

COMPARATIVE ASSESSMENT OF LEISURE TIME ACTIVITIES OF CHILDREN AGED 11 TO 17 YEARS OLD WHO OFTEN AND RARELY USE DIGITAL DEVICES AND THE INTERNET

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ABSTRACT

This article discusses the impact of digital devices and Internet use on children's leisure activities. The purpose of this paper was to assess the impact of digital devices and the Internet on children's daily and leisure time, physical activity, and leisure time activities. Material and methods. A questionnaire was conducted among 900 general education school pupils aged 11 to 17. Results. The results of the questionnaire show that children nowadays spend a lot of time engaged in the use of various digital devices, especially smartphones. They are also actively logging into social media sites such as Telegram, YouTube, Instagram, Snapchat, and TikTok. It is interesting to note that most children use gadgets in sitting positions and various situations, including transportation. They prefer to use cell phones, computers, laptops, and tablets but also show interest in reading activities. Digital devices do not have a significant impact on time spent on homework but may affect physical activity and time spent outdoors. Thus, the use of digital devices is an integral part of children's lives, but the diversity of children's interests and preferences should be considered. Conclusion. The questionnaire survey helped to obtain valuable information about what children do during their free time and what leisure preferences they have. Undoubtedly, these indicators determine the lifestyle and affect the health status of children.

Key words: children, pupils, digital technologies, gadgets, devices, Internet, leisure time, physical activity.

INTRODUCTION

The health of the younger generation has been identified as one of the priority areas of public health. In recent years, there has been an increasing use of modern

digital devices, gadgets, and other information and communication technologies among children, providing them with access to the Internet, which has become an integral part of their daily lives [2, 7, 10]. Digital devices (DDs), gadgets, and devices are multifunctional portable devices such as computers, laptops, tablets, e-books, smartphones, smartwatches, game consoles, and other devices that allow them to connect to the Internet and use their resources [7]. DDs of different formats influence lifestyle behaviors both positively and negatively [7, 11]. Scientific works of scientists from far and near abroad indicate that there is a huge amount of research on potential risks to human health associated with excessive use of DDs [10]. The involvement of schoolchildren in the use of DDs, information technology, and social networks of the Internet negatively affects their lifestyle [5, 6] and also reduces the level of physical activity and health [1, 3]. The more children spend time on gadgets and devices, the less often they exercise [5]. Studies have shown that children's physical health decreases as the amount of digital load, expressed in the modified informatization index, increases [4]. Lack of physical activity and increased use of DDs have become the main reasons for increased morbidity in children [1].

Hence, a careful study of the effect of the duration and intensity of their use on health indicators is required. Thus, assessing the impact of gadgets and social networks on children's pastimes is an urgent problem.

The aim of the present work was a comparative evaluation of free time spent by pupils with different frequencies of using DDs and the Internet.

MATERIAL AND METHODS.

To achieve the goal, a questionnaire survey was conducted among pupils from 11 to 17 years of age, with an average of 50 people in each age-sex group. The total number of respondents was 900 pupils, of which the age group of 11–15 years old, i.e., grades 5–8, was 596 people; 16–17 years old, i.e., grades 9–11, was 304 people, including 402 boys (48.4%) and 429 girls (51.6%). The research was conducted using the paper questionnaire method in five randomly selected general education schools in Tashkent City in 2022.

The survey was conducted based on the questionnaire method using a specially designed questionnaire called "Map on studying the impact of modern digital devices and social networks on the health of pupils," which was tested and approved at the meeting of the Scientific Council of the Research Institute of Sanitation, Hygiene, and Occupational Diseases (Minutes No. 2 of February 23, 2021). The questionnaire consists of 4 blocks, including 44 questions and several answer options for each of them, including the answer "don't know/difficult to answer.". The card consists of the following parts: general and passport data of the

child; information on types, purposes, time, intensity, duration, and frequency of use of modern digital devices and social networks; pastimes and leisure activities; morning exercises and sports. Questionnaires were filled out by the children themselves on paper. Before the research began, the purpose and methods of the research were explained, and then voluntary written consent was obtained from each pupil and/or their parents. Ethical rules and norms of behavior were observed while conducting the questionnaires. The study was approved by the local Ethical Council of the Research Institute of Sanitation, Hygiene, and Occupational Diseases of the Ministry of Health of the Republic of Uzbekistan (Protocol of Ethical Review No. 5, dated March 14, 2022). This article analyzes 18 questions and answers to them.

Depending on the use of DDs and the Internet, all surveyed children were divided into 2 groups: those who use DDs a lot—pupils who use DDs and social networks a lot and for a long time (491 respondents)—and those who use DDs little—pupils who use DDs and social networks little or not at all (409 respondents).

The results of the questionnaire survey were processed by the variation-statistical method. Statistical analysis was performed using Microsoft Excel 2016 and the Statistica 6.0 application program package. The values of mean (M), standard deviation (\pm SD), and standard error (\pm m) were calculated in the paper. Survey-questionnaire data were processed by the variation-statistical method with the calculation of relative values (% and % of cases) and the Pupil's t-criterion. Differences at $p \leq 0.05$ were considered statistically significant.

RESULTS.

To study children's leisure time, a questionnaire survey was conducted to find out what pupils do in their free time from lessons. A similar question was asked. The results of the survey indicate a significant amount of time spent by pupils at the screen of the DDs. Most of the children had their smartphones. It has been revealed that the number of pupils who do not use computers, laptops, or tablets was 1.8 times less than the number of peers who actively use these devices.

The results of the questionnaire survey are presented in the table, which provides information about the variety of interests and preferences of pupils during their free time (Table 1).

From the obtained data, it became known that on average, 54% of children use mobile phones, smartphones, computers, laptops, and tablets in their free time. According to the results of the survey, 90% of all children use various types of TSIs.

Table 1

Types of activities of pupils in their free time from classes, % of cases

№	Activities	Highly users		Low users		p
		%	±m	%	±m	
1	TV watching	29,1	2,05	29,3	2,25	-
2	phone	51,5	2,26	25,9	2,17	0,001
3	computer, laptop, or tablet	18,9	1,77	10,0	1,48	0,001
4	game console	3,7	0,85	2,7	0,80	-
5	read books	38,7	2,20	44,3	2,46	-
6	foreign languages	40,1	2,21	32,0	2,31	0,05
7	music, playing musical instruments	33,8	2,13	23,0	2,08	0,001
8	visual arts, drawing, appliqué, modeling	16,3	1,67	17,8	1,89	-
9	singing and dancing	19,3	1,78	16,9	1,85	-
10	knitting, sewing	6,7	1,13	5,9	1,17	-
11	needlework and modeling	3,5	0,83	3,7	0,93	-
12	sports, exercise	28,5	2,04	29,8	2,26	-
13	chess and checkers	7,1	1,16	12,5	1,64	0,01
14	theater and public speaking	2,6	0,72	2,2	0,73	-
15	walking and playing outdoors	33,0	2,12	28,9	2,24	-
16	sleep	34,0	2,14	17,4	1,87	0,001
17	don't know, difficult to answer	1,8	0,60	2,0	0,69	

Having analyzed the data of the questionnaire survey, it was established that children use different types of DDs in their free time, from 2 to 3 hours a day on average by 14% of children, from 3 to 4 hours by 11%; the frequency of using DDs from 4 and more hours a day is typical for 9% of pupils; and also, the same number of children use gadgets constantly and uncontrollably. Consequently, the number of pupils actively using gadgets is 86%; 86% of children use them daily, while the number of children using them rarely is 1.7 times less (Table 2).

Table 2

Quantitative distribution of children by frequency of using digital devices, %

Frequency of use	Highly users		Low users		P
	%	±m	%	±m	
daily	85,9	2,47	50,6	3,45	0,001
up to 1/2 hour	2,0	0,63	24,9	2,14	0,001
up to 1 hour	4,9	0,97	31,1	2,29	0,001
1 to 2 hours	16,3	1,67	21,8	2,04	0,05
2 to 3 hours	21,8	1,86	5,4	1,12	0,001
3 to 4 hours	18,3	1,75	4,4	1,01	0,001
4 or more hours	15,5	1,63	1,5	0,60	0,001
all the time	16,3	1,67	2,0	0,69	0,001
don't know, find it difficult to answer	4,9	0,97	9,0	1,42	0,05
every other day	6,5	1,75	22,0	2,86	0,001
1-2 times a week	1,4	0,83	7,8	1,85	0,01
rarely	3,3	1,27	15,2	2,48	0,001
don't use	0,4	0,45	2,0	0,97	-
don't know, find it difficult to answer	2,4	1,08	2,5	1,08	-

The analysis of the questionnaire survey showed that children are registered on several social networks at once; thus, the most popular social networks are Telegram (63%), Youtube (63%), Instagram (40%), Snapchat (29%), Tik Tok (26%), and others. Among children who use DDs a lot and children who use DDs little, a significant difference was found in the use of social networks. Thus, children who actively use DDs are 1.8 times more likely to use social networks on the Internet (Table 3).

Table 3
Quantitative distribution of children by frequency of using social networks, % of cases

№	Social media	Highly users		Low users		p
		%	±m	%	±m	
1	Instagram	54,2	2,04	26,4	2,53	0,001
2	Facebook	22,2	1,70	8,1	1,56	0,001
3	Telegram	94,9	0,90	68,0	2,68	0,001
4	WhatsApp	13,6	1,40	5,6	1,32	0,001
5	Tik Tok	36,7	1,97	15,2	2,06	0,001
6	You tube	77,8	1,70	48,2	2,87	0,001
7	Classmates	4,1	0,81	2,7	0,93	-
8	Vkontakte	10,4	1,25	4,4	1,18	0,001
9	Twitter	7,1	1,05	1,7	0,74	0,001
10	LinkedIn	2,4	0,63	0,0	0,00	0,001
11	IMO	16,1	1,51	7,3	1,49	0,001
12	Snapchat	38,1	1,99	18,8	2,24	0,001
13	other	0,2	0,18	0,2	0,26	-
14	Not registered	0,6	0,32	21,8	2,37	0,001

According to Figure 1, 57% of children who use DDs a lot spend up to 1 hour a day on social networks, while their peers who use less spend 4 times less ($p \leq 0.001$). The number of children from both groups spend time on social networks to the same extent, with the frequency of time ranging from 1 to 2 hours per day. However, for the frequency of time from 2 to 4 or more hours per day, there are significant differences between the two groups ($p \leq 0.001$).

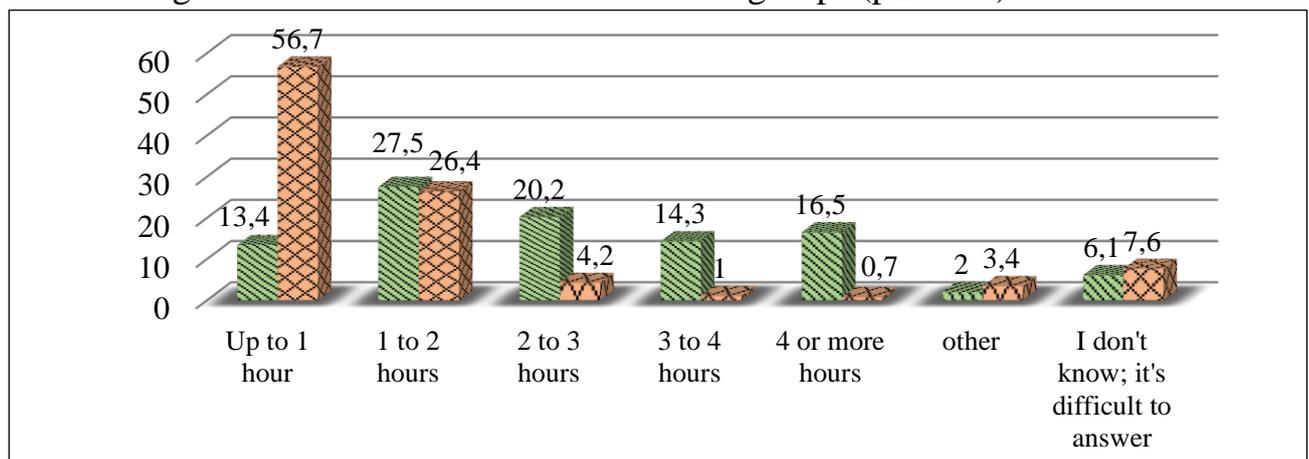


Figure 1. Quantitative distribution of children by frequency of social media use, %

Especially, in 76% of cases, children use DDs and Internet in sitting position ($77.2 \pm 1.89\%$ in main group and $75.3 \pm 2.13\%$ in control groups), lying down $56.6 \pm 2.24\%$ vs. $34.5 \pm 2.35\%$ ($p \leq 0.001$), standing $20.2 \pm 1.81\%$ vs. $9.3 \pm 1.44\%$ ($p \leq 0.001$) and while walking $20.4 \pm 1.82\%$ vs. $7.1 \pm 1.27\%$ ($p \leq 0.001$), as well as $19.6 \pm 1.79\%$ and $7.8 \pm 1.33\%$ in the main and control groups, respectively, pupils use gadgets in transportation.

In addition, pupils play various computer games through the DDs. Electronic-computer games: indicates the number of pupils who prefer to spend their free time from lessons playing games. The figure categorizes games by genre or platform (Figure 2).

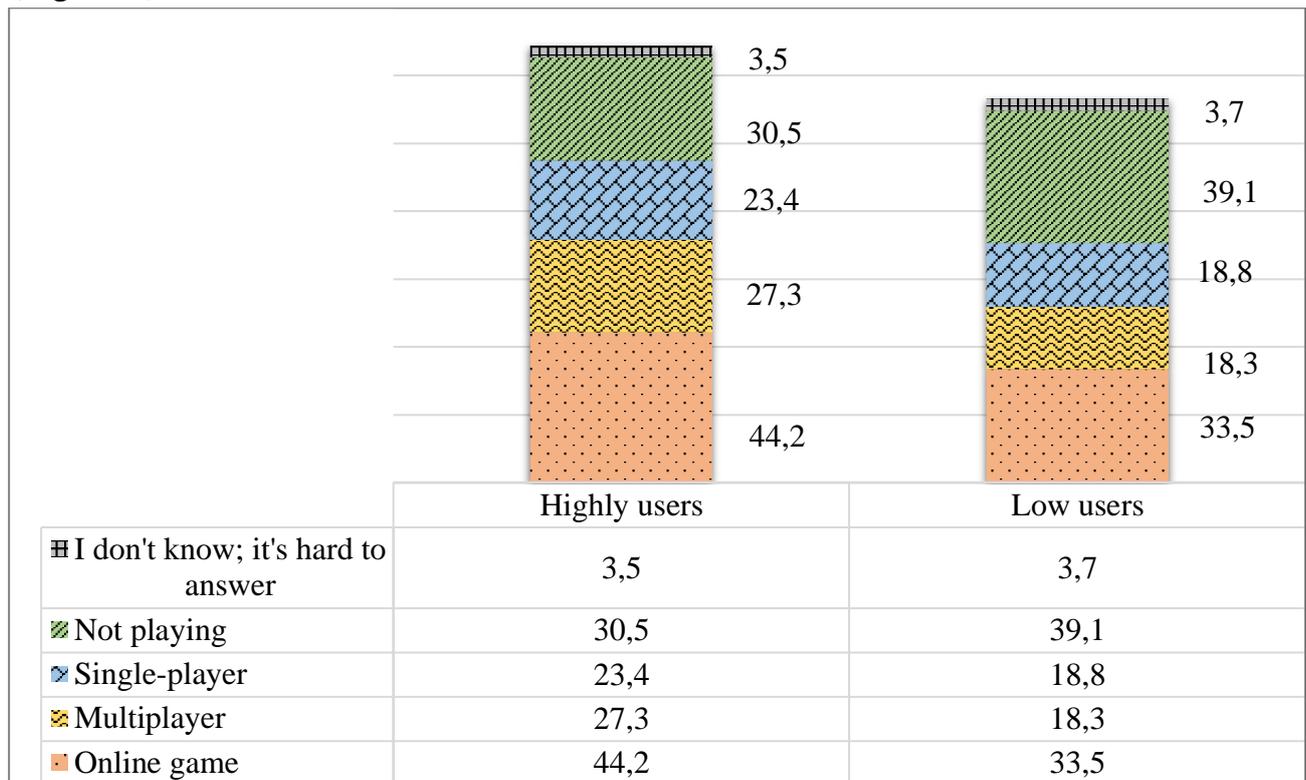


Figure 2. Quantitative distribution of children by types of electronic-computer games use, % of cases

Table 1 shows that 83% of children read books, so almost 70% of children who do not use DDs much visit the library, and peers who do not use DDs much visit 1.2 times less ($p \leq 0.001$). Children mostly prefer to read paper periodicals (68.4 ± 2.10 vs. $77.3 \pm 2.07\%$, $p \leq 0.01$), and electronic versions of books are preferred by 42% of children (25.5 ± 1.97 vs. $16.9 \pm 1.85\%$, $p \leq 0.01$). At the same time, on average, 7% of surveyed pupils indicated in the questionnaire that they practically do not read literature outside the school program and 4% did not answer at all.

Also, Table 1 shows that pupils study foreign languages in their free time ($40,1 \pm 2,21\%$ in the main group and $32,0 \pm 2,31\%$ in the control groups, $p \leq 0,05$),

study music and play musical instruments (33,8±2,13% in the main group and 23,0±2,08% in the control groups, $p \leq 0,001$).

The results of processing the obtained data indicated that the time spent on homework did not significantly depend on the level of computer and Internet use. Comparative analysis of the time spent on school homework showed that there were practically no reliable differences between children actively and rarely using.

A comparative analysis of questionnaire data was also conducted, which showed that children who use the computer and the Internet a lot and children who use the computer and the Internet little differ in their time spent on homework. On average, 23% of children have no more than 1 hour to do household chores, 33% have 1 to 2 hours, 23% have 2 to 3 hours ($p \leq 0,05$) 16% have 3 or more hours, and 5% of children found it difficult to answer.

In addition, children who used DDs and the Internet a lot and children who used DDs and the Internet little also differed in the time spent outdoors. Several indicators had significant differences ($p \leq 0,05-0,01$). Walking outdoors daily for up to 1 hour is done by 30% of pupils ($p \leq 0,01$), 1 to 2 hours by 28%, 2 to 3 hours by 20%, and more than 3 hours by 17%, while 5% of children hardly ever go outdoors (Table 4)

Table 4

Quantitative distribution of pupils by duration of using digital devices and the Internet per day, %

Time per day	Time spent doing school homework					Time spent doing household chores					Time spent on outdoor activities				
	1		2		p	1		2		p	1		2		p
	%	m	%	m		%	m	%	m		%	m	%	m	
Up to 1 hour	17,9	1,73	21,0	2,01	-	23,0	1,90	22,7	2,07	-	25,1	1,96	35,0	2,36	**
From 1 to 2 hours	31,8	2,10	34	2,34	-	33,6	2,13	32,0	2,31	-	26,9	2,00	29,6	2,26	-
2 to 3 hours	23,8	1,92	25,2	2,15	-	19,8	1,80	25,9	2,17	*	22,0	1,87	17,8	1,89	-
3 or more hours	20,6	1,83	15,4	1,78	*	18,3	1,75	14,4	1,74	-	20,6	1,83	12,5	1,64	**
Don't know, difficult to answer	5,9	1,06	4,4	1,01	-	5,3	1,01	5	1,08	-	5,4	1,02	5,1	1,09	-

Note: P: reliability of differences between children who use digital devices and the Internet: a lot (1) and a little (2)

Reliability of differences - * - $P < 0,05$; ** - $P < 0,01$; *** - $P < 0,001$.

The surveyed pupils do morning exercises every day ($40,7\pm 2,22\%$ - in the main and $51,6\pm 2,47\%$ - in the control groups, $p\leq 0,01$); pupils $38,1\pm 2,19\%$ - in the main and $33,0\pm 2,33\%$ - in the control groups only sometimes devote time to physical exercises, and also $20,4\pm 1,82\%$ - in the main and $14,2\%$ - in the control groups ($p\leq 0,05$) do not do morning exercises.

Comparative analysis of the results of answers to the question "Are you engaged in any sport?" 43% answered "yes", the same number chose "no", 13.2% answered "sometimes," and 0.8% of children did not answer this question. Different types of physical activity, such as soccer, basketball, tennis, swimming, etc. answered this question.

Conclusions. A questionnaire survey was conducted to study their leisure preferences and find out what they do in their free time from school activities. From the results of the questionnaire, it is evident that children's free time is nowadays largely occupied with the use of various digital devices. The majority of children have their smartphones and actively use the DDs screen. It is important to note that the number of pupils who inactively use computers, laptops, and tablets is much lower than those who actively use these devices. This indicates that the use of digital devices is becoming an integral part of children's lives and free time.

The analysis of the questionnaire survey data also showed that children are actively logging into various social networks through the DDs. The most popular social networks turned out to be Telegram, YouTube, Instagram, Snapchat, and TikTok. It is important to note that the number of children actively using the DDs and logging into social networks is significantly higher than the number of children who use these devices.

Another interesting aspect revealed by the survey is the use of different gadgets by children in different positions. Most of the children use digital devices in sitting positions, followed by lying, standing, and walking positions. It was also found that children use gadgets even in transportation. These findings indicate that DDs are becoming an integral part of children's lives and accompanying them in various situations.

The survey also revealed that children have different interests and preferences during their free time. Most children prefer to use cell phones, computers, laptops, and tablets. However, reading activity also remains an important part of children's lives, as many children visit libraries and prefer to read paper books.

It is interesting to note that the use of digital devices does not have a significant impact on time spent on homework. At the same time, the time spent on housework and outdoor activities may be different for children who actively use DDs and the Internet than for children who do not use these devices much. Also,

the frequency of physical activity and morning exercise differs between children who actively and minimally use the DDs

Thus, this study showed that the use of digital devices, especially cell phones, computers, laptops, and tablets, is an important part of children's free time. However, attention should be paid to the diversity of children's interests and preferences during their free time, as well as differences in the time spent on physical activities and interaction with the real world.

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