\)).

Discussion

The article establishes the principal features of the activity of adolescents of the Russian sample of Lipetsk studied by us on the Internet during the Covid-19 pandemic in comparison with their peers in other countries. Russians prefer communication in social networks to all other types of leisure in the virtual space, which is probably due to the high importance of social communications for Russian teenagers. This fact is consistent with the scientific ideas known in the literature about a certain influence of the living conditions and learning of students on their inclusion in the virtual environment and the choice of digital leisure (Veraxa et al., 2021; Kamenskaya, Tomanov, 2022; Cherenkov, 2015, Gao et al., 2020; Keya et al., 2020; park with et al., 2008; Soldatova et al., 2020). In this paper and our previous studies (In Kamenskaya,G, Dr. I., 2020, Kamenskaya V. G. et al., 2021)
it was found that online games are the least popular among teenagers, which is the difference from peers in China, Korea and the USA (Mihara, and higuchi, 2017), who spend more time playing games than other forms of digital leisure. In addition, the authors indicate a significantly higher percentage of students who prefer online games to virtual communication in social networks during the Covid-19 pandemic (Kamenskaya, Tomanov, 2022; Center for Media and Children’s Health, 2020; Statistics, 2021; Mental Health Foundation, 2020; Zhu et al., 2020).

At the same time, the activity of students in social networks of the three surveyed schools has its own specifics. Students of the pedagogical class of the humanitarian school No. 24 communicate on social networks for as maximum long time. At the same time, a significantly larger number of teenagers of this school prefer social networks to all other types of leisure in the virtual space. The same students are characterized by sufficient competence to form interesting content for their peers in social networks. Cadet boys are fundamentally different from teenagers of the pedagogical class, who, in general, are less likely to resort to social networking and, moreover, from time to time play online computer games. It is impossible to exclude the contribution of the gender factor to these differences (Statista, 2021), since girls make up the majority of the sample in the teaching class. However, the minimal enthusiasm for virtual leisure by cadet boys has another possible reason associated with intensive sports and encouragement of academic performance by teachers-educators. This is confirmed by the high time spent on leisure time on the Internet by school students from the disadvantaged district of Lipetsk in comparison with cadet boys, who are significantly less covered by additional classes and participation in the collective affairs of the school.

The problem of motivation that forces teenagers to spend time on social networks or in an online game is complex and has no definite solution. The idea is expressed that this motivational complex is quite complex and includes various motives, including entertainment (Veraxa et al., 2021; Gareht, 2018; Marin-López et al., 2020; Stockdale & Coyne, 2020; Von Der Heiden et al., 2019). These circumstances encourage researchers to continue studying the behavior of adolescents in the digital environment and its dynamics in various social and environmental circumstances.

The pandemic as an additional stressful factor for the younger generation has led to the increased use of digital leisure facilities that act as psychological mechanisms protecting young people from forced loneliness (Groarke et al., 2020; Mental Health Foundation, 2020; Luchetti et al., 2020, Zhu et al., 2020). At the same time, it turned out that during this difficult period, the degree of immersion in the virtual world is determined by both the specifics of the educational environment of students and the personal preferences of adolescents. The degree of risk of developing Internet addiction can be determined by the personal preferences and time of digital leisure of adolescents, and is also associated with socio-cultural learning conditions, which is fully consistent with the concept of cultural and historical determination of the social and mental development of children and adolescents adopted in Russian psychology.
Conclusion

The development and education of modern children and adolescents takes place in a changed socio-cultural environment due to the introduction of digital products into public life as a result of technological evolution. The changed socio-cultural environment determines new forms of behavior, including in leisure activities that displace the previously dominant forms of recreation and entertainment for children and adolescents. The Covid-19 pandemic turned out to be an additional environmental factor that could have an impact on the enthusiasm for Internet resources in 2020, which led to a reduction in social contacts between teenagers with each other.

The forms and duration of leisure activities of adolescents in these conditions are determined by the peculiarities of the educational environment, at the same time, individual and personal characteristics associated with pre-professional training at school are also important. A common feature of the digital leisure of teenagers in an industrial city of Russia turned out to be a preference for communication in social networks to online games. At the same time, the time spent on the Internet for most teenagers ranged from an hour to three, which indicates a moderate enthusiasm for digital leisure in conditions of increased stress by the Covid-19 pandemic. However, in the humanities gymnasium, 47% of students show an over-enthusiasm for virtual leisure, defined as the time spent on the Internet for more than 4 hours a day, which can be considered as certain risks of Internet addiction (Kamenskaya, Tomanov, 2022).

The distribution of individual preferences for digital leisure significantly differs in schools with different educational programs: communication in social networks dominates as a favorite form of leisure for students of a humanitarian school with pedagogical specialization. In the cadet corps, teenage boys could not find a certain dominance of their favorite form of leisure, while the choice of search browsers and online games is equally represented. Students of the school from a socially disadvantaged area demonstrate the similarity of forms of digital leisure with students of the humanities gymnasium. Teenagers of different schools show different degrees of competence in mastering social networks, which are associated with the creation of content in them through the organization of blogs for a certain audience. The most successful in this regard were students of pedagogical specialization in the humanities gymnasium. The minimum number of teenagers organizing their blog was found in the cadet class, which indicates a reduced motivation for the implementation of this form of activity and the lack of the necessary Internet competence for the formation of adequate age-related content.

Literature


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Valentina Georgievna Kamenskaya wrote, prepared and edited the text of the article.
Elena Vladimirovna Tatiana carried out statistical processing of results, formatting of tables.
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Conflict of Interest Information

The authors have no conflicts of interest to declare.