Cyber Socialization of Russian Youth: Risks of Professional Self-determination

Sergey L. Lenkov
Institute for Childhood, Family and Upbringing Studies of the Russian Academy of Education
Moscow, Russia
new_psy@mail.ru

Nadezhda E. Rubtsova
Department of General and Industrial Psychology
Russian New University
Moscow, Russia
hope432810@yandex.ru

***Abstract*—This study examined the role of cyber socialization in various kinds of professional choices (field, profession, job, university). The sample consisted of 605 employed individuals, 181 males and 424 females, who graduated from university in the period from 2003 to 2017. We used the «Utrecht work engagement scale (UWES)» and a biographical questionnaire to assess the correctness and stability of professional choice, the importance and effectiveness of cyber technologies in it. The results of ANOVA showed that the graduation time factor increased the role of cyber socialization in professional self-determination but the efficiency of the appropriate application of cyber technologies remains insufficient in many aspects. For example, the cyber technologies importance factor increases the correctness of the university choice but reduces work absorption, a professional motivation indicator; in the group with high cyber technologies importance, the time factor increases the correctness of the job choice but reduces the correctness and stability of professional choice. Thus, cyber socialization gives certain advantages in matters of professional self-determination but does not overcome emerging negative trends which results in new risks associated with the fact that the widespread use of cyber technologies does not always help to make a correct and sustainable professional choice.**

Keywords—cyber socialization, cyber technologies, youth, professional self-determination, professional choice, psychology

I. INTRODUCTION

Various aspects of cyber socialization of young people in recent years have been widely studied in psychology, sociology and other sciences. At the same time, in addition to the term “cyber socialization” (e.g., see [1, p. 123]), other related concepts are also widely used:

- cyber socializing [2], socializing in cyberspace [3];
- online socialization [4], online socializing [5] and online social adaptation [6];
- virtual socialization [7], Internet socialization [8], media socialization (see [9]), digital socialization [10], etc.

Even more often, such works do not directly use the term “socialization”, although they are aimed at studying it (see, for example, [11], [12]). At the same time, these studies mainly focus on general (not related to professional activity) problems of cognitive and personal development (e.g., acquisition of digital competence), risk of distress, antisocial behavior (bullying, trolling, suicidal tendencies, gaming addiction, etc.), involvement in destructive communities, etc. Empirical studies of the influence of cyber socialization on professional self-determination remain rare. As a result, there is a paradoxical situation: on the one hand, new tools and instruments are being developed to facilitate professional self-determination based on modern cyber technologies:

- computer games based on virtual reality technology (e.g., “Job simulator”, see [13]);
- theme parks (e.g., KidZania [14]);
- a variety of mentoring and tutoring programs (e.g., in the projects SMART [15] or “The Peer Project” [16]), internships (e.g., [17]), volunteering (e.g., [18]), gap year (e.g., [19]);
- tools and technologies for professional self-determination, career choice, selection of educational institution, job search, etc. (e.g., [20]-[22]).

On the other hand, there is no strong empirical evidence of the effectiveness of such tools and technologies. Moreover, little is known about professional self-determination among youth, as well as about the current trends and the role of modern cyber technologies.

The current study investigated the role of cyber technologies in the implementation of various types of professional choice, namely the choice of a field, a profession, a job and an educational institution. We addressed the following research questions:

- what are the trends for correctness and stability of professional choices of university graduates who completed their studies in different periods of time over the past 15 years?
- what is the current situation for professional self-determination in individuals who graduated in 2017 and worked for at least 1 year?
- what is the effect of cyber-socialization on professional self-determination and what is the cross-sectional trend over the past 15 years?

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II. METHODS

A. Conceptual Framework

In the current study, we understand socialization of young people as a process aimed at personal development and assimilation of social experience, norms and rules of life in the society, basic values. In turn, we consider cyber socialization as a component of socialization, due to the use in the processes of socialization (including social communication) of a variety of modern information technologies related to computers and computer programs, the Internet, social and other computer networks, telecommunication, virtual reality technologies, etc. For brevity, we will call such technologies cyber technologies.

Professional self-determination is a process of personal development associated with the accumulation of knowledge about the world of work and their place in it, with the development of personal attitude to professional activity, with the assimilation of relevant professional values and requirements, with the development of appropriate abilities and skills, and ultimately – with the preparation and implementation of various types of professional choice.

An important indicator of mature professional self-determination, as well as of the correctness of the professional choice, is the internal professional motivation associated with the interest of a respondent to the performed professional activity, to its process and result. Indicators of this motivation, in particular, include various characteristics of work engagement (see below).

B. Methods of Studying Professional Choice

Data on professional choice were obtained using a standardized biographical questionnaire developed as part of the study. The questionnaire allowed collecting data on age (number of years), sex (male or female), work experience (number of years) in total and after graduation, relevant professional experience (number of years) – work experience in the field of professional training received at the university, in total and after graduation. The main part of the questionnaire included a subjective estimation of the degree of agreement on the 5-point Likert scale (1 – low, 2 – rather low, 3 – medium, 4 – rather high, 5 – high) with the statements assessing:

- correctness of the professional choice in relation to the field, profession, university and job;
- the importance (degree of use) of cyber technologies in the implementation of these choices;
- adequacy of cyber technologies in the implementation of these choices; adequacy was understood as the extent to which cyber technologies were useful, to which it was easy to find reliable information, etc.

To normalize the obtained data, the initial values obtained on the 5-point scale were translated into a scale with only three gradations based on the analysis of frequency distributions: low (about 20% of the sample), medium (about 60%) and high (about 20%). Of course, with such a small number of initial gradations (only 5) it was not possible to achieve a perfect accordance with the normal distribution, but at least it increased significantly due to this transformation (about data normalization, see [23]).

In addition, in order to identify the stability of professional choice, individuals were asked to indicate the number of different choices of a field, a profession and a job.

C. Work Engagement

Indicators of work engagement were determined using the Russian version of the short form (9 items) of the questionnaire «Utrecht Work Engagement Scale (UWES-9)» developed by W. Schaufeli and A. Bakker [24, p. 57]. The statements of the questionnaire allow to assess work-related feelings. The subject evaluates their frequency on a 7-point Likert scale from 0 (never, not once) to 6 (constantly, every day). The questionnaire allows to determine the following indicators: vigor, dedication and absorption. This questionnaire has a high validity and reliability confirmed in different languages and in large-scale cross-cultural studies (e.g., [25], [26]) including its Russian version (e.g., [27]).

D. Sample and Procedure

The sample consisted of 605 employed graduates, with year of graduation ranging from 2003 to 2017 and at least 1 year of total work experience. The sample included 181 male (29.9%) and 424 female (70.1%) aged from 22 to 45 years (M = 31.29, SD = 4.33), with total work experience ranging from 1 to 25 years (M = 7.91, SD = 4.48) and relevant professional experience ranging from 0 to 15 years (M = 4.38, SD = 4.56).

The study was conducted between September 2018 and February 2019. Respondents filled in the questionnaire either in the presence of the researcher or remotely by sending their scanned results by e-mail.

E. Data Analisys

Single-factor analysis of variance (one-way ANOVA) was the main method of data analysis in this study including related supporting procedures (checking the normality of distributions and homogeneity of variances, multiple comparisons, etc.).

F. Factors and Variables

After initial data processing, the factors and dependent variables considered in the study were identified. The influence of two factors was revealed:

- the year of graduation factor or, briefly, the time factor (TF) taking values according to the cohorts allocated by year of graduation (1 for 2003-2007, 2 for 2008-2012, 3 for 2013-2017);
- the cyber technologies factor (CTF) representing the average importance of cyber technologies for various types of professional choice (field, profession, university and job) and taking values according to the selected levels of its importance (1 for low, 2 for medium, 3 for high).

Note that, although the study considered the influence of these two factors, the use of two-factor analysis of variance (two-way ANOVA) was not feasible, since:

- in terms of content, there was no statistically significant joint influence of these factors, and the results in general did not allow for a clear psychological interpretation;

- within the formal mathematical aspect, multidimensional criteria (e.g., the Pillai's trace) showed the incorrectness of applying two-factor analysis of variance to the obtained data set.

This situation, in our opinion, results from the presence of a complex nonlinear relationship between the two factors, with dominant influence of the time factor on the cyber technologies factor. As a result, the effect of these factors on professional self-determination was assessed separately using one-way ANOVA. However, meaningfully it is not quite so: by splitting the sample into cohorts by the first factor and into groups by the second (see below), we were able to study the influence of one factor at a fixed level of another and then qualitatively compare the results obtained for different levels. Thus, to a certain extent, we also considered the simultaneous influence of these two factors.

We examined the influence of these factors on the following variables:

- the percentage of specific work experience (PSWE), defined as the percentage ratio of work corresponding to individual's education to the total work experience (in years);
- the percentage of specific work experience after graduation (PS-AG) defined as the percentage ratio of work corresponding to individual's education after graduation to the total work experience after graduation;
- the correctness of the choice with levels (gradations) "low", "medium" and "high", for the choice of a professional field (F-CC), a profession (P-CC), a university (U-CC), a job (J-CC);
- the importance of cyber technologies in choosing the field (F-ICT), profession (P-ICT), university (U-ICT), job (J-ICT), with the same levels;
- the adequacy of cyber technologies, with the same gradations, for choosing a professional field (F-AD), a profession (P-AD), a university (U-AD), a job (J-AD), as well as the average value of adequacy of cyber technologies (M-AD);
- the stability of choice of the field (F-CS), profession (P-CS), job (J-CS) defined as the total work experience (in years) divided by the number of different choices, respectively;
- indicators of vigor (VGR), dedication (DDC) and absorption (ASR) obtained from the UWES questionnaire and representing the attitude to the performed professional activity.

III. Results and Discussion

A. Cohorts and Groups

To estimate the influence of the time factor, the sample was divided into three cohorts by year of graduation. To assess the effect of cyber socialization, each cohort was further divided into groups according to the degree of importance of cyber technologies (low, medium, high) in the processes of professional choice. This division was carried out on the basis of the analysis of frequency distributions of the average importance (defined as the average value of importance in the choice of a professional field, a profession, a university and a job) of cyber technologies in professional choice so that the resulting division into groups was close (as far as the empirical data allowed) to the normal distribution. The cohorts and groups are presented in table I.

TABLE I. The Composition of the Cohorts and Groups

Cohorts	Groups[a]	*n*	*Males/ females*	M (SD) for age
Cohort 1 (2003-2007)	1	55	15/40	36.3 (1.88)
	2	98	26/72	36.2 (1.90)
	3	45	16/29	35.7 (1.67)
	Total	198	57/141	36.1 (1.85)
Cohort 2 (2008-2012)	1	56	18/38	30.7 (1.62)
	2	122	43/79	31.4 (1.96)
	3	24	7/17	31.2 (2.28)
	Total	202	68/134	31.2 (1.93)
Cohort 3 (2013-2017)	1	52	11/41	27.0 (2.06)
	2	104	31/73	26.7 (2.50)
	3	49	14/35	26.5 (1.72)
	Total	205	56/149	26.7 (2.23)
Overall sample	1	163	44/119	31.4 (4.23)
	2	324	100/224	31.4 (4.32)
	3	118	37/81	31.0 (4.52)
	Total	605	181/424	31.3 (4.33)

[a.] Groups are distinguished by the importance of cyber technologies (low, medium high); in this case, groups for cohorts are simultaneously subgroups allocated by the graduation time for groups by the importance of cyber technologies: for example, Group 1 for Cohort 1 is a Subgroup 1 (2003-2007) for Group 1 (low) on the importance of cyber technologies (see Table V).

As a result:

- Cohort 1 included 28.8% of males and 71.2% of females with a total work experience ranging from 4 to 25 years (M = 12.8, SD = 2.41) and relevant professional experience ranging from 0 to 15 years (M = 8.2, SD = 5.32);
- Cohort 2 included 33.7% of males and 66.3% of females with a total work experience from 2 to 15 years (M = 8.1, SD = 2.15) and work experience in the specialty from 0 to 10 years (M = 4.0, SD = 2.79);
- Cohort 3 included 27.3% of males and 72.7% of females with a total work experience ranging from 1 to 10 years (M = 3.0, SD = 1.53) and relevant professional experience ranging from 0 to 9 years (M = 1.1, SD = 1.22).

At the same time, each cohort, as well as the overall sample, was divided into groups according to the importance of cyber technologies. In the overall sample:

- Group 1 included 27.0% of males and 73.0% of females with a total work experience ranging from 1 to 17 years (M = 7.9, SD = 4.62) and relevant professional experience ranging from 0 to 15 years (M = 4.7, SD = 4.76);
- Group 2 included 30.9% of males and 69.1% of females with a total work experience ranging from 1 to 25 years (M = 8.0, SD = 4.37) and relevant professional experience ranging from 0 to 15 years (M = 4.4, SD = 4.51);

- Group 3 included 31.4% of males and 68.6% of females with a total work experience ranging from 1 to 16 years (M = 7.8, SD = 4.59) and relevant professional experience ranging from 0 to 15 years (M = 4.0, SD = 4.44).

B. *The Influence of the Time Factor*

Table II shows the results of one-way ANOVA for the time factor (TF).

TABLE II. INFLUENCE OF THE TIME FACTOR

Dependent variable	ANOVA statistics[a]	Means		Post hoc test[c]	
		Cohort[b]	*M*	*Cohorts*	*p*
PSWE	F = 24.325	1	65.29	1-2	.002
	p = .000	2	52.56	1-3	.000
	η^2 = .075	3	38.78	2-3	.001
PS-AG	F = 18.735	1	66.35	1-2	.015
	p = .000	2	55.74	1-3	.000
	η^2 = .055	3	42.45	2-3	.002
F-CC	F = 3.135	1	2.23	1-2	.309
	p = .044	2	2.12	1-3	.036
	η^2 = .010	3	2.05	2-3	.548
P-CC	F = 21.253	1	2.21	1-2	.001
	p = .000	2	2.00	1-3	.000
	η^2 = .063	3	1.84	2-3	.013
U-CC	F = 6.683	1	1.98	1-2	.476
	p = .001	2	2.07	1-3	.001
	η^2 = .012	3	2.24	2-3	.039
P-ICT	F = 13.199	1	1.78	1-2	.001
	p = .000	2	2.00	1-3	.000
	η^2 = .042	3	2.06	2-3	.445
U-ICT	F = 11.312	1	1.80	1-2	.002
	p = .000	2	2.00	1-3	.000
	η^2 = .036	3	2.07	2-3	.430
J-ICT	F = 70.187	1	1.72	1-2	.000
	p = .000	2	1.94	1-3	.000
	η^2 = .189	3	2.37	2-3	.000
U-AD	F = 11.298	1	2.03	1-2	.972
	p = .000	2	2.04	1-3	.000
	η^2 = .036	3	2.29	2-3	.000
F-CS	F = 290.118	1	8.69	1-2	.000
	p = .000	2	5.22	1-3	.000
	η^2 = .491	3	2.56	2-3	.000
P-CS	F = 253.896	1	7.88	1-2	.000
	p = .000	2	4.12	1-3	.000
	η^2 = .458	3	2.02	2-3	.000
J-CS	F = 289.791	1	7.51	1-2	.000
	p = .000	2	3.50	1-3	.000
	η^2 = .491	3	1.52	2-3	.000
VGR	F = 11.580	1	12.77	1-2	.012
	p = .000	2	13.57	1-3	.000
	η^2 = .037	3	14.08	2-3	.143
DDC	F = 5.963	1	14.10	1-2	.131
	p = .003	2	13.55	1-3	.002
	η^2 = .019	3	13.07	2-3	.271
ASB	F = 6.290	1	13.31	1-2	.533
	p = .002	2	13.00	1-3	.002
	η^2 = .020	3	12.30	2-3	.046

a. F = F (2, 602) – Fisher statistic, p – significance level, η^2 – effect size.

b. By year of graduation: 1 – 2003-2007, 2 – 2008-2012, 3 – 2013-2017.

c. The Games-Howell post-hoc test was used.

The time factor increases the importance of cyber technologies in choosing a profession (P-ICT), a university (U-ICT) and a job (J-ICT). In addition, the time factor increases the adequacy of cyber technologies when choosing a university (U-AD). At the same time, there was no effect on the adequacy of cyber technologies in the choice of a professional field, a profession and a job. Thus, the role of cyber technologies in the processes of professional self-determination in General is increasing, but the effectiveness of their application in many aspects remains unclear.

On the other hand, the time factor reduces the correctness of the choice of a professional field (F-CC) and profession (P-CC), the choice stability for the field (F-CS), profession (P-CS) job (J-CS), the percentage of relevant work experience in general (PSWE) and after graduation (PS-AG). These results show the increasing uncertainty of professional choice in complicated modern conditions. At the same time, the correctness of the choice of a university (U-CC) increased, which can be associated with both the increasing efficiency of cyber technologies, and with a decrease in critical thinking among young people in this matter.

With regard to the work engagement under the influence of the time factor, vigor (VGR) increased due to the natural functional advantages of youth, but dedication (DDC) and absorption (ASB) decreased, which reflects the general trend of decline in internal professional motivation and crisis of professionalism.

In the next step of the study, we studied the influence of the time factor (TF) using one-way ANOVA in groups with different levels of importance of cyber technologies in professional choice. First, for a number of studied dependent variables (the importance of cyber technologies in choosing a professional field; the adequacy of cyber technologies in choosing a field, a profession, a job) this influence was insignificant across all the groups, as it was established earlier for the whole sample. In addition, this effect was not significant for the correctness of the choice of a field in all groups, although it was found for the sample as a whole (see Table II). This result indicates, in our opinion, that the decrease in the correctness of the choice of a field is a relatively weak and slow process, and it is only possible to register it on a large sample.

Second, for a number of variables, the influence of the time factor was significant across all the groups and was largely similar to that previously identified for the whole sample. The differences found here include, first of all, significant differences in multiple comparisons: for example, for the correctness of the university choice for Group 1, significant differences were revealed between subgroups (by year of graduation) 1 and 3, 2 and 3, for Group 2 – between subgroups 1 and 2, for Group 3 – between subgroups 1 and 3; note that for the whole sample significant differences were found in the comparisons of cohorts 1 and 3, 2 and 3 (see Table II). We consider such differences as qualitatively not very significant. With this in mind, it can be noted that the following significant ($p < 0.05$) effects of the time factor were revealed in the studied groups:

- decreasing: percentage of specific (relevant) work experience in general (PSWE) and after graduation (PS-AG); the correctness of profession choice; the stability of the choice of a professional field, a profession, a job;
- increasing: the correctness of university choice; the importance of cyber technologies in the choice of a university and a job; the adequacy of cyber technologies in university choice; vigor at work.

Finally, for a number of variables, the most significant differences between the study groups were revealed in the influence of the time factor (see Table III):

- for the correctness of job choice (J-CC) in Groups 1 and 2, no TF effects were detected (as previously on the whole sample), but in Group 3 an increase was revealed;
- an increase was found for the importance of cyber technologies in profession choice (P-ICT) in Groups 1 and 2, whereas no influence was found in Group 3, which might be so due to the fact that the role of cyber technologies in profession choice is already increased here compared to other groups;
- for the dedication in work (DDC), no influence was found in Group 1 (as opposed to the whole sample), while in Groups 2 and 3 a decrease was observed;
- a similar pattern for work absorption (ASB): no effect was found in Group 1 (as opposed to the whole sample), while in Groups 2 and 3 there is a decrease.

Thus, in the group with high importance of cyber technologies, the time factor increases the correctness of the professional field choice, which confirms certain advantages of cyber socialization. At the same time, involvement in cyber socialization leads, under the influence of the time factor, to a decrease in absorption and dedication at work.

C. *The Influence of the Cyber Technology Factor*

Table IV shows the results of one-way ANOVA for the effect of the cyber technology factor (CTF).

TABLE III. INTERGROUP DIFFERENCES IN THE TIME FACTOR IMPACT

Group	Dep. var.[a]	ANOVA statistics[b]	Means		Post hoc test[d]	
			SG[c]	*M*	*SG*[c]	*p*
Low	J-CC	F = .422	1	1.95	1-2	.955
		p = .656	2	1.91	1-3	.665
		η^2 = .005	3	1.83	2-3	.818
	P-ICT	F = 15.828	1	1.20	1-2	.000
		p = .000	2	1.57	1-3	.000
		η^2 = .165	3	1.67	2-3	.525
	DDC	F = .415	1	13.75	1-2	.611
		p = .661	2	13.30	1-3	.851
		η^2 = .005	3	13.48	2-3	.939
	ASB	F = .046	1	13.27	1-2	.998
		p = .955	2	13.30	1-3	.956
		η^2 = .001	3	13.42	2-3	.969
Medium	J-CC	F = .762	1	1.89	1-2	.511
		p = .468	2	1.98	1-3	.997
		η^2 = .005	3	1.89	2-3	.569
	P-ICT	F = 11.949	1	1.82	1-2	.001
		p = .000	2	2.07	1-3	.000
		η^2 = .069	3	2.08	2-3	.971
	DDC	F = 3.396	1	14.16	1-2	.352
		p = .035	2	13.61	1-3	.023
		η^2 = .021	3	13.00	2-3	.368
	ASB	F = 5.200	1	13.48	1-2	.607
		p = .006	2	13.11	1-3	.009
		η^2 = .031	3	12.16	2-3	.063
High	J-CC	F = 3.744	1	1.76	1-2	.442
		p = .027	2	1.96	1-3	.017
		η^2 = .061	3	2.12	2-3	.611
	P-ICT	F = 1.951	1	2.42	1-2	.127
		p = .147	2	2.67	1-3	.966
		η^2 = .033	3	2.45	2-3	.201
	DDC	F = 3.385	1	14.38	1-2	.716
		p = .037	2	13.73	1-3	.034
		η^2 = .056	3	12.78	2-3	.330
	ASB	F = 3.777	1	12.98	1-2	.253
		p = .026	2	11.75	1-3	.020
		η^2 = .062	3	11.39	2-3	.882

a. The table only shows those dependent variables, for which the most significant differences between the groups were identified (see in text).

b. F – Fisher statistic, p – significance level, η^2 – effect size.

c. SG – subgroups by year of graduation: 1 – 2003-2007, 2 – 2008-2012, 3 – 2013-2017.

d. The Games-Howell post-hoc test was used.

TABLE IV. INFLUENCE OF THE CYBER TECHNOLOGIES FACTOR

Dependent variable[a]	ANOVA statistics[b]	Means		Post hoc test[d]	
		Cohort[c]	*M*	*Cohorts*	*p*
U-CC	F = 7.033	1	1.98	1-2	.208
	p = .001	2	2.09	1-3	.001
	η^2 = .023	3	2.30	2-3	.023
ASB	F = 6.442	1	13.33	1-2	.283
	p = .002	2	12.92	1-3	.001
	η^2 = .021	3	12.07	2-3	.022

a. The table only shows those dependent variables, for which the most significant effect of the factor of cyber technologies was found (see in text).

b. F = F (2, 602) – Fisher statistic, p – significance level, η^2 – effect size.

c. By year of graduation: 1 – 2003-2007, 2 – 2008-2012, 3 – 2013-2017.

d. The Games-Howell post-hoc test was used.

It should be noted that it does not present the results regarding significant CTF influence on the choice of a professional field, a profession, a university and a job since this influence is due to the allocation of the compared groups. At the same time, it was found that the CTF increases the correctness of the university choice (UC) but reduces the absorption at work (ASB).

Table V shows the results of one-way ANOVA for the influence of the cyber technology factor (CTF) within cohorts by year of graduation. It does not present the results regarding significant CTF influence on the choice of a field, a profession, a university and a job since this influence is due to the allocation of the compared groups.

TABLE V. DIFFERENCES BETWEEN COHORTS IN THE EFFECT OF CYBER TECHNOLOGY

Cohort	Dep. var.[a]	ANOVA statistics[b]	Means		Post hoc test[d]	
			Group[c]	*M*	*Groups*	*p*
2003-2007	U-CC	F = 1.186	1	1.95	1-2	.998
		p = .308	2	1.94	1-3	.414
		η^2 = .012	3	2.13	2-3	.327
	P-AD	F =.691	1	2.11	1-2	.517
		p = .502	2	1.99	1-3	.773
		η^2 = .007	3	2.02	2-3	.948
	ASB	F = .486	1	13.27	1-2	.905
		p = .616	2	13.48	1-3	.863
		η^2 = .005	3	12.98	2-3	.582
2008-2012	U-CC	F = 4.820	1	1.82	1-2	.009
		p = .009	2	2.16	1-3	.154
		η^2 = .046	3	2.17	2-3	1.00
	P-AD	F = .282	1	1.98	1-2	.740
		p = .754	2	2.05	1-3	.993
		η^2 = .003	3	2.00	2-3	.938
	ASB	F = 2.815	1	13.30	1-2	.902
		p = .062	2	13.11	1-3	.099

Cohort	Dep. var.[a]	ANOVA statistics[b]	Means		Post hoc test[d]	
			Group[c]	*M*	*Groups*	*p*
		η^2 = .028	3	11.75	2-3	.134
2013-2017	U-CC	F = 5.315	1	2.17	1-2	.963
		p = .006	2	2.14	1-3	.024
		η^2 = .050	3	2.51	2-3	.006
	P-AD	F = 3.404	1	2.15	1-2	.018
		p = .035	2	1.88	1-3	.270
		η^2 = .033	3	1.96	2-3	.744
	ASB	F = 5.743	1	13.42	1-2	.028
		p = .004	2	12.16	1-3	.001
		η^2 = .054	3	11.39	2-3	.303

[a.] The table shows only those dependent variables for which the most significant differences between the groups were identified (see the text).

[b.] F – Fisher statistic, p – significance level, η^2 – effect size.

[c.] by the importance of cyber technology: 1 – low, 2 – medium, 3 – high.

[d.] The Games-Howell post-hoc test was used.

Within each cohort the CTF did not affect many of the other above mentioned professional choice processes.

At the same time, three interesting trends were observed:

- for the correctness of university choice (U-CC) in Cohort 1 no influence was identified, while there was an increase in Cohorts 2 and 3;
- there was no influence found for the adequacy of cyber technologies in choosing a profession (P-AD) in Cohorts 1 and 2, while in Cohort 3 a decrease was found;
- for work absorption (ASB) there was no effect in Cohorts 1 and 2, and a decrease in Cohort 3.

Thus, these results show that cyber socialization is a process with both positive and negative aspects: in particular, the positive influence of the CTF leading to an increase in the correctness of the university choice has only started to manifest in the last 10 years, and the negative impact leading to a decrease in the absorption by work and the adequacy of cyber technologies in choosing a profession – only in the last 5 years.

IV. Conclusion

The results show that the effect of cyber technologies on professional self-determination is complex and ambiguous in modern conditions. Due to this fact, further research is needed distinguishing fields of work and professions and expanding the range of psychological characteristics. For example, the fact that cybersocialization does not reduce some of the risks of professional self-determination, such as the risk of wrong choice, may be associated with a side effect of expansion of choice options under the influence of cyber socialization.

This study has a number of limitations. First, there could be an influence of different average age of the respondents representing the selected cohorts. In addition, different cohorts represent different work experience, both relevant and in total, and both after graduation and in total, which could affect the calculated percentage of relevant work experience. It is also possible that after intensive self-search associated with frequent changes of jobs, profession and fields of work, at some point the career path of a respondent stabilizes, and then such changes occur much less often. However, verification of this assumption requires additional empirical research beyond the scope of this work.

References

[1] T. Delaney and T. Madigan, *Friendship and Happiness*. Jefferson, NC, USA: McFarland, 2017.

[2] Z Bock, "Cyber socialising: Emerging genres and registers of intimacy among young South African students," *Language Matters*, vol. 44, no. 2, pp. 68–91, 2013.

[3] Z. Hussain and M. D. Griffiths, "Gender Swapping and Socializing in Cyberspace: An Exploratory Study," *Cyberpsychol. Behav.*, vol. 11, no. 1, pp. 47–53, Feb. 2008. doi: 10.1089/cpb.2007.0020.

[4] S. Lee, D.-H. Park, and I. Han, "New members' online socialization in online communities: The effects of content quality and feedback on new members' content-sharing intentions," *Comput. Human Behav.*, vol. 30, pp. 344–354, Jan. 2014. doi: 10.1016/j.chb.2013.09.015.

[5] M. C. Carras, A. J. Van Rooij, D. Van de Mheen, R. Musci, T. Mendelson, "Video gaming in a hyperconnected world: A cross-sectional study of heavy gaming, problematic gaming symptoms, and online socializing in adolescents," *Comput. Human Behav.*, vol. 68, pp. 472–479, March 2017. doi: 10.1016/j.chb.2016.11.060.

[6] A. Krasilnikov and A. Smirnova, "Online social adaptation of first-year students and their academic performance," *Comput. Educ.*, vol. 113, pp. 327–338, Oct. 2017. doi: 10.1016/j.compedu.2017.05.012.

[7] N. Saleem, "Virtual Socialization: A Step Towards Social Transformation," *J. distance educ. res. (JDER)*, vol. 1, no. 1, pp. 56–66, July – Dec. 2016.

[8] B. S. Honnekeri, A. Goel, M. Umate, N. Shah, and A. De Sousa, "Social anxiety and Internet socialization in Indian undergraduate students: An exploratory study," *Asian J. Psychiatr.*, vol. 27, pp. 115–120, June 2017. doi: 10.1016/j.ajp.2017.02.021.

[9] I. Paus-Hasebrink, J. Kulterer, and P. Sinner, *Social Inequality, Childhood and the Media: A Longitudinal Study of the Mediatization of Socialisation*. London, UK: Palgrave Macmillan, 2019.

[10] B. Zizek, "Digital Socialization? An Exploratory Sequential Analysis of Anonymous Adolescent Internet-Social Interaction," *Hum. Dev.*, vol. 60, no. 5, pp. 203–232, Dec. 2017. doi: 10.1159/000479082.

[11] A. V. Whillans and F. S. Chen, "Facebook undermines the social belonging of first year students," *Pers. Individ. Dif.*, vol. 133, pp. 13–16, Oct. 2018. doi: 10.1016/j.paid.2017.03.043.

[12] S. T. Hawk, R. J. J. M. van den Eijnden, C. J. van Lissa, and T. F. M. ter Bogt, "Narcissistic adolescents' attention-seeking following social rejection: Links with social media disclosure, problematic social media use, and smartphone stress," *Comput. Human Behav.*, vol. 92, pp. 65–75, March 2019. doi: 10.1016/j.chb.2018.10.032.

[13] P. Sharma, "7 Best Virtual Reality Socializing Games To Play In 2019," Accessed on: Feb. 4, 2019. [Online]. Available: https://bubblingjelly.com/virtual-reality-socializing-games/

[14] KidZania. [Online]. Available: https://kidzania.com/en

[15] Project SMART. [Online]. Available: https://thesmartprogram.org/

[16] The Peer Project. [Online]. Available: http://thepeerproject.com/

[17] Project «Go Overseas». [Online]. Available: https://www.gooverseas.com/internships-abroad

[18] Project «Global Vision International». [Online]. Available: https://www.gviusa.com/volunteering-for-teens/

[19] Gap year programs from the TeenLife project. [Online]. Available: https://www.teenlife.com/category/gap-year/

[20] Y.-C. Huang, S. J. Backman, K. F. Backman, F. A. McGuire, D. Moore, "An Investigation of Motivation and Experience in Virtual Learning Environments: A Self-Determination Theory," *Educ. Inform. Tech.*, vol. 24, no. 1, pp. 591–611, Jan. 2019.

[21] R. Porzak, "Career Tree – Career Guidance in Digital Era," Accessed on: May 11, 2018. [Online]. Available: https://ec.europa.eu/epale/en/

[22] S. Cavanagh, "Personalizing the Career Search," *Education Week*, vol. 35, no. 17, pp. s12–s13, Jan. 13, 2016. [Online]. Available: https://www.edweek.org/ew/

[23] A. P. Field, *Discovering Statistics Using IBM SPSS Statistics*. 5th ed. Los Angeles, CA, USA: Sage, 2018.

[24] W. Schaufeli and A. Bakker, "Utrecht Work Engagement Scale (UWES): Preliminary Manual," Version 1.1, Dec. 2004. Utrecht, the Netherlands: Occupational Health Psychology Unit, Utrecht

University, 2004. [Online]. Available: https://www.wilmarschaufeli.nl/downloads/

[25] W. B. Schaufeli, A. B. Bakker, and M. Salanova, "The measurement of work engagement with a short questionnaire: a cross-national study," *Educ. Psychol. Meas.*, vol. 66, no. 4, pp. 701–716, Aug. 2006. doi: 10.1177/0013164405282471.

[26] J. Sinval, A. Marques-Pinto, C. Queirós, and J. Marôco, "Work engagement among rescue workers: Psychometric properties of the Portuguese UWES," *Front. Psychol.*, vol. 8, article 2229, Jan. 22, 2018. doi: 10.3389/fpsyg.2017.02229.

[27] A. V. Lovakov, E. R. Agadullina, and W. B. Schaufeli, "Psychometric properties of the Russian version of the Utrecht Work Engagement Scale (UWES-9)," *Psychology in Russia: State of the Art*, vol. 10, no. 1, pp. 145–162, 2017.