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**FEATURES OF INFORMATION RETRIEVAL ACTIVITY OF
ORPHANAGE PUPILS**

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Abstract

The article is dedicated to a comparative analysis of the characteristics of information search activity on the Internet for students living in the government run orphanages based on the results of surveys conducted in 2013 and 2018, which were attended by 68 students enrolled in the basic general education program and 62 students enrolled in the adapted basic educational program, at the age of 14-17. Comparison was made by frequency in use of the Internet and contents of the most popular information enquiries. We found out that the frequency in use of the Internet by students enrolled in the basic general educational program has not changed significantly. However, according to 2018 data, proportion of requests related to the preparation for schoolwork assignments has increased significantly. The frequency of using the opportunities provided by the Internet by students enrolled into the adapted basic general education program, according to the data of 2018, is significantly higher compared to the data of 2013. At the same time, the structure of information enquiries in this group of students has not changed. The authors revealed the differences in the use of the Internet by students enrolled in various general educational programs (the basic general and the adapted basic). The paper shows that only students enrolled in adapted basic educational program showed that the frequency in use of the Internet, self-assessment of the ability to find the required information and self-assessment of personal independence were connected at a statistically significant level.

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1. Introduction

The world of the Internet opens immense possibilities for searching the information in different spheres of life: education, communication, entertainment, job search and job itself.

The results of research prove that social and psychological adaptation of young people in the modern world is impossible without being included into the world of the Internet (Arakantseva, Bobyleva, & Eroma, 2017; Arakantseva, Bobyleva, & Zavodilkina, 2018; Volkova, Beschetnova, & Ananchenkova, 2017; Volodina, 2013).

The research shows that teenagers use the Internet to get knowledge or information about the healthy way of living (Wang, Luo, Luo, Gao, & Kong, 2012), and communication in social media influences their social standards of behavior (Gerhart & Koohikamali, 2019). We see the increase of the role of mobile devices in education (Sung, Chang, & Liu, 2016; Zydney & Warner, 2016; Heflin, Shewmaker, & Nguyen, 2017). IT-technologies help to understand and improve the understanding of the learning material (Koukopoulos & Koukopoulos 2019), and it is used in special education (Gafiyatullina, 2015; Nikolskaya, 2011). Problems of using IT-technologies in education are connected with multitasking, according to some researches (Junco, 2012; Bellur, Nowak, & Hull, 2015).

One can mark several factors identifying the differences in the level of consuming information: the costs of obtaining information, the ability to perceive and use it, the need for information (Tagarov & Tagarov, 2018).

2. Problem Statement

The Internet as an institution of socialization makes it possible to satisfy important social needs, although the influence of it on different social groups is not studied well enough.

At present, in government run organizations for orphans, the proportion of pupils with limited health abilities, including the decrease in intelligence and students participating in an adapted general education program, is increasing (up to 30% in some regions of the Russian Federation).

At the same time, there are no studies aimed at studying the peculiarities of using the Internet by adolescents with reduced intelligence. Researchers tend to look at intelligence issues in terms of Internet addiction behaviour.

3. Research Questions

- compare peculiarities of information search activities among the children in the orphanages, according to the data received during the research held between 2013 and 2018;

- explore the features of information search activity among different groups of students in orphanages (those enrolled in basic general education programs and those, enrolled into a special adapted basic educational program).

4. Purpose of the Study

The purpose of the study is to detect the difference in frequency and contents of the search activity on the Internet among the orphans enrolled in basic general education programs and those, enrolled into a special adapted basic educational program.

5. Research Methods

A package of socio-psychological tests was used to perform the research and detect three factors, which show the orphans' readiness for independent life: "personal independence" (personally conative aspect), "the ability to self-care" (aspect of practical skills development), "knowledge and the ability to search for information" (informational aspect).

The package is a set of reliable and valid socio-psychological methods (Chikalov, 2014) and has two forms: a full one (which is used to survey orphans enrolled in basic general education programs), and adaptive (to survey those who use the adapted basic educational program).

68 orphans enrolled in basic general education programs and 62 orphans who use the adapted basic educational program took part in the survey conducted between 2013 and 2018, the age in both groups varied between 14 and 17.

The following statistics tests were used to process the data: Mann–Whitney U-test and Spearman's rank correlation coefficient. Note that the scale "Frequency of use of the Internet" is an inverted scale, meaning, a smaller frequency corresponds to a higher frequency.

6. Findings

According to the results of a comparative analysis of survey data among the orphans between the years of 2013 and 2018, we can make the following conclusions.

Firstly, the frequency in use of the Internet has not changed among the orphans enrolled in basic general education programs but it has increased among the orphans who use the adapted basic educational program (U empirical criterion value =24, U critical criterion value =27, $p \leq 0.05$).

Secondly, the frequency in use of the Internet among the orphans who participated in the survey in 2018 does not depend on their intellectual status, unlike the survey of 2013. According to the latter the orphans who study by the adapted school program used the possibilities of the Internet less than the orphans enrolled in basic general education programs (U empirical criterion value =21.5, U critical criterion value =27, $p \leq 0.05$).

Thirdly, if we examine the shift in frequency in the use of the Internet by the contents of the search, we can distinguish three groups of information inquiries. The first group of inquiries did not show any change in frequency of search. Thus, in 2018 orphans studying in regular schools as well as those in 2013 use the Internet to communicate in social media. Students in both groups searched for music, watched movies with the same frequency in 2013 but they made purchases through the Internet less. The second group consisted of requests, the frequency of which increased significantly. Thus, orphans enrolled in the basic general education program started using the Internet almost twice more often to prepare for school, while those enrolled in the adapted basic educational program started reading news on

the Internet. The third group consisted of requests, the frequency of which did not change significantly (see table 01).

Table 01. Frequency of Search Information by Orphans on the Internet, Depending on the Content of the Request According to Survey Data in 2013 and 2018

Content request for information search:	Orphans enrolled in							
	Basic general education program				Adapted basic educational program			
	2013		2018		2013		2018	
	A*	R**	A	R	A	R	A	R
1. How often have you viewed news on the Internet?	3,48	4	3,22	4	5,21	4	2,79	2
2. How often have you made the necessary purchases through the Internet?	8,68	10	6,85	10	8,05	10	7,79	10
3. How often have you used the Internet to search the needed address?	5,50	8	5,07	9	7,02	8	4,95	6
4. How often have you used social network (like OK, etc.) For getting information and communication?	1,63	1	1,63	1	4,42	2	3,00	3
5. How often have you used the Internet to search the meaning of new words?	3,45	3	3,26	5	5,95	5	3,68	5
6. How often have you used the Internet to search books, articles and information on the topic interesting to you?	4,20	6	3,59	6	6,42	6	5,05	7
7. How often have you used the Internet for practical advice?	6,15	9	4,78	8	7,00	7	6,58	9
8. How often have you used the Internet for preparing home task assignments?	4,43	7	2,63	3	7,16	9	5,37	8
9. How often have you used the Internet to search music and videos?	1,73	2	2,19	2	4,20	1	2,00	1
10. How often have you used the Internet to meet people?	3,90	5	3,89	7	5,00	3	3,58	4

Note: *- average, **-rating

Let us consider in details the results of a survey conducted in 2018. When analyzing the respondents' answers to questions regarding the use of Internet resources to achieve specific goals, the following was revealed: there are more than half of those who view news on the Internet daily among orphans enrolled in the basic general education program (ref. table 2), while there are less than half of those (52% and 47% respectively) among orphans enrolled in the adapted basic educational program. At the same time the percentage of those who use the Internet (daily or once/twice a week) to read the news is higher (79%). 71% of orphans enrolled in the basic general education program read the news on the Internet. It is also worth mentioning that the percentage of those who never read news on the Internet is

also higher in the same group, while in the group where students enrolled in the adapted basic educational program, this percentage is only 16%. This could mean that the Internet is a significant source of information about social world and society for those enrolled in the adapted basic educational program.

Table 02. Frequency of News Viewing on the Internet among orphans

Poll question	School Program	Daily	1-2 times a week	1-2 times a month	A few times a year	1-2 time over several years	Never
How often have you viewed news on the Internet?	Basic	52%	19%	7%	7%	0%	19%
	Adapted	47%	32%	5%	5%	16%	16%

Distribution of answers to the question of using the Internet to make purchases (see table 3) shows that respondents in both groups have never done any purchases through the Internet (59% of orphans enrolled in the adapted basic educational program and 63% of orphans enrolled in the adapted basic educational program). It is obvious that students enrolled in the basic general education program use the Internet with this particular purpose more often. Only 63% of the group rarely (1-2 times in several years) or never used the Internet to make purchases, and only 29% use on-line shopping quite frequently (no less than once or twice a month). Similar results were in the group where students are enrolled in adapted basic educational programs: 79% of respondents have never used or used quite rarely the Internet to shop, and only 15% use this type of shopping quite frequently (once or twice a month). This could mean that the Internet as a shopping tool does not appeal to the orphans enrolled in the adapted basic educational program. They probably prefer to do their shopping in a regular way, as they are limited in managing their funds, compared to the students enrolled in the basic general education program.

Table 03. Frequency of Shopping over the Internet by Orphans

Poll questions	Program	Daily	1-2 times a week	1-2 times a month	Several times a year	1-2 times over several years	Never
How often have you made the necessary purchases through the Internet?	Basic	7%	11%	11%	7%	4%	59%
	Adapted	5%	5%	5%	0%	16%	63%

Students enrolled in the adapted basic educational program were using the Internet to look up the needed addresses more often – about 58%, and they were using the Internet once/twice or more times per month (see table 4). Among students enrolled in the basic general education program the similar indicator makes 52%.

Besides, the percentage of orphans enrolled in the adapted basic educational program, never use the Internet to search the necessary addresses (26%) compared to respondents enrolled in the basic general education program (26%). Based on the data received, we can make an assumption that students enrolled in the adapted basic educational program have fewer sources of information about the outside world in their studying.

Table 04. Frequency of Searching Organizations on the Internet by Orphan-House Residents

Poll questions	Program	Daily	1-2 times a week	1-2 times a month	Several times a year	1-2 times over several years	Never
How often have you been searching addresses of organizations?	Basic	19%	26%	7%	0%	0%	30%

	Adapted	21%	21%	16%	0%	5%	26%
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When comparing groups of respondents in terms of the frequency of using social networks for information and communication (see table 5), it is obvious that for this purpose, the Internet is used by 96% of students enrolled in the basic general education program (1-2 times a month) and they also enjoy social networks. Only 79% of students enrolled in the adapted basic educational program were using the Internet with this purpose. Besides, 21% of the respondents stated that they had never used social network for communications, while there were none among those studying in regular schools. These results show that communicating through the Internet is less appealing to the students enrolled in the adapted basic educational program than among those enrolled in the basic general education program.

Table 05. Frequency in Using Social Network among Orphan-House Residents

Poll questions	Program	Daily	1-2 times a week	1-2 times a month	Several times a year	1-2 times over several years	Never
How often have you used social network (like OK, etc.) for getting information and communication?	Basic	74%	15%	7%	0%	0%	0%
	Adapted	58%	21%	0%	0%	5%	21%

Using the Internet as a dictionary (see table 6) is more typical for orphan-house residents enrolled in the basic general education program. 82% respondents of this group use the Internet regularly (1-2 a month or more often) to search the meaning of new words. Among the orphan-house residents who enrolled in the adapted basic educational program this number is 74%. It should be noted that in this group the majority (37%) of students use the Internet to search for the meanings of the words they need daily. Whereas the majority (41%) of students enrolled in the basic general education program use the Internet once or twice a week.

Table 06. Frequency of Use of the Internet by Orphan-House Residents to Search for Word Meanings

Poll questions	Program	Daily	1-2 times a week	1-2 times a month	Several times a year	1-2 times over several years	Never
How often have you used the Internet to search the meaning of new words?	Basic	30%	41%	11%	4%	0%	15%
	Adapted	37%	21%	16%	0%	0%	11%

74% of orphan-house residents students enrolled in the basic general education program use the Internet to search books, articles and information on the interesting topic regularly (once or twice a week) but among the residents enrolled in the adapted basic educational program this percentage is lower only 48% (see table 7). At the same time, the majority of respondents (44%) enrolled in the basic general education program use the Internet once or twice a week. It is practically three times more (2.75) than the number of respondents enrolled in the adapted basic educational program. It is interesting to note that among orphan-house residents enrolled in the adapted basic educational program the percentage of those who do not use the Internet at all is higher (32% and 19% respectively).

Thus, it can be said, that this function of the Internet resource is not sufficiently demanded by pupils enrolled in the adapted basic educational program.

Table 07. Frequency of Using the Internet to Search Books and Articles Among Orphan-House Residents

Poll questions	Program	Daily	1-2 times a week	1-2 times a month	Several times a year	1-2 times over several years	Never
How often have you used the Internet to search books, articles and information on the topic interesting to you?	Basic	30%	44%	0%	0%	0%	19%

	Adapted	32%	16%	0%	0%	0%	32%
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Turning to the Internet as a source of practical advice (see table 8) is more common among orphan-house residents enrolled in the basic general education program. 49% respondents of this group use the Internet at least once or twice a week, while only 32% of orphan-house residents enrolled in the adapted basic educational program use it the same way. More than 53% of student enrolled in the adapted basic educational program never look for practical advice on the Internet, while students enrolled in the basic general education program use it for advice (30%). Perhaps these results reflect a low level of interest of pupils in such information, since practical issues in their lives are solved in a different way, not independently in the form of staying in an institution.

Table 08. Frequency in Use of the Internet for Practical Advice Among Orphan-House Residents

Poll questions	Program	Daily	1-2 times a week	1-2 times a month	Several times a year	1-2 times over several years	Never
How often have you used the Internet for practical advice?	Basic	19%	30%	11%	0%	0%	30%
	Adapted	11%	21%	0%	0%	0%	53%

Obvious differences between groups of respondents were found when analyzing the answers to the question about the frequency of using the Internet in the preparation of educational work (see table 9). 44% of orphan-house residents enrolled in the basic general education program use the Internet daily for preparing homework assignments, while residents, enrolled in the adapted basic educational program use the Internet for that reason less often (only 21%). It is necessary to state that the percentage of those who had never used the Internet for schoolwork is very high among the students enrolled in the adapted basic educational program (42%). Among the orphan-house residents enrolled in the basic general education program this number equals 7%. We can assume that such results, on the one hand, depend on the specifics of training according to an adapted program, which, apparently, does not imply a large number

of tasks that require access to the Internet. On the other hand, pupils enrolled in the adapted basic educational program may not be sufficiently aware of the opportunities provided by the Internet for completing educational tasks.

Table 09. Frequency in Use of the Internet for Preparing Home Task Assignments Among Orphan-House Residents

Poll questions	Program	Daily	1-2 times a week	1-2 times a month	Several times a year	1-2 times over several years	Never
How often have you used the Internet for preparing home task assignments?	Basic	44%	37%	11%	0%	0%	7%
	Adapted	21%	26%	5%	0%	0%	42%

When solving leisure activities, both groups of respondents showed the same tendencies: both of them actively use the Internet resource to search for music and movies (see table 10). 82% of respondents enrolled in the basic general education program go on-line with this purpose (that is once or twice a week) and 84% of respondents enrolled in the adapted basic educational program. It is interesting to note that among the respondents of this group there are more of those who use the Internet for leisure daily (79% and 52% respectively).

These results indicate that the students enrolled in the adapted basic educational program use the leisure content of the Internet widely; they are well aware of the relevant opportunities and know how to use them.

Table 10. Frequency in Use of the Internet for Searching Music and Videos Among Orphan-House Residents

Poll questions	Program	Daily	1-2 times a week	1-2 times a month	Several times a year	1-2 times over several years	Never
How often have you used the Internet to search music and videos?	Basic	52%	30%	15%	0%	0%	4%
	Adapted	79%	5%	5%	0%	0%	5%

Orphan-house residents enrolled in the basic general education program use the Internet to make friends more often. 71% of respondents were using the Internet once or twice a week to look for music and videos. Students enrolled in the adapted basic educational program were using the Internet less (only 58%). At the same time, it is worth noting that a larger percentage of students in this group use the Internet to meet people daily (37% and 30% respectively), and there are fewer among them who have never used the Internet for this purpose (11% and 15% respectively).

These results allow us to conclude that this opportunity to use the Internet resource is also understandable and is actively used by students enrolled in the adapted basic educational program (Table 11).

Table 11. Frequency in Use of the Internet for Meeting People Among Orphan-House Residents

Poll questions	Program	Daily	1-2 times a week	1-2 times a month	Several times a year	1-2 times over several years	Never
How often have you used the Internet to meet people?	Basic	30%	41%	11%	4%	0%	15%

	Adapted	37%	21%	16%	0%	0%	11%
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When comparing groups of students enrolled in different programs, the following differences were identified. Orphan-house residents enrolled in the adapted basic educational program look for information on the Internet rarely for preparing for their schoolwork (the differences are significant for $p \leq 0.01$, U empirical criterion value = 141, U critical criterion value = 151). It can be assumed that the lesser activity of the respondents of this group in terms of searching for information on the Internet depends precisely on the absence of the need to use the Internet resource in the educational.

At the same time orphan-house residents of this group value their own independence much higher (the differences are significant for $p \leq 0.01$, U empirical criterion value = 150.5, U critical criterion value = 151). The results of the correlation analysis show a direct relationship between the indicators of the frequency of information search on the Internet and self-assessments of the ability to find information ($r_s = -0.53$, $p = 0.05$). The smaller the value on the inverted "Frequency of use of the Internet" scale is, the more often a student uses the Internet, the more confident he/she feels in finding the information he/she needs. This may indicate that, for the respondents of this group, the Internet is one of the important sources for obtaining information on its own. Also, there are direct links between self-assessment of personal independence and indicators of the frequency of information search on the Internet and self-assessment of the ability to find information in respondents who study by adaptive programs ($p = 0.05$, $r_s = -0.52$ and $p = 0.01$, $r_s = 0.59$ respectively). These results show that it is the ability to find information using the Internet is an important component of the self-assessment of personal autonomy of students enrolled in the adapted basic educational program.

7. Conclusion

Thus, the results obtained in the study show that orphans enrolled into an adapted basic educational program use the opportunities provided by the Internet rather actively. They use the Internet mainly to find information about the social world or for entertainment. These students use the Internet for their studies or solving practical problems less. At the same time, it is obvious that the active use of the Internet as a source of information is a necessary condition for the formation of independence, self-reliance and, ultimately, social adaptability among pupils enrolled in an adapted basic educational program.

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