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Network behavior as a specific feature of generation Z communicative competence and their readiness for online learning

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Abstract

The article presents the results of a longitudinal study of young people belonging to the category of generation Z. The study was conducted over a period of 3 years, starting in 2019, and was devoted to studying the formation of social characteristics of generation Z under the influence of socialization in the digital environment. The study also included a comparative analysis of the younger and older age groups in Generation Z, who are now high school students and students. The results of the study showed that the younger representatives of generation Z have a more pronounced desire for individualism and self-organization on the Internet. The social characteristics of generation Z must be taken into account when organizing online learning.

Keywords: *Generation Z, Digital generation, Cohort Analysis, Communication Practices, Digital Culture.*

1 Introduction

The team of authors presents a study that is an important intermediate result of a three-year study of the features of generation Z and its behavior in a virtual environment. The interest of researchers is due to a number of circumstances. On the one hand, it is associated with attention to the problem of the influence of virtual space on social norms and practices. Young people, probably as early adapters, create and reproduce new norms faster than other social groups. On the other hand, the interest is due to the importance of studying the Russian society of "tomorrow", which is of particular importance in the context of the modern "generation gap" (Ilyinsky 2016, p. 215). Finally, thirdly, the team of authors undertook this study to better fulfill their professional pedagogical tasks - today students of higher educational institutions are represented in the first wave of Generation Z. Choosing the right pedagogical tools for working with the “digital generation” is by no means a trivial task.

The undertaken longitudinal study was devoted to various aspects of generation Z and the specifics of its behavior in a virtual environment. In 2019-20 (Ignatjeva et al. 2020) it touched upon the most general issues related to value priorities, normative attitudes of behavior in a virtual environment, the most frequently used digital resources, etc. The 2020-21 study. (Tolstikova et al. 2022, Tolstikova et al. 2021) was associated with the study of factors influencing the choice of generation Z representatives of blended learning formats (blended learning), as well as with cognitive attitudes and features of the formation of social capital. Study 2021-22 was devoted to the problems of socialization in the digital environment of two age groups of generation Z - students and high school students. Thus, this work is the result of a three-year work of a team of authors necessary to discover the starting point of new research horizons.

The main problem, for which there will probably be little empirical research to address, is that Generation Z is, in a certain sense, challenging traditional generational approaches: it is a generation without a face — silent, confident, anxious, or lonely. The introduction of digital technologies, which act as initiators or only signals of the processes of deep transformation of society, is accompanied by the collapse of the usual normative or value-oriented approaches. Today it is more and more difficult to talk about collective traumas, common rules and integration processes. The computer breaks social ties, immersing a person in the unique world of his fantasies, i.e. preferences and recommendations. The generational approach turns out to be closed within predominantly formal boundaries; the responses that were received during the course of field research indicate quite clearly that representatives of generation Z, apparently, do not consider the social something significant, as opposed to the individual. However, the traditional approach, which separates individualism and collectivism, also works rather poorly in this case - digital technologies generate and support the conviction of young people that the world revolves only around them, that any manifestation of their personality will be in demand, and that their ideas and creative impulses will inevitably are significant. The illusion of society replaces society itself due to the age of young people. All of the above may indicate that generation Z is in the active phase of its formation and, perhaps, it has yet to make a collective choice that will determine the face of the entire generation.

2 Literature Review

The analysis of the profiles of generations of the 21st century, caused by the change in the value priorities of modern society, is directly related to digital technologies and the transformations generated by them. Of particular interest for obvious reasons, and above all because “children of the new era spend most of their lives on the Internet and do not make a difference between life on the network and life outside it” (Palfrey, Gasser 2011, p. 10) and that “the new generation does not see any difference between the virtual and the real at all” (Stillman, Stillman 2018, p. 81) causes generation Z, which becomes a full member of modern society.

The modern history of generational issues, which has long sociocultural roots, begins with the program work Generations: A History of America's Future. 1584–2069” by N. Howe and W. Strauss, in which they identified several types of generations of the American nation, identified the factors in the formation of generational values and described the cyclical repetition of generations (Strauss, Howe 1991). In the 21st century, the generational theme and its specificity which goes beyond the national framework of Howe and Strauss and also includes young representatives of the Z generation and ascending representatives of the Alpha generation into the sociocultural horizon were developed in the works of D. Tapscott (2008), M. Prensky (2001), M. Bauerlein (2009), N. Carr (2008, 2010), J. Small and G. Vorgan (2008), D. Stillman (2018) and others.

The digital environment as a space of communication in general, and especially in the youth environment, has had an impact on all generations of the 21st century but it has become decisive for generation Z. Canadian scientist D. Tapscott introduced the concept of "network generation" (NET-generation or N-generation) and described the network generation profile; The term “generation Alpha” appeared in 2005 thanks to the Australian scientist M. McCrindle (2020), who conducted research on the first digital generation of the 21st century. This generation and its trends are also considered by J. Palfrey and W. Gasser (2011). The basis for a number of modern studies was the well-known statement about the distinctive feature of generation Z, "that the new generation does not see any difference between virtual and real" and is associated with a new type of interaction - Phygital, as a union of two realities - physical and digital, and generation Z received the name phygital (Ignatjeva et al., The Screen Age). The phenomenon of phygital reality, studied by the scientific community, is accompanied by a change in value orientations and has the character of a cumulative innovation that launches the mechanism of a new group dynamics.

The classification model proposed by N. Howe and V. Strauss (1991) was revised and adapted for Russia by psycholinguist E. Shamis and psychologist E. Nikonov (Shamis, Nikonov 2016). Nevertheless, the Western classification works in Russian reality as well. Moreover, generation Z, which, thanks to the Internet, undergoes socialization and assimilation of social values and norms, both Russian and Western, is more similar than any other generation to their Western peers. Generation Z is currently a rather small group. The total number of Russian "digital natives" today is approximately 22 million people (for comparison: “millennials” outnumber “buzzers” by about 1.6 times) ([Population of the Russian Federation by sex and age 2022). But the presence of a special type of reflexivity, which is characteristic of Generation Z, which is involved in sociocultural and political processes, makes the study of cultural, social and civic capital (Bolshakov2013, pp.3012), socio-psychological characteristics of the mentality and media consumption (Vyugina 2017, Zherebyonkova 2020, Kasperovich 2019) of the new generation especially relevant. The available dispositive recommendations for changes in the field of education, marketing and media space, taking into account normative and ethical regulations, are still insufficient and require additions (Vyugina 2017, Scholz, Grotefend 2019, Schwieger, Ladwig 2018, Balmaeva, Shlegel 2019). In Russian literature, the issues of blended learning, flexible educational strategy and individualization of the educational process are considered by M.R. Miroshkina (2017), V.A. Mazilov (2018); factors that determine the specifics of generation Z are identified in the work of N.V. Bogacheva and E.V. Sivak "Myths about generation Z"(2019) and allow us to agree with the conclusions of J. W. Coates (2011) that the creation of curricula focused on the student's ability to effectively interact with the world is the key to success in the 21st century and the thesis M Kaku (2012) about the important role of motivated self-education in the learning process due to the clearly expressed orientation of generation Z to “useful” knowledge.

The world that previous generations pass on to generation Z is defined through the acronym VUCA (volatility, uncertainty, complexity, ambiguity).

What does VUCA mean for Generation Z? This means that we cannot prepare for a new future based on past mental models, top-down management, bureaucratic relationships, including the lack of cooperation of the secondary and higher education system with business, non-profit and public partners.

As Michael Matsuda (2021), a nationally recognized American leader in education, wrote about the world of the consequences of the COVID 19 pandemic back in April 2021, a year before the imposition of sanctions by the collective Western world against Russia, In the 21st century, known for its innovations, the pandemic will leave many VUCA potholes that educational institutions will have to build on, around or through. Educational institutions and students will be at the forefront of growing poverty, rising health care costs, rising unemployment and underemployment, racial tensions, environmental issues, lack of access to high-speed Internet, mental health, declining enrollment and other problems that cannot be foreseen.

3 Theoretical and methodological basis of the research

This article is the results of a longitudinal sociological study of the characteristics of generation Z, conducted in three stages: the first stage is 2019-2020, the second stage is 2020-202 and the third stage is 2021-2020. The tasks of each stage

were subject to specific research questions and the conjuncture of the social situation. So, for example, the tasks of the second stage research were related to the peculiarities of the adaptation of generation Z in the context of the COVID-19 pandemic.

The theoretical and methodological basis of the longitudinal study is social constructivism, based on the works of P. Berger and T. Lukman. The epistemological orientation of our study is interpretivism with its inductive logic of theory construction. The interpretation of the revealed social facts is based on the works of N. Howe, W. Strauss, D. Stillman, D. Tapskot, M. Prensky and E. Shamis.

The first stage of the longitudinal study was based on a random sample of 300 students (representatives of the older group of generation Z), and a focus group was conducted among representatives of generation Y to implement the design of the study to identify their assessment of their followers (representatives of generation Z). At the second stage, two questionnaires were designed and two questionnaire surveys were conducted on a sample of 201 university students in St. Petersburg. In 2021, a questionnaire survey was conducted among high school students aged fifteen to seventeen, i.e. the younger generation Z. The sample of schoolchildren was 231 respondents with a random sample design. The small sample size is related to the difficulty of accessing this age group. The purpose of the third stage was to conduct a comparative analysis of the behavioral attitudes of the older and younger age groups within generation Z. At all stages, the gender distribution of the sample was as follows: 45% of the respondents were women and 55% were men. This proportion of the samples correspond to the gender structure of Russian residents aged 15 to 30 (Population of the Russian Federation by sex and age 2022). The sample made up of residents of St. Petersburg (especially student youth) generally reflects the interests of student youth in Russia, since throughout history the northern capital has served as an attractor for the active and talented part of the population of our country. Among schoolchildren, there is also a high proportion of residents of the region, since over the past twenty years, population growth Petersburg is also at the expense of the regions. We use a list of students from each university of St Petersburg to form a random sample with the use of a random number table .

We understand the limitations of our study, as they may be related to the peculiarities of the factor of youth and socialization in the Russian environment. Also, please take into account that the term generation Z appeared in the sociological and psychological scientific literature long before the start of the special military operation in Ukraine.

4 Results of sociological research (2019-2022)

During the first stage of a longitudinal study of the characteristics of the age cohort of generation Z (2019-2020), the goal was to identify the value profile of generation Z. The data were encoded according to the binary principle: "yes" - 1, "no" - 0. The unit was assigned to the first of six selected behavioral attitudes (values).

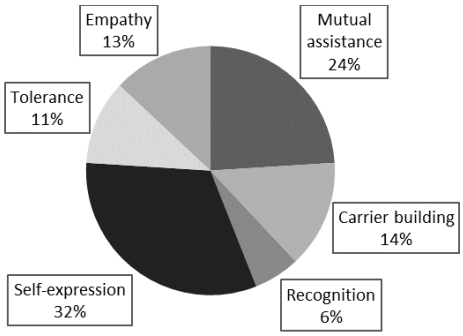

Figure 1. Behavioral attitudes of Generation Z

Based on a survey of 302 respondents, the following scale of values was identified: self-expression 32%, mutual assistance 24%, career building 14%, empathy 13%, tolerance 11%, recognition 6%. The resulting scale of values was tested on the basis of a random sample of 20 respondents (5 respondents from each university). As a result of the calculation, the same scale of values was obtained. The results of the empirical study confirmed the fact that the value of "self-expression" is the most important value for Generation Z. Obviously, this value is an expression of extreme individualism, but the following values in the scale are partly collectivist - these are mutual assistance (24%) and empathy (13%). Thus, the Russian generation Z differs in its behavioral attitudes from the American in Stillman's study in its collectivist attitudes (Stillman, Stillman 2018).

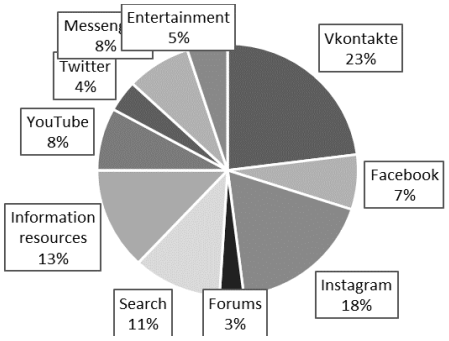

Figure 2. Rating of popularity of Internet resources among generation Z

Generation Z's tendency to express emotions over the Internet is an important feature of this generation and is expressed even more than in previous generations. This is the reason for the choice of information platforms (resources) on the Internet, which allow you to share your feelings through the visualization of everyday experience. As a result of a survey conducted in 2019, it was revealed that the most popular social networks are VKontakte (23% of respondents) and Instagram (18% of respondents). Both platforms are characterized by the use of photos to reflect their emotional state and mood, as well as the collection of likes, which are also important for Generation Z, which was revealed during the study. However, it should be noted that the characteristics of the personality of representatives of generation Z are more flexible and multifaceted than those of previous generations.

The buzzer defines itself situationally rather than once and for all in a predetermined way. Accordingly, the facets of his personality may change depending on the social environment and circumstances.

In the course of a questionnaire survey of buzzer students in 2020, emphasis was placed on identifying the features of the social construction of reality by Generation Z.

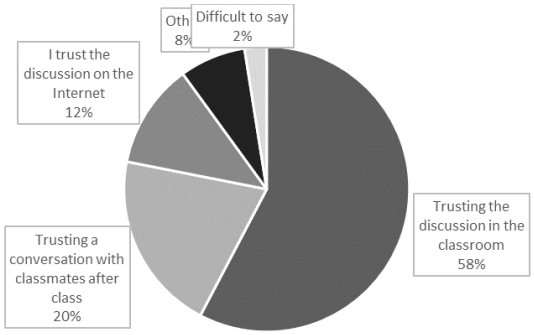

Figure. 3. Trust in the results of the discussion about euthanasia

The question of the admissibility of euthanasia was formulated in such a way as to take into account diametrically opposite points of view on the acceptability of this phenomenon. The acceptability of euthanasia was discussed both online and in the classroom. It was necessary to understand how the parties to the discussion identify the desired point of view. According to the results of the survey (Fig. 3), 57.7% of respondents will adhere to the results obtained during the discussion in the classroom, 20.4% of respondents will be guided by the opinion formed during the discussion of the problem with classmates after class. The remaining 11.9% of respondents will rely on the opinion formed during the discussion of this issue on the Internet. This question revealed the interesting fact that despite their exposure to digital technologies, buzzers will form their opinions based on interactions during actual discussions in the classroom or after class.

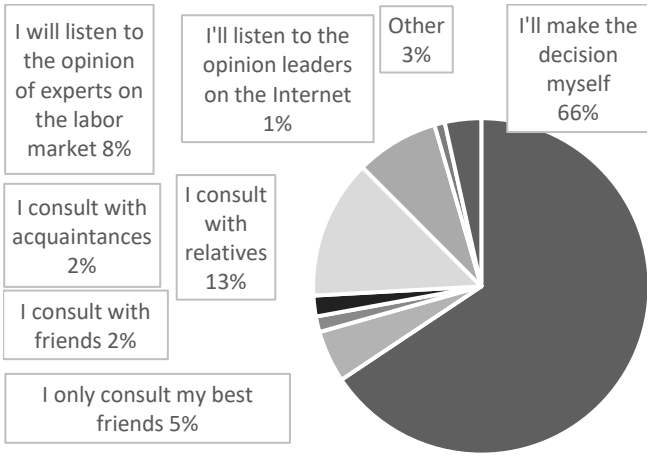

Figure. 4. Choosing a future career

One of the key issues in determining the features of the social construction of reality by representatives of generation Z is the question of choosing a future career after graduation and taking into account the opinions of significant others in this matter. According to the survey results presented in Fig. 4, the vast majority (66% of respondents) will decide on their own career without outside help. 13% of respondents will consult with relatives, 8% of respondents will listen to the opinion of experts in the labor market, 5% of respondents will consult with best friends, 2% of respondents will listen to the opinion of all those who fall under the category of friends in general, and only 1% of respondents will turn to leaders for an answer opinions. Thus, it can be seen that the emerging generation Z is a pronounced generation I with individualistic inclinations, confidence in the correctness of their attitude and ways of constructing reality. However, as a study conducted in 2019-2020 showed, the Russian generation Z is not overly individualistic, as it contains collectivist values such as mutual assistance and empathy in its value profile, which is a feature of Russian society as a whole.

The study hypothesized that the tendency to blended learning is due to a number of factors that were to be identified in the course of the study. In order to identify these factors, a factor analysis was carried out using the SPSS statistical package. The data of the questionnaire were encoded according to the binary principle: 1 - the quality is pronounced, 0 - the quality is not expressed or is weakly expressed. For factor analysis, data from a student survey conducted in the fall of 2020 at the height of the COVID -19 pandemic were coded.

	Components				
	1	**2**	**3**	**4**	**5**
Satisfaction with the content of disciplines	.708				.306
The tendency to self-development	.636				
Satisfaction with the educational process	.583	.306		.373	
Work in the specialty after graduation	.537				
Choice of an individual trajectory		.753			
Satisfaction with learning during the 2020 pandemic		.638		.339	
Satisfaction with state educational policy		.625			
Cooperation of universities with employers			.822		
The impact of the quality of education on getting a job			.771		
Group work in the classroom				.762	
Using sources recommended by the teacher				.580	
Formation of personal contacts in the learning process					.836

Table 1. Matrix of components after rotation

To check the suitability of the data for factor analysis, the KMO sample adequacy test and the Bartlett sphericity test were used. The KMO criterion is 0.601. It shows that factor analysis is applicable to the selected data. The sphericity criterion has a statistical significance at the level of 0.001, which means that the correlation in the correlation matrix is statistically significantly different from zero, and this matrix is suitable for factor analysis.

Factor analysis revealed five latent factors (Table 1). The variables included in each factor must have a factor load of at least 0.4. Each of the five factors contains factor loadings with a positive sign, which is important in regression analysis based on the selected factors.

Let's designate the first factor as "Professional orientation". It includes the following variables "Satisfaction with the content of disciplines", "Tendency towards self-development", "Satisfaction with the organization of the educational process", "Work in the specialty after graduation".

Let's designate the second factor as "Freedom of choice", which is determined by the internal and external environment of the educational process. This factor includes the variables "Choice of an individual trajectory", "Satisfaction with education during a pandemic", "Satisfaction with the state educational policy".

Let's designate the third factor as "Unity of the purposes of university and business". It is characterized by the interaction of universities and employers, i.e. linking education with employment. This factor consists of the variables "Cooperation between universities and employers", "Influence of the quality of education on getting a prestigious job".

The fourth factor is "Professional Communication". It characterizes the organization of the educational process. The factor consists of the variables "Group work in the classroom" and "Use of sources recommended by the teacher".

Let's designate the fifth factor as "Soft skills". It consists of one variable, labeled "Formation of personal contacts in the learning process."

The factors identified during the factor analysis are standardized values with a mean equal to zero and a standard deviation equal to one. There are no outliers in them, so we can use these factors to build a logistic regression. This model will allow us to identify significant factors that have a decisive influence on the choice of blended learning. The logistic regression model will be built using the R programming language, whose statistical packages improve the accuracy of calculations and visualization of results.

Predictors	**Odds**	**Standard errors**	**z scores[1]**	**Significance level**
Intercept	1.75505	0.22879	7.671	1.71e-14***
Professional orientation (FAC1_1)	0.06906	0.18857	0.366	0.71419
Freedom of choice (FAC2_1)	0.67932	0.19715	3.446	0.00057***
Unity of Purposes of the University and Business (FAC3_1)	0.01578	0.20304	0.078	0.93804
Professional Communication (FAC4_1)	0.52901	0.21008	2.518	0.01180*
Soft skills (FAC5_1)	-0.21121	0.20531	-1.029	0.30358

Table 2. Results of a logistic regression model for binary data

[1] The Wald Z-test is an analogue of the Student's T-test for testing parameters in linear regression .

The results of calculating the logistic regression are shown in Table. 2. They show that only two factors are statistically significant ("Freedom of Choice" and "Professional Communication"). Based on these data, a logistic regression equation can be written.

Probability of using blended learning ~ Binomial (n =1, πi)

Expectation E (Efficiency blended learning)= pi

The logit link function converts probabilities to logits when interpreting regression coefficients.

$$\mathrm{Ln}\left(\frac{\boldsymbol{\pi i}}{1-\boldsymbol{\pi i}}\right)= \eta i$$

FAC2_1 +0.54*FAC4_1 (1)

The logistic regression equation shows a direct relationship between the factor FAC 2_1 ("Freedom of choice") and the likelihood of using blended learning , as well as between the factor FAC 4_1 ("Professional communication") and the dependent variable. Having the highest coefficient, the “Freedom of Choice” factor has the greatest impact on the dependent variable “Probability of using blended learning ". On fig. Figure 5 presents graphs that show the relationship between the selected factors and the dependent variable. When interpreting the visual reflections of the relationships, we can conclude that when the factor changes by one positive standard deviation, the probability of using the blended learning model learning is increasing. However, for both factors, the function saturates between the first and second standard deviations. This trend means that significant investments in this learning model become less effective at a certain stage.

When moving through the graphs in the opposite direction, the probability of using the blended learning model learning is decreasing.

The interpretation of the logistic regression coefficients allows us to conclude that when the factor FAC 2_1 (“Freedom of choice”) changes by one unit, the probability of using the blended model learning increases 1.96 times. With an increase in the FAC 4_1 (Professional Communication) factor by one unit, the probability of implementing the blended model learning increases by 1.71 times. To obtain these results, we raise the Euler number (2.71) to the power of the coefficient at the independent variable.

This logistic regression equation shows that the probability of using the blended model learning in training, the factors of freedom of choice and professional communication are of decisive importance. At the same time, students do not strive to completely switch to distance learning, wanting to preserve the format and traditional classes in the classroom under the guidance of a teacher and in live communication with the group. Given the pragmatism of generation Z, it should be noted that learning for them is an opportunity to acquire practice-oriented knowledge that can be used here and now.

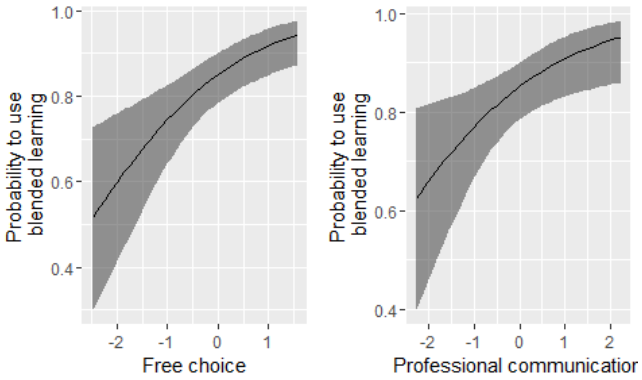

Figure. 5. Graphs of dependence of the probability of using the blended learning model on factors

A significant part of the study was a survey of the younger age stratum of representatives of generation Z (schoolchildren), conducted in 2021. Schoolchildren were asked the same questions as their older comrades in 2020. The comparative study made it possible to identify the intragenerational features of the social construction of reality by representatives of generation Z. When studying schoolchildren, we are dealing with people who have been in digital interaction since early childhood. This leaves a certain imprint on the formation of their life world and their ability to work with large data flows.

The analysis of the results of the questionnaire survey included a comparison of the age groups that make up Generation Z. When comparing the answers of the representatives of the phygital-generation belonging to the school and student age, one of the main objectives was to identify such differences between these age strata, which are socially conditioned, and not arisen as a consequence of age changes, typical for any generation.

Representatives of the younger age stratum of Generation Z demonstrate more pronounced individualistic and pragmatic value orientations. This is evidenced, in particular, by the answers to the question about whether respondents are ready to download a book or a movie from a pirated free resource in **Figure 5.** The unacceptability of such behavior was stated by 5.3% of students and 12.1% of schoolchildren. In case of emergency 41.3% of students and 43.7% of schoolchildren will use the "pirated" content, and 5.3% and 12.1% of respondents respectively will do so in any case. These results are a consequence of the peculiarities of digital socialization of the younger representatives of Generation Z, who feel themselves not only users, but also fillers of the Internet. If in the Internet of the first generation the user could only be a user in the proper sense of the word, then every modern schoolchild has experience in creating content and when answering the above question inevitably puts himself in the place of the author, who will not be paid a fee.

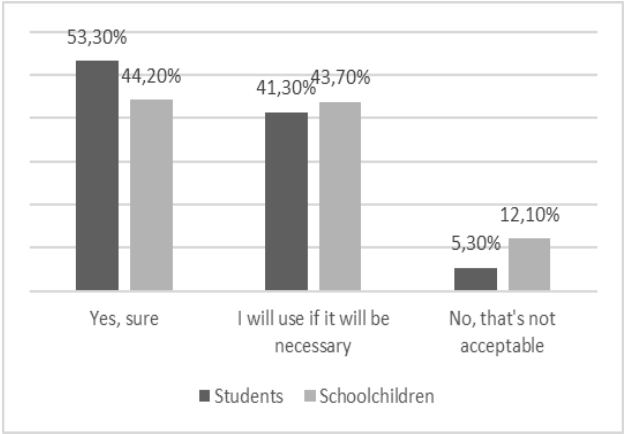

Figure 5. Respect for intellectual property rights

Other evidence of schoolchildren's individualistic orientations are the answers to the question of whose opinion is important to them when solving problems through social networks. 74% of respondents in both age groups named their own opinion, but taking into account the opinions of others, as the most important. The opinion of interaction participants is considered most important by 13% of students and 10% of schoolchildren, and only their own opinion is considered most important by 13% of students and 16% of schoolchildren. The considered tendency of individualization of younger representatives of digital natives is a consequence not only of socialization in cyberspace, but also of the spread of coronavirus infection. The transfer of schoolchildren to distance learning and detachment from direct communication with peers contributed to the fact that schoolchildren began to rely more on their own opinions.

When studying the consequences of digital socialization of younger members of Generation Z, we obtained extremely interesting results in the area of professional motivation in **Figure 6**. The main reason for choosing a career for 40.7% of students and 39% of schoolchildren was the desire to earn a lot of money and quickly, and the availability of current jobs in the economy determined the career choice for 29% of students and 27.3% of schoolchildren. At the same time, mass culture trends (prestigious professions) were the deciding factor for 29.3% of students and 33.3% of schoolchildren. The influence of state media on the career choice of Generation Z is at the level of statistical error. These results indicate a somewhat different understanding of their pragmatic interests by the younger representatives of the phygital generation. As noted above, they perceive themselves as creators of Internet content and true digital natives. They appreciate the popularity of the Internet "hype" and believe that such popularity can be quickly turned into real money. These schoolchildren are motivated by the success stories of young people who have gained financial success this way.

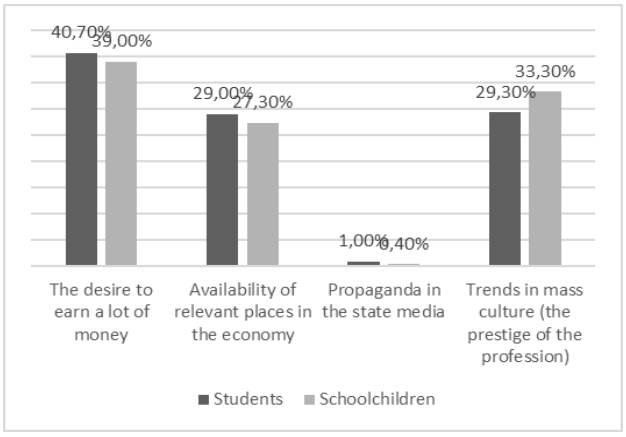

Figure 6. Reasons for choosing a career

Representatives of Generation Z were also asked about their attitudes toward trolling online in **Figure 7**. 30.3% of students and 26.8% of schoolchildren consider the practice of trolling acceptable with respect to any person, and 23.3% of students and 18.2% of schoolchildren consider it acceptable with respect to a categorically negative person. 46.3% of students and 55% of schoolchildren consider trolling to be unacceptable towards anyone. The negative attitude of schoolchildren to trolling practices is caused by their greater involvement in virtual space in general and in virtual communities in particular. Representatives of virtual communities have to moderate themselves and set the rules of behavior in the community. These circumstances give rise to self-organization on the Internet and contribute to a greater orientation of the younger representatives of Generation Z towards ethical norms.

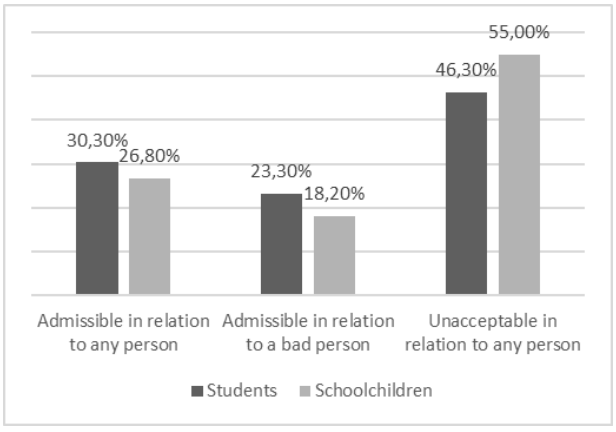

Figure 7. Attitude towards trolling

Similar results were obtained when respondents were asked how they define the boundaries of what they can do on the Internet. 16.7% of students and 22.9% of schoolchildren define the boundaries of what is allowed on the basis of the law, while moral norms are decisive for 71.3% of students and 69.3% of schoolchildren. 12% of students define the boundaries of what is allowed. The younger members of the digital generation's orientation toward the law is a consequence of the increasing formalization of social relations. The introduction of digital technology also contributes to this, allowing the state to better control each individual. This will probably lead to the fact that in Russian society the notion of "to decide according to justice" will gradually disappear and people will turn more often to formal norms and institutions.

Generation Z students are significantly more aware of the purpose of their stay on the Internet (**Figure 8**). 28.3% of respondents use it to communicate, and 33.7% use it to search for information. At the same time, among schoolchildren only 1.7% of the respondents use the Internet for communication and 6.5% for information search, and the vast majority (91.7%) could not identify for what purposes they use the Internet. This result indicates that older members of Generation Z are more reflective and is a natural consequence of growing up.

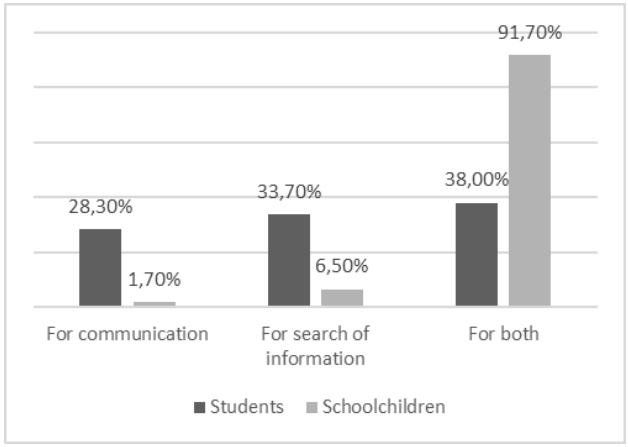

Figure 8. Purposes for using the Internet

The survey resulted in the following answers to the question "How much time do you spend online?" (**Figure 9**) 36.10% of students responded that they spend from 4 to 6 hours online, while among the schoolchildren of this cohort 39.40% spend from 4 to 6 hours online. Another part of respondents spend on average 1 to 3 hours online per day. The answers were distributed as follows: 31.40% of respondents among students and 34.20% among schoolchildren. The option "I spend all my time, except for sleep, on the Internet" was chosen by 7.70% of students and 9.10% of schoolchildren. Thus, it can be argued that the lower end of Generation Z tends to increase the time spent on the Internet.

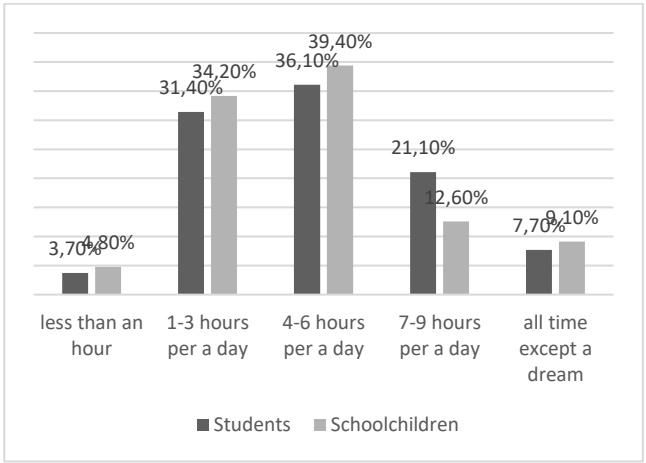

Figure 9. Amount of time spent online

Also during the survey of the younger and older age range it was found that the age of starting to use the Internet and gadgets is almost the same for both age groups. 1% of students and 1.7% of schollchildren started using the Internet

before the age of 3. Between the ages of 3 and 5 years, 8% of students and 3.9% of schoolchildren began using the Internet. Between the ages of 6 and 8, 36% of students and 37.7% of schoolchildren joined the Internet. Slightly more than half of the students and schoolchildren (55% and 56.8% respectively) started using the Internet and gadgets at the age of 9 to 12 years old.

In addition, we consider it necessary to cite data on the propensity to use an anonymous style of communication among representatives of Generation Z in different age categories, because it will be an important point in the construction of relations between young people and the authorities represented in social networks. Thus, when asked "How do you prefer to communicate online?" 3.30% of the surveyed students and 4.80% of the surveyed schoolchildren chose the option "anonymously". The willingness to communicate openly and under their own name was expressed by 85% of the students. Among schoolchildren, the percentage of respondents willing to communicate under their own name is lower and is 73.20%. The trend revealed by the survey shows that the older group of Generation Z is more open to communication and ready to take responsibility for their behavior in social networks, as they have a greater tendency to communicate under their own name, as opposed to the representatives of the lower bound of this cohort.

When asked about the importance of approval of your words by others, 20.30% of the students and schoolchildren surveyed said that they did not care. 57.30% of students chose the option that they care about the approval of close friends. This figure is lower for schoolchildren and amounts to 46.30% of respondents. Interestingly, for schoolchildren the opinion and approval of close friends is much more important than for students. This ratio is 29.90% among surveyed schoolchildren and 13.30% among surveyed students. Obviously, the influence of family on representatives of the lower bound of Generation Z is stronger than on student youth, which is rather connected not with internal differences between age groups, but with the features generally characteristic of growing up. The option of the importance of word approval by online acquaintances was chosen by 9% of students surveyed and only 1.3% of schoolchildren surveyed. The importance of teachers' opinions was selected by 2% of schoolchildren. Thus, for both age groups of Generation Z the support of "others" is important, but it is "close others", so it is necessary to strengthen the work of youth policy, focusing not only on young people, but on their families.

Finally, let's turn to the last question in this block. This question is "Is it important for you to rate your actions on the Internet (e.g., likes)? The option "Like" and other ways of approving actions on the Internet is very important for 5.3% of students and 3.9% of schoolchildren. 45.30% of students chose the answer option "Yes, rather important." The proportion of schoolchildren who chose this option was 32.9%, i.e. lower than in the older age group of this generation. Among schoolchildren there is a very high proportion (63.20%) of those who do not care about likes, reposts and other ways of approving online. The share of students is much lower at 48%. While "likes" are still important to schoolchildren, the lower end of Generation Z is more individualized. Therefore, the trend towards individualization within Generation Z as a new age cohort gaining more and more influence in society should be taken into account when developing youth policy, as well as building strategies for the behavior of government representatives in social networks and their moderators.

The presented results allow us to characterize the younger representatives of Generation Z as pragmatists and individualists who respect moral norms and state laws. They are even more densely involved in interaction in the digital space than the current students. The social characteristics of the described age group within Generation Z are similar to the corresponding characteristics of representatives of Western society more than representatives of any other Russian generation.

5 Results of factor analysis of the propensity to accept pluralism of opinions by schoolchildren

Factor analysis will be used for the survey data of schoolchildren (the lower bound of Generation Z), since students were investigated by us in previous publications. To identify the latent factors that unite the observed variables characterizing schoolchildren’s propensity to accept pluralism of opinions, a factor analysis was performed using the SPSS statistical package. For factor analysis, variables were converted to binary according to the principle of 1-the quality being studied is present and in the focus of the researcher's attention, and 0-the quality being studied is weakly expressed or absent. The database for the factor analysis was formed on the basis of a survey of schoolchildren in October 2021.

Pre-testing of the data showed that the data can be used for factor analysis, taking into account the values of KMO (Kaiser-Meyer-Olkin criterion) and Bartlett's sphericity criterion.

Factor analysis revealed five latent factors influencing schoolchildren's tendency to accept pluralism of opinions in the process of social construction of reality. Each factor included a variable with a factor load above 0.4.

The first factor can be designated as "Abstract Thinking Ability and Specificity of Decision Making" because it includes the observed variables "Representation of Abstract Concepts", "Advice for the MNC Unit".

The next factor can be defined as "Degree of immersion in the problem". It includes such variables as "Ways of preparing the report", "Willingness to discuss serious topics".

The third factor can be designated as "Adoption of new values". This factor includes the observed variables "Attitude towards old ideologies", "Decision to use light drugs".

The fourth factor "Differentiation of Personal and Public" is based on such observed variables as "Attitude towards extremist slogans of a friend on the Internet", "Willingness to share personal problems".

The fifth factor "Solution of important problems" consists of the variables "Career choice", "Choice of attitude towards euthanasia".

The data used in the identified factors were obtained as a result of factor analysis and represent standardized values

with a mean of zero and a standard deviation of one. Thus, the factor analysis revealed the main factors influencing the propensity of the younger generation Z to accept pluralism of opinion. These are the ability to think abstractly, the degree of immersion in the problem, the ability to accept new values, the differentiation of the personal and the public, solving important problems. The ability of generation Z to evaluate different opinions and to think independently should be taken into account when developing youth policy directions. Thus the presence of a special type of reflexivity, which is characteristic of Generation Z, which is involved in sociocultural and political processes, makes the study of cultural, social and civic capital (Bolshakov 2013, pp.3012), socio-psychological characteristics of the mentality and media consumption (Vyugina 2017, Zherebyonkova 2020, Kasperovich 2019) of the new generation important.

6 Discussion

This study has clarified various aspects of digitalization, a global process that takes place in different social environments and is especially significant in the "digital natives" generation. Generation Z is able to simultaneously interact in different worlds (real and virtual) as a result of socialization, while members of other generations often need help and "learning". In the title of the article there is the concept of "communicative competence", associated in the modern world with the ability to transcend established networks of interaction and build connections in both the digital and real worlds.

The study showed that these worlds are unequal for Generation Z - the real world is still the decisive word in making decisions and establishing trusting relationships. However, it is worth noting that the idea of the phygital generation refers more to the process than to the essence: we can only capture trends, but not measure nooms. It is to this end that the results of a survey of the middle and younger cohorts of Generation Z were compared, which shows that some social processes are slow to change. Schoolchildren claim that fashion matters more to them than to students, they are less prone to trolling, they spend more time on the Internet, and they trust the law more than established norms of morality.

If we talk about the essential aspects, then, perhaps, it is necessary to refer, first of all, to the autonomy of the individual. This directly follows from the answers of the respondents: 74% of the respondents in both age cohorts, when asked about making decisions about certain problems important for them, said that their own opinion, but taking into account the opinions of others, would be decisive in answering the questions posed. This answer is significant in the sense that the vast majority of the first digital generation does not distance themselves from society, but does not belittle their own point of view either. They simply consider their own opinion (as well as their self) to be more important than others. It could be argued that those who assert their independence are often the most dependent. This is certainly true. In this case, members of Generation Z would like their opinion to play a decisive role. Considering that the authors rely on social constructivism as their primary methodology, it follows that the desire of young people will sooner or later find real form and expression.

A significant factor that narrows the theoretical significance of the work is its sample - the residents of St. Petersburg. It is possible that the process of digitalization takes place in different forms and at different speeds in other regions and countries. If the results of the study allow, in a sense, to judge the whole generation of Russian "zoomers" (students come to St. Petersburg from different regions; besides, it would not be an exaggeration to call St. Petersburg and Moscow students early adopters), the social trends in other countries can be learned only from other studies, which makes the comparison process difficult. In any case, the authors believe that research into the "tomorrow" of Russian society is of great importance.

7 Conclusion

The authors presented the results of a three-year longitudinal study on Generation Z and its specific feature - free orientation in the digital space. During the study various questions were raised, such as peculiarities of Generation Z socialization in the virtual world, the attitude of "zoomers" to online learning, tendencies of the process of digitalization in the generation cohorts, as well as the willingness of young people to accept pluralism of opinions.

The value basis of socialization of Generation Z is self-expression. We must assume that social networks, often used by "zoomers" (especially Instagram) have had a significant impact on this process. Self-expression implies socialization "at arm's length", and only outside the postulated personal space for generation Z the usual process of socialization begins, including empathy, mutual assistance, career, etc. This aspect is repeatedly repeated by respondents when answering various questions.

The value basis of "arm's length" socialization is demonstrated, in particular, by the factors influencing the choice of online learning by representatives of Generation Z. The key factor was the freedom to choose this trajectory, including such variables as the choice of individual trajectory, satisfaction with education during the pandemic, and satisfaction with state educational policy. The rhetoric of self-expression is fully preserved: my choice, my satisfaction, my opportunity for self-actualization, freely chosen rather than imposed, and only after self-expression does the substantive discourse begin: what sources will be used, how classes will be constructed, etc.

Comparative analysis of the responses of representatives of different cohorts of Generation Z revealed an interesting feature that can be called "institutionalization of the Internet", i.e. the establishment of certain rules of use and interaction online. Schoolchildren are less inclined to use "pirated" content, to a greater extent consider trolling an unacceptable phenomenon, are more inclined to believe in the need for legal regulation of the Internet, and spend more time on the Internet. In other words, schoolchildren are more likely than students, and apparently even more likely than members of older groups, to attach importance to life on the Internet and to insist on its orderliness. If we talk about other

differences in schoolchildren's answers, they are not so much about digitalization as about everyday practices, social attitudes, and goals. For example, schoolchildren more often tend to use anonymous pages on social networks (presumably, this is also due to the need to express themselves without the approval of parents and teachers). Schoolchildren more often than students asserted the importance of choosing a prestigious profession rather than one that brings in money (this probably has to do with a lack of experience in managing money independently).

Factor analysis of schoolchildren' propensity for pluralism of opinions revealed such factors as the ability to think abstractly and the specificity of decision-making, the degree of immersion in the problem, the acceptance of new values, the differentiation of personal and social, and solving important problems. It is likely that a more detailed study will again reveal the "arm's length" pattern of multiple viewpoint acceptance: pluralism of opinion occurs if and only if my opinion is more important than the others, and vice versa.

The authors of the study believe that the Internet and virtual space have a more significant impact on socialization than is commonly thought. The Internet affects the system of values, the nature of communication, the way people work and learn. Perhaps the Internet makes people more intelligent and more lonely at the same time. Perhaps high technology will destroy social space in the usual sense of the word altogether. Following schoolchildren and students, other age groups are embarking on the path of "arm's length" socialization or voluntarily choosing self-isolation. In any case, the study of the influence of the Internet on modern society is of great importance, and I would like to believe that this research has made its contribution to the solution of a complex problem.

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Credit

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