RUDN Journal of Psychology and Pedagogics
Вестник РУДН. Серия: Психология и педагогика
ISSN 2313-1683 (Print); ISSN 2313-1705 (Online)
2022 Vol. 19 No. 4 689–716
http://journals.rudn.ru/psychology-pedagogics

DOI 10.22363/2313-1683-2022-19-4-689-716
UDC 159.923

Research article

Personality Traits and Academic Motivation as Predictors of Attitudes towards Digital Educational Technologies among Russian University Students

Irina A. Novikova, Polina A. Bychkova, Alexey L. Novikov, Dmitriy A. Shlyakhta

Peoples' Friendship University of Russia (RUDN University),
6 Miklukho-Maklaya St, Moscow, 117198, Russian Federation
novikova-ia@rudn.ru

Abstract. In the modern era of digitalization, the development and implementation of digital educational technologies (DETs) have constantly been at the center of numerous discussions among teachers, psychologists, sociologists, physicians, etc. Moreover, the COVID-19 pandemic has simultaneously made DETs an integral part of contemporary social life around the world. However, both before and during the COVID-19 pandemic, little attention was paid to the study of the motivational and personality characteristics of university students, which would make it possible to predict their attitudes towards DETs and the effectiveness of their use in learning. The present study involved 173 Russian university students (61% – females) of various specialties (natural sciences, medicine and psychology), aged 17 to 26 years. Their attitudes towards DETs were measured according to *The University Students' Attitudes towards DET Questionnaire* developed by the authors. To reveal their educational motivation, *The Academic Motivation Scales* by Gordeeva et al. were used. Their personality traits were identified using *The NEO Five-Factor Inventory* (adapted in Russian by Biryukov and Bodunov). For statistical analysis, the descriptive statistics methods, Mann – Whitney U test, and multiple regression analysis were used. The results of the study have shown that the scales of academic motivation have a greater impact on attitudes towards DETs among the university students as compared to personality traits. However, there is a specificity of these impacts in the students of different specialties, particularly in psychological students. The findings of this study indicate that taking into account such psychological factors as students' academic motivation and personality traits can contribute to the optimal implementation of DETs in the educational process in blended and online formats.

Key words: digital educational technologies, attitudes, digital educational technologies, digital competence, university students, academic motivation, Five-Factor Model, personality traits

Acknowledgements and Funding. The study was carried out as part of the Program of Strategic Academic Leadership, "Priority-2030," of the Peoples' Friendship University of Russia (RUDN University), the publication was prepared with the support of scientific project No. 051320-0-000 at the Psychology and Pedagogy Department, the Faculty of Philology, RUDN University.

Introduction

It is generally recognized that modern society has entered the "digital era", which is a transition from analog to digital format of working with information. The "digital era" is characterized by the total dominance of digital technologies based on special methods of encoding and transmitting information using a discrete cybernetic system, which allows solving many diverse tasks in the shortest possible time intervals and in almost all areas of human activity (Khangeldieva, 2018). T.N. Gorbunova and A.N. Leontiev emphasize that technologies that defined the Fourth Industrial Revolution (*Deep Learning, Big data, the Internet of things, self-regulating factories, 3D printing and printed electronics*) are leading the world to significant transformations, actively influencing all spheres of life, including education. (Gorbunova, Leontiev, 2021). At the same time, these authors note that education is one of the last major sectors of public life that has entered a period of radical digital transformation (Gorbunova, Leontiev, 2021).

The digital transformation of education involves not only the digitization of all educational materials to compose appropriate public knowledge bases (i.e. "digitizing"), but also the maximum transfer of the educational process to the global network and the use of mobile and cloud technologies for its arrangement, the involvement of web 3.0 technologies, artificial intelligence and intelligent systems in the management of the education, the widespread use of massive open online courses (MOOCs), etc. (Strekalova, 2019).

According to L.V. Baeva et al. (2020), the development of e-learning and digital education in Russia over the past decades has lagged behind many other countries. Thus, large Open Universities have not yet appeared in Russia, similar to those where students have been taught remotely in Europe, Asia and Africa for many years; and online platforms in Russian higher education have been used in accordance with the Federal State Educational Standards only as an addition to traditional forms of education. Before the pandemic, the greatest success of digital education in Russia was associated with the creation of national educational open resources, and after 2018, with the active introduction of MOOCs in some universities. However, the practice of replacing traditional forms of education with distance learning has caused numerous discussions in the educational community, since not all disciplines turned out to be meaningfully and methodically adaptable to the online format (Baeva et al., 2020).

The beginning of the COVID-19 pandemic and the "stay-at-home" restrictions have dramatically accelerated the digitalization of education in the world and in Russia. This situation has become a challenge to which the education system has responded by jumping to a new level of development (Baeva et al., 2020; Krouglov, 2021; Narbut et al., 2020; Novikova et al., 2022). Based on numerous studies conducted during the pandemic in different countries, most experts are inclined to believe that the changes introduced will no longer allow the education system to fully return to its previous track after the pandemic: most likely, there will be enrichment with new forms of education in blended and/or fully digital format (Baeva et al., 2020; Narbut et al., 2020; Aleshkovski et al., 2021; Li, 2022; Novikova et al., 2022).

It should be noted that, if, before the pandemic, the need and expediency of introducing digital technologies into education were actively discussed in the sci-

entific and educational community, which was due, in particular, to the specifics of teaching the "digital generation", now the focus of discussions has shifted. The experience gained during the pandemic in the digitalization of the educational process allowed all its participants to see its "pros" and "cons" and make sure that the effectiveness of modern education depends not only and not so much on the technical aspects of introducing digital technologies as such, but on the qualifications of teachers, lecturers and professors, on the digital competence of educators and students, as well as on the attitude towards the use of digital educational technologies (DETs) in general.

In this article, we will consider different factors associated with student's attitudes towards DETs before and during the pandemic, analyze the personality features associated with these attitudes, and also present the results of our research on personality traits and academic motivation of university students in connection with their attitudes towards DETs.

Further, we consider DETs in a broad sense, which includes: (1) digital (electronic) educational materials (e-books, e-tutorials, multimedia presentations, achievement tests, quizzes, etc.); (2) digital educational resources (electronic databases, e-library systems, search systems, etc.); (3) digital educational systems (LMS, Moodle, etc.); (4) digital platforms used for training (ZOOM, MS Teams, etc.); and (5) artificial intelligence and digital (virtual) educational environment (Novikova et al., 2022).

Research on attitudes towards digital educational technologies before and during the pandemic

Studies conducted by international and Russian scientists before the pandemic show that the readiness and effectiveness of using digital technologies in higher education may depend on the attitude both university students and teachers towards them.

Several studies on the impact of social media on learning, conducted at universities around the world in 2015–2020, showed that the students who took social media-enabled courses found them a convenient and quality-oriented addition to their traditional courses; they interacted more effectively with their coursemates, were better self-organized and more actively engaged in learning-related dialogue than the students in non-social media courses (Duncan, Barczyk, 2016; De Martino et al., 2020; Peruta, Shields, 2017; Ellefsen, 2016; Tugrul, 2017).

In 2017–2020, studies among university students in different countries (Bulgaria, Spain, Cyprus, UAE, etc.) consistently revealed their positive attitudes towards the use of digital technologies in education and online learning. In most cases, it was confirmed that the fact that the students who had more experience and skills in working with ICT was positively associated with their attitudes towards DETs. However, these attitudes could also be mediated by the students' gender, age, form of education (full- or part-time), field of study, etc. (Peytcheva-Forsyth et al., 2018; Romero Martínez et al., 2020; Guillen-Gamez et al., 2020; Ozdamli, 2017; Andrew et al., 2018). In Russia, much less research of this kind was carried out before the COVID-19 pandemic. An example was an online survey of undergraduate and postgraduate students of a number of Russian universi-

ties conducted by sociologists of the Ural State University of Economics in January 2019. The results of the survey showed low estimates of the importance of distance and online learning among the respondents: only about 50% of them noted the need for distance learning and online courses, and only 30% were open to blended learning (Popova, 2019). This could probably be explained by the fact that until recently, as mentioned above, the development of digital education in Russia lagged far behind many other countries (Baeva et al., 2020).

Thus, in studies performed before the pandemic outbreak, it was shown that the positive attitudes of university students towards DETs might be associated with the activity of using digital technologies in general, involvement in communication with other users in the digital space, as well as the experience in distance learning using digital technologies (De Martino et al., 2020; Guillen-Gamez et al., 2020; Peytcheva-Forsyth et al., 2018; Soldatova, Nestik, 2016; Romero Martínez et al., 2020). However, as a rule, in the studies of that time, digital technologies were considered only as an addition to traditional forms of education.

With the onset of the COVID-19 pandemic, the digitalization of education has become, perhaps, one of the most discussed issues around the world. A large number of international studies conducted in 2020–2021 were devoted to the analysis of the problems associated with the rapid and forced transition to online education (Ahern, López-Medina, 2021; Corell-Almuzara et al., 2021).

Many of these studies were focused on various aspects of university students' using DETs during the pandemic, e.g.: students' transition to distance learning; their attitudes, expectations and views in relation to the transition to online learning; the impact of the pandemic on the learning process; etc. (Rizun, Strzelecki, 2020; Chaturvedi et al., 2021; Radu et al., 2020; Gonçalves et al., 2020; Martha et al., 2021; Bakhov et al., 2021; Drozdikova-Zaripova et al., 2021; Li, 2022; Yasmin, 2022).

During this period in Russia, similar problems began to be studied in great detail. For example, a large-scale sociological survey entitled "The opinion of students of Russian universities on forced distance learning" was conducted in May – June 2020, covering 31,423 university students in all regions of the Russian Federation (Aleshkovskiy et al., 2020). This research showed that Russian university students named the convenience of working at home and travel time saving as the main advantages of distance learning, whereas the lack of personal communication and social contacts as its main disadvantages. Almost half of the respondents noted that they were not ready for the complete transfer of education to a remote format after the end of the pandemic (Aleshkovskiy et al., 2020).

It can be noted that at the beginning of the pandemic, most university students around the world similarly assessed their experience of switching to fully distance learning, its disadvantages (e.g., task overload, difficulties with self-organization and motivation, numerous technical problems, lack of digital competence of students and lecturers) and advantages (e.g., time saving, opportunities to learn anywhere or develop new competences). At the same time, the majority of students reacted negatively to the prospect of continuing education only in a digital (distance) format after the lockdown due to the pandemic.

At different stages of the spread of the pandemic, there appeared studies that compared the attitudes of university students towards digital learning. For example,

according to S. Unger and W.R. Meiran, 51.4% of undergraduate students of one of US Universities said they had less anxiety about online learning after a three-week experience (Unger, Meiran, 2020). A longitudinal study of German university students conducted by G. Vladova et al. (2021) showed that the students' attitudes towards fully digital learning changed for the worse during the semester (the first wave of COVID-19), especially declining in its last month among music and art students compared to information systems students. The second stage of the study "The opinion of students of Russian universities on forced distance learning" in February 2021 covered 32,358 students and revealed that the proportion of those students who had believed that the remote format worsened the quality of education significantly decreased (from 43.7% to 30.6%), and 34.6% of students (against 27.7% at the first stage) stated that distance learning did not affect the quality of education (Aleshkovski et al., 2021). A comparison of the two waves of this survey shows that the first and mostly negative impressions of distance learning among Russian university students were changed by more balanced estimates and recognition of the positive aspects and possibilities of remote learning in the extreme conditions of the pandemic (Aleshkovski et al., 2021).

In our previous research (Novikova et al., 2021b), we had the opportunity to compare Russian university students' attitudes towards DETs before (in February – early March 2020) and after (late May – early June 2020) the start of the pandemic lockdown at three Moscow universities. We found that the students majoring in various disciplines (Medicine, Psychology and Natural Sciences) generally positively assessed the e-learning experience gained in spring 2020. We also found, as expected, the increase of students' involvement in the digital environment and in the use of DETs; however, their digital competence had not changed much over this period. The most pronounced positive shift in attitudes towards DETs was among the medical students, while before the pandemic and the transition to distance learning they were more reserved about DETs than the students of psychology and natural sciences (Novikova et al., 2021b). Subsequently, we conducted another cross-section of this study in January 2021, but only with the psychology students (Novikova et al., 2022). A comparison of the three stages of our study showed that the number of the students who positively assessed the impact of digital technologies on the educational process decreased with increasing experience in distance learning, although self-reported attitudes towards DETs remained relatively stable.

Summarizing the results of a qualitative analysis of the results of international and Russian studies conducted during the period of the forced transition to digital learning in 2020–2022, we should note that university students name technical issues among the main disadvantages of using DETs, while time saving and convenience are among the most frequently mentioned advantages of DETs (Novikova et al., 2022).

Thus, studies on university students' attitudes towards DETs for the last three years in connection with the pandemic, for obvious reasons, have mainly been devoted to changes in these attitudes and their relationships with the socio-demographic characteristics of students, such as country, academic discipline, year of study, etc. Recently, there have been practically no studies of the relationships between students' attitudes towards DETs and their personality traits; therefore, we will turn to earlier studies.

Personality features as factors of attitudes towards digital technologies in the educational context

T.A. Nestik and colleagues studied the individual attitudes to new (digital) technologies in general and showed that when persons adopting new technologies, the key factor is their involvement in communication with other users (Nestik et al., 2017). In addition, it was revealed that the respondents' social representations about the future of digital technologies are ambivalent: on the one hand, they recognize the inevitability of technological development, on the other hand, the respondents associate not only comfort, but also social degradation with it. In this study the predictors of "techno-optimism" were trust to the stakeholders of technological progress, future orientation, belief in the reward for efforts, as well as low religiosity and low level of respect for authorities. At the same time, the attitude towards scientific and technological progress and orientation towards the future in general play a less significant role in the use of new technologies than the orientation towards enjoyment in the present, the attractiveness of technology and ease of it use (Nestik et al., 2017).

E.P. Belinskaya and N.V. Fedorova (2020) emphasized that the impact of students' personality traits on the different aspects of the educational process is a fairly popular topic in contemporary science, but much less research (especially in Russian psychology) is devoted to the influence of personality traits on the patterns of remote or online education. Only relatively recently, US researchers D. Gray and A. DiLoreto (2016) developed a comprehensive model of factors affecting the students' perception of the effectiveness of online learning and satisfaction with it. The leading role in these processes turned out to be played by personality traits considered on the basis of the Five-Factor Model (FFM), and the students' engagement was a mediator between situational factors and estimates of the effectiveness of online learning.

K.K. Bhagat and colleagues (Bhagat et al., 2019) showed that from FFM personality traits only conscientiousness and openness to new experiences have a significant positive effect on students' perception of online learning, while neuroticism, on the contrary, negatively affects students' expectations.

The involvement of students in the learning process is also one of the traditional indicators of the success of any education; therefore, many researchers in online and distance education focus on studying it (Belinskaya, Fedorova, 2020; Gray, DiLoreto, 2016). M.D. Dixson (2010) noted that discussions on online course forums, online discussion of applied problems and laboratory work, group research and projects contributed to increasing the involvement of students in online learning. It was also found that students completing distance courses, firstly, pursued higher educational goals and, secondly, devoted more time per week to their education than full-time students did (Simonson et al., 2019).

E.P. Belinskaya and N.V. Fedorova (2020) conducted a study on personality factors in the effectiveness of online learning among Russian students of online courses, who were divided into two groups: those who completed few (0–1) and many (10–70) such courses. To analyze the results, the authors used the following questionnaires and techniques:

(1) The Russian version of M. Berzonsky's *Identity Style Inventory* (Belinskaya, Bronin, 2014) for measuring three styles of identity: informational, norma-

tive, and diffuse (Berzonsky, 1989; Berzonsky, Kuk, 2000). M. Berzonsky and his colleagues established that the informational style contributed to faster mastering of the education program and good academic performance; the normative style prevented susceptibility to certain educational topics; and the diffuse style was associated with lower academic performance (Berzonsky, 1992; Kerpelman et al., 2008);

(2) *The Short Portrait Big Five Questionnaire* (BF-10) in Russian adaptation (Egorova, Parshikova, 2016);

(3) *The Student Learning and Satisfaction in Online Learning Environments Instrument* (SLS-OLE) (Gray, DiLoreto, 2016), which recorded the student involvement, performance and satisfaction with online learning; and

(4) *The Commitment Scale* was used, which demonstrated the propensity of individuals to defend their opinions about themselves: a low score on this scale indicated a tendency to frequently change them (Belinskaya, Bronin, 2014).

This study was conducted using online forms, and the respondents were asked to rate any online course they had recently taken. As a result, it was found that *Neuroticism* was negatively associated with involvement in the learning process; *Extraversion* and *Agreeableness* were positively associated with online learning satisfaction; *Commitment* was positively associated with involvement, satisfaction, performance, and perceptions of the future impact of learning online. *Openness* to new experience and the informational style of identity positively correlated with the students' perceptions of the impact of knowledge on the future, while the diffuse style of identity, on the contrary, negatively correlated with these perceptions. Based on these findings, the authors emphasized that, in the context of online learning, it was important that teachers contribute to the formation of horizontal connections between students, providing them with technical tools, organizational opportunities and reasons for such communication (Belinskaya, Fedorova, 2020).

It should be noted that in the above study, in addition to identifying the role of students' personality traits in online learning, data of numerous studies on the positive role of students' interaction and involvement in the distance learning process as factors of a positive attitude towards the use of DETs were confirmed.

At the previous stages of our study, which we mentioned above, we analyzed not only the changes in attitudes towards DETs during pandemic, but also their correlations with the FFM personality traits, academic motivation and academic achievements among Russian university students (Novikova et al., 2021a; Novikova, Bychkova, 2022). The findings of these studies showed that university students with more pronounced *Extraversion*, *Openness* and intrinsic academic motivation were generally more involved in the digital space and in the use of DETs, while less motivated students, in contrast, were less involved in the digital space and in the use of DETs (Novikova et al., 2021a; Novikova, Bychkova, 2022). At the same time, more successful students tended to be more involved in the digital space in general (Novikova, Bychkova, 2022). However, there was a specificity of these correlations among university students from different fields of study: for students of natural sciences and psychology, the attitudes towards DETs were more closely related to personality traits and academic motivation than for medical students (Novikova et al., 2021a; Novikova, Bychkova, 2022).

The ***purpose of the present study*** is to consider and to compare the impact of academic motivation and personality traits on the attitudes towards DETs among Russian university students of different fields of study.

Based on our previous studies, we assume that academic motivation has a greater impact on the attitudes towards DETs than personality traits; however, there is a specificity of these impacts among students of different fields of study.

Methods

Participants. A total of 173 (105 females and 67 males) university students, aged 17 to 26 (M_{age} = 18.67 years) took part in the research. All of them were first- and second-year students of three large Moscow universities (Peoples' Friendship University of Russia (RUDN University), National University of Science and Technology (NUST) MISiS, and Pirogov Russian National Research Medical University (RNIMU University). The students represent different departments and, accordingly, different fields of study, namely:

(1) Psychological Sciences: 48 second-year students of RUDN University (39 females and 9 males), aged 18 to 26 years (M_{age} = 20.07 years);

(2) Medical Sciences: 62 first-year students of Pirogov RNIMU University (49 females and 13 males), aged 17 to 20 years (M_{age} = 18.23 years);

(3) Natural Sciences – 63 first-year students of NUST MISiS (17 females and 45 males), aged 17 to 21 years (M_{age} = 18.00 years).

The research was conducted in February – early March 2020, before the lockdown in Russia due to the coronavirus pandemic. All the students participated in the study during classes in psychological disciplines, as one of the additional tasks, for which they received additional points. They were duly informed that participation would be free and voluntary.

Techniques. In accordance with the purpose and hypothesis of the study, we used the following three diagnostic tools.

1. To diagnose students' ***attitudes towards DETs***, the authors' questionnaire was used. We developed the questionnaire based on the analysis of the results of previous studies on the use of digital technologies in education (Soldatova, Rasskazova, 2018; Yuzefovich, 2018). We used Cronbach's alpha and MacDonald's omega coefficients and factor analysis for psychometric verification of the structure and internal consistency of this questionnaire (Bychkova, 2020). The final version of *The University Students' Attitudes toward DET Questionnaire* includes 21 questions and 4 indicators (some items can fall on two or three indicators):

(a) *General involvement in the use of DETs* indicator characterizes the general interest in DETs (12 items, the raw scores can range from 2 to 39 points);

(b) *Involvement in the digital space* indicator reflects the activity of using digital technologies in general, not only for educational purposes (8 items, the raw scores can range from 2 to 27 points);

(c) *The use of digital technologies in education* indicator more specifically reflects the attitudes to digital technologies in the educational process (8 items, the raw scores can range from 0 to 24 points);

(d) *Digital competence* indicator (4 tasks, the raw scores can range from 0 to 12 points). This indicator is additional, it does not reflect the "attitude" to digi-

tal technologies, but rather the knowledge and possession of certain rules of behavior in the digital space. The final version of the check for the consistency of the authors' questionnaire did not include tasks from this indicator (Bychkova, 2020). But in further studies, we used this indicator as a control one for more information (Novikova, Bychkova, 2022; Novikova et al., 2021, 2022).

2. ***The FFM personality traits*** were measured using the Russian version of *NEO-FFI* adapted by S. Biryukov and M. Bodunov (Biryukov, Vasilev, 1997; Bodunov, Biryukov, 1989; Costa, McCrae, 1992). The Russian version of NEO-FFI consists of 60 statements (direct and inverse) to which the respondent expresses the degree of consent by 5-point Likert scale (1 – "strongly disagree" to 5 – "strongly agree"). The values for each of the Five-Factor scales (*Neuroticism*, *Extraversion*, *Openness*, *Conscientiousness*, and *Agreeableness*) range from 12 to 60 points.

3. To determine the ***motivation of students' educational activity***, the "Academic motivation scales" (AMS) questionnaire by T.O. Gordeeva et al. was used (Gordeeva et al., 2014). This questionnaire allowed us to diagnose seven qualitatively different types of educational motives of students: three types of intrinsic motivation (*Intrinsic cognition*, *Achievement*, and *Personal growth*), three types of extrinsic motivation (*Motivation for self-respect*, *Introjected*, and *External regulation*) and an *Amotivation*. This questionnaire consists of 28 direct statements to which the subject expresses the degree of consent on a 5-point Likert scale (from 1 – "strongly disagree" to 5 – "strongly Agree"). Each of the academic motivation scales (*Intrinsic cognition motivation*, *Achievement motivation*, *Motivation for personal growth*, *Motivation for self-respect*, *Introjected motivation*, *External regulation*, *Amotivation*) contains 4 statements, the raw scores can range from 1 to 20 points (Gordeeva et al., 2014).

Statistical analysis. Statistical analysis was carried out using the descriptive statistics methods, Mann – Whitney *U*-test, Spearman correlation analysis, and multiple regression analysis.

Regression analysis was performed by using the method of "backward" stepwise search. Independent variables were personality traits (five *NEO-FFI* subscales) and academic motivation (seven *AMS* scales); dependent variables were indicators of students' attitudes towards DETs (*General involvement in the use of DETs*, *Involvement in the digital space*, and *The use of digital technologies in education*). In the first step, full regression models with all possible predictors of three indicators of students' attitudes towards DETs were constructed for the total sample and separately for the students of different fields of study. The next step was to analyze all the input models by searching for all possible combinations of the predictors and evaluating the information contribution of each set using the Akaike information criterion (AIC). For further analysis, models having the highest information load for the smallest number of predictors ("a best predictor model") were selected for further analysis. Statistical processing was carried out in the R software environment for statistical computing and graphics, version 4.1.1 (R Core Team, 2021; Revelle, 2019; The Jamovi Project, 2021; Epskamp et al., 2012).

Results and discussion

Table 1 presents the results of descriptive statistics (means and standard deviations) of all the variables studied.

Table 1

Means and standard deviations (SD) of all study variables, raw scores

Variables	Total sample (N = 173)		Natural sciences students (N = 63)		Medical students (N = 62)		Psychology students (N = 48)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Indicators of attitudes toward DET								
General involvement in the use of DET	21.66	4.03	21.62	4.23	21.42	3.83	22.04	4.06
Involvement in the digital space	15.41	3.42	15.17	3.58	15.56	3.22	15.52	3.52
The use of digital technologies in education	13.28	2.99	14.08	2.40	11.73	2.94	14.25	2.97
Digital competence	9.78	2.23	10.00	2.13	10.40	1.68	8.69	2.59
NEO-FFI factors								
Neuroticism	34.25	7.31	32.90	7.99	36.55	6.60	33.04	6.62
Extraversion	39.92	7.23	39.11	8.23	40.27	6.97	40.54	6.11
Openness	39.82	5.60	38.97	5.89	40.08	5.65	40.58	5.08
Agreeableness	40.80	5.96	39.46	5.88	42.13	6.24	40.83	5.41
Conscientiousness	42.87	7.52	42.51	7.56	42.47	7.77	43.85	7.21
Academic motivation scales								
Intrinsic cognition motivation	16.17	3.07	15.67	3.16	16.89	3.13	15.90	2.76
Achievement motivation	14.21	3.60	14.29	3.92	14.29	3.53	14.00	3.30
Motivation for personal growth	15.45	3.03	14.71	3.59	16.29	2.63	15.31	2.42
Motivation for self-respect	13.86	4.14	12.59	4.76	15.05	3.67	13.98	3.37
Introjected motivation	11.79	4.11	10.6	4.35	12.48	4.16	12.46	3.38
External regulation	9.97	3.96	9.48	4.05	10.05	3.97	10.52	3.82
Amotivation	6.87	3.11	7.48	3.23	5.71	2.27	7.58	3.48

Pairwise comparison of the studied variables between students' subgroups using the Mann – Whitney *U*-test showed as follows:

(1) among the personality traits, *Neuroticism* was significantly higher in the medical students than in the psychology and natural science students, whereas *Agreeableness* was significantly higher in the medical students than in the natural science students;

(2) according to the scales of academic motivation, the medical students had higher *Intrinsic cognition* and *Personal growth motivation* than the psychology and natural science students; the medical students had higher *Motivation for self-respect* and *Introjected motivation* than the natural science students; the medical students had lower *Amotivation* than the psychology and natural science students; the psychology students had higher *Introjected motivation* than the natural science students;

(3) among the Indicators of Attitudes towards DETs, *The use of digital technologies in education* was significantly lower in the medical students than in the psychology and natural science students, whereas *Digital competence* was significantly lower in the psychology students than in the medical and natural science students.

Summarizing the results of the comparison, we could note that the medical students, in general, were more motivated to study but had worse attitudes towards the use of digital technologies in education compared to the psychological

and natural science students. In our opinion, these differences corresponded to the peculiarities of medical education, which we noted in our previous publications (Novikova et al., 2021; Novikova, Bychkova, 2022).

Table 2

Spearman's correlations between the variables studied in the total sample of students (N = 173)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Neuroticism	—															
2. Extraversion	–.33***	—														
3. Openness	–.05	.18*	—													
4. Agreeableness	–.01	.28***	–.01	—												
5. Conscientiousness	–.37***	.39***	.16*	.18*	—											
6. Intrinsic cognition motivation	–.19*	.33***	.17*	.14	.37***	—										
7. Achievement motivation	–.22**	.31***	.22**	.04	.41***	.73***	—									
8. Motivation for personal growth	–.09	.31***	.11	.13	.26***	.65***	.63***	—								
9. Motivation for self-respect	.21**	.08	–.02	.23**	.10	.30***	.29***	.57***	—							
10. Introjected motivation	.35***	–.17*	–.06	.23**	–.06	–.06	–.08	.08	.43***	—						
11. External regulation	.27***	–.17*	–.12	.03	–.23**	–.20**	–.11	–.07	.17*	.63***	—					
12. Amotivation	.17*	–.12	–.12	–.13	–.13	–.48***	–.23**	–.33***	–.14	.09	.31***	—				
13. General involvement in the use of DET	–.07	.17*	.18*	–.01	.10	.21**	.14	.19*	.20**	.01	–.02	–.16*	—			
14. Involvement in the digital space	–.05	.16*	.19*	–.04	.09	.20**	.13	.18*	.19*	.01	.00	–.17*	.93***	—		
15. The use of digital technologies in education	–.11	.22**	.07	–.07	.17*	.06	.11	.09	.06	–.20**	–.15	.11	.46***	.29***	—	
16. Digital competence	–.12	–.11	.08	.02	.00	.08	.12	.12	–.04	–.20**	–.18*	–.12	–.01	.05	–.12	—

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 2 presents Spearman's correlations between the FFM personality traits, Academic motivation scales and Indicators of Attitudes towards DETs. Figure 1 visualize these correlations. From the correlation matrix (Table 2), we are most interested in the correlations of the DET indicators with personality traits and scales of academic motivation. Among the FFM personality traits, *Extraversion* is most positively associated with the DET indicators (3 main indicators), *Openness* is positively correlated with the two DET indicators (*General involvement in the use of DETs* and *Involvement in the digital space*), and *Conscientiousness* is positively correlated with only one indicator (*The use of digital technologies in education*). These data are partially consistent with the results of previous studies of the rela-

tionship between the FFM personality traits and different features of online learning (Bhagat et al., 2019; Belinskaya, Fedorova, 2020). Among the academic motivation scales, *Intrinsic cognition motivation, Motivation for personal growth* and *Motivation for self-respect* are positively associated with the DET indicators (*General involvement in the use of DETs* and *Involvement in the digital space*), while *Introjected motivation* is negatively associated with *The use of digital technologies in education* and *Digital competence*, *External regulation* is negatively associated with *Digital competence*, and *Amotivation* is negatively associated with *General involvement in the use of DETs* and *Involvement in the digital space*. These data generally confirm the important role of intrinsic academic motivation in the involvement of students in the digital space; however, as shown in our previous publications, the students' attitudes towards DETs are more closely related with the academic motivation in the natural sciences and psychological students than in the medical students (Novikova, Bychkova, 2022).

We also would like to note that the *Digital competence* indicator does not have significant correlations with personality traits, and is negatively associated with only two scales of extrinsic academic motivation. These results confirm that this indicator is a control one in our questionnaire: it does not reflect attitudes towards DETs and may be associated with different profiles of Internet activity (Soldatova, Nestik, 2016). Due to these facts, we did not include this indicator in further regression analysis.

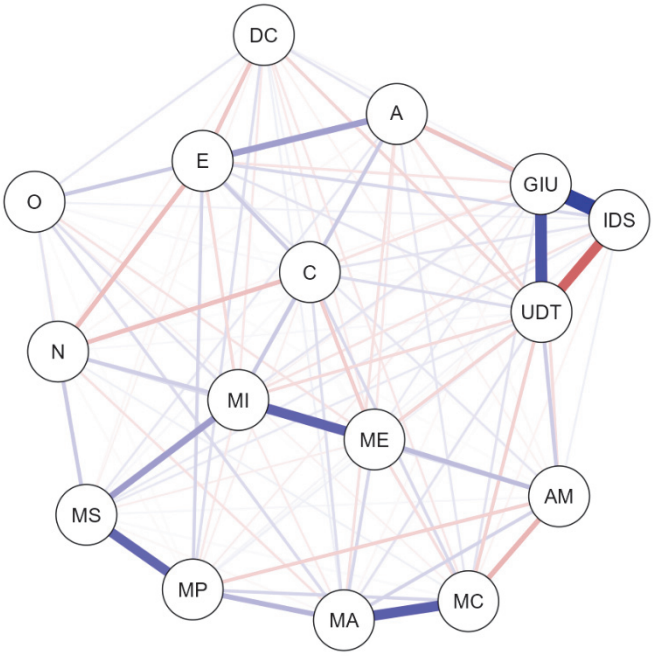

Figure 1. Graphical representation of the correlations between all the variables studied in the total sample of students (N = 173)

Note: *the blue lines* – positive correlations; *the red lines* – negative correlations; the line thickness corresponds to the value of the correlation coefficient; *GIU* – General involvement in the use of DETs; *IDS* – Involvement in the digital space; *UDT* – The use of digital technologies in education; *DC* – Digital competence; *N* – Neuroticism; *E* – Extraversion; *O* – Openness; *A* – Agreeableness; *C* – Conscientiousness; *MC* – Intrinsic cognition motivation; *MA* – Achievement motivation; *MP* – Motivation for personal growth; *MS* – Motivation for self-respect; *MI* – Introjected motivation; *ME* – External regulation; *AM* – Amotivation.

The results of multiple regression analysis (best predictor models) are presented in Tables 3–5. The multiple correlation coefficients between the dependent variables (Indicators of Attitudes towards DETs, except for *Digital competence*) and the predictors (FFM personality traits and Academic motivation scales) for most of the models are statistically significant according to the Fisher *F*-test, which confirms that there is a significant impact of some FFM personality traits and/or Academic motivation scales on Indicators of Attitudes towards DETs. At the same time, there is a large range of the adjusted determination coefficients (R^2_{adj}), which reflects different degrees of the impact of these predictors on different Indicators of Attitudes towards DETs.

Table 3

Best predictor regression models for *General involvement in the use of DETs*

Sample/variable	Summary of model			Coefficients			
	R^2_{adj}	*F*	*p*-value	Estimate	Standard error	*t*-value	*p*-value
Total sample N = 173)	.0661	5.06	.002				
(Intercept)				15.863	2.6155	6.07	< .001
Openness				.118	.0535	2.21	.028
Motivation for self-respect				.163	.0723	2.26	.025
Amotivation				–.171	.0972	–1.76	.080
Natural sciences students (N = 63)	.147	4.57	.006				
(Intercept)				8.495	4.0404	2.10	.040
Openness				.210	.0868	2.42	.019
Intrinsic cognition motivation				.897	.3009	2.98	.004
Achievement motivation				–.638	.2464	–2.59	.012
Medical students (N = 62)	.110	2.89	.030				
(Intercept)				11.412	4.2708	2.67	.010
Motivation for self-respect				.306	.1401	2.18	.033
Introjected motivation				–.371	.1602	–2.32	.024
External regulation				.357	.1596	2.24	.029
Openness				.161	.0838	1.92	.060
Psychology students (N = 48)	.211	5.20	.004				
(Intercept)				19.503	4.625	4.22	< .001
Agreeableness				–.277	.105	–2.63	.012
Intrinsic cognition motivation				.569	.196	2.91	.006
Motivation for self-respect				.344	.166	2.07	.045

Table 3 shows that the best predictor model for *General involvement in the use of DETs* predicts only 6.61% of the variance in the total sample, 21.1% in the psychology students, 14.7% in the natural sciences students and 11.0% in the medical students. *Openness* has a significant positive impact on *General in-*

volvement in the use of DETs in the total sample and in the natural sciences students. *Motivation for self-respect* has a significant positive impact on *General involvement in the use of DETs* in the total sample as well as in the medical and psychology students. *Intrinsic cognition motivation* has a significant positive impact on *General involvement in the use of DETs* in the natural sciences and psychology students. *External regulation* has a significant positive impact on *General involvement in the use of DETs* in the medical students. *Achievement motivation* has a significant negative impact on *General involvement in the use of DETs* in the natural sciences students. *Introjected motivation* has a significant negative impact on *General involvement in the use of DETs* in the medical students. *Agreeableness* has a significant negative impact on *General involvement in the use of DETs* in the psychology students.

Table 4

Best predictor regression models for *Involvement in the digital space*

Sample/variable	Summary of model			Coefficients			
	R^2_{adj}	*F*	*p*-value	Estimate	Standard error	*t*-value	*p*-value
Total sample (N = 173)	.0819	6.11	< .001				
(Intercept)				10.191	2.2049	4.62	< .001
Openness				.114	.0451	2.52	.013
Motivation for self-respect				.135	.0610	2.22	.028
Amotivation				–.172	.0819	–2.10	.037
Natural sciences students (N = 63)	.161	4.97	.004				
(Intercept)				2.735	3.3960	0.805	.424
Openness				.192	.0730	2.626	.011
Intrinsic cognition motivation				.714	.2529	2.823	.006
Achievement motivation				–.435	.2071	–2.100	.040
Medical students (N = 62)	.102	2.72	.038				
(Intercept)				15.219	1.929	7.89	< .001
Motivation for self-respect				.198	.117	1.70	.095
Introjected motivation				–.282	.135	–2.09	.041
External regulation				.298	.139	2.14	.036
Amotivation				–.371	.185	–2.00	.050
Psychology students (N = 48)	.210	4.11	.007				
(Intercept)				9.921	4.4906	2.21	.033
Extraversion				.189	.0888	2.13	.039
Agreeableness				–.288	.0962	–3.00	.005
Intrinsic cognition motivation				.374	.1824	2.05	.047
Introjected motivation				.302	.1451	2.09	.043

Summarizing these results, we can once again emphasize that personality and motivational predictors of attitudes towards DETs vary significantly among the students of different fields of study. Among the FFM personality traits, *Open-*

ness is in most cases a significant positive predictor of interest and positive attitudes towards the use of digital technologies in education, which is consistent with the data obtained by K.K. Bhagat and his colleagues (Bhagat et al., 2019). Among the scales of academic motivation, we can note the positive impact of *Motivation for self-respect* and the negative effect of *Amotivation* on the involvement of most students in the use of DET.

Table 4 shows that the regression models for *Involvement in the digital space* predict only 8.19% of the variance in the total sample, 21.0% in the psychology students, 16.1% in the natural sciences students, and 10.2% in the medical students. *Openness* has a significant positive impact on *Involvement in the digital space* in the total sample and in the natural sciences students. *Motivation for self-respect* has a significant positive impact on *Involvement in the digital space* in the total sample. *Intrinsic cognition motivation* has a significant positive impact on *Involvement in the digital space* in the natural sciences and psychology students. *External regulation* has a significant positive impact on *Involvement in the digital space* in the medical students. *Extraversion* has a significant positive impact on *Involvement in the digital space* in the psychology students. *Introjected motivation* has a significant positive impact on *Involvement in the digital space* in the psychology students, but in the medical students this impact is negative. *Agreeableness* has a significant negative impact on *Involvement in the digital space* in the psychology students. *Amotivation* has a significant negative impact on *Involvement in the digital space* in the total sample and in the medical students. *Achievement motivation* has a significant negative impact on *Involvement in the digital space* in the natural sciences students.

As in the previous case, we can note the positive impact of *Openness* and *Motivation for self-respect*, and the negative effect of *Amotivation* on the involvement of most students in the digital space in general. However, in Table 4 we can see more differences between the students of different fields of study. For example, if, for the natural science and psychological students, *Intrinsic cognition motivation* is a positive predictor of general interest and involvement in the digital space, then, for the medical students, it is *External regulation*. At the same time, as noted above, *Introjected (extrinsic) motivation* has the opposite impacts on the overall involvement of the psychological (positive) and medical (negative) students in the digital space. In addition, if, for *Digital involvement* in the natural science students, a positive impact of *Openness* is confirmed, then, for the psychological students, *Extraversion* has a positive impact but *Agreeableness* has a negative impact; whereas, in the medical students, none of the personality traits has a significant impact in this case.

Table 5 shows that the regression models for *The use of digital technologies in education* predict only 6.95% of the variance in the total sample, 28.1% in the psychology students, 26.1 in medical the students, and 11.1% in the natural sciences students. *Extraversion* has a significant positive impact on *The use of digital technologies in education* in the total sample and in the psychology students. *Motivation for self-respect* has a significant positive impact on *The use of digital technologies in education* in the total sample. *Neuroticism* and *Motivation for personal growth* have a significant positive impact on *The use of digital tech-*

nologies in education in the medical students. *Conscientiousness* has a significant positive impact on *The use of digital technologies in education* in the natural sciences students. *Achievement motivation* has a significant positive impact on *The use of digital technologies in education* in the psychology students, but in the natural sciences students this impact is negative. *Openness* has a significant negative impact on *The use of digital technologies in education* in the psychology students. *Introjected motivation* has a significant negative impact on *The use of digital technologies in education* in the total sample and in the medical students.

Table 5

Best predictor regression models for *The use of digital technologies in education*

Sample/variable	Summary of model			Coefficients			
	R^2_{adj}	*F*	*p*-value	Estimate	Standard error	*t*-value	*p*-value
Total sample (N = 173)	.0695	4.21	.003				
(Intercept)				10.1812	1.6496	6.17	< .001
Extraversion				.0639	.0313	2.04	.043
Motivation for self-respect				.1219	.0604	2.02	.045
Introjected motivation				−.1672	.0614	−2.72	.007
Amotivation				.1216	.0721	1.69	.093
Natural sciences students (N = 63)	.111	4.87	.011				
(Intercept)				10.966	1.6617	6.60	< .001
Conscientiousness				.136	.0447	3.05	.003
Achievement motivation				−.188	.0863	−2.17	.034
Medical students (N = 62)	.261	8.17	< .001				
(Intercept)				−0.547	3.0823	−0.177	.860
Neuroticism				.221	.0549	4.018	< .001
Motivation for personal growth				.444	.1271	3.498	< .001
Introjected motivation				−.243	.0847	−2.864	.006
Psychology students (N = 48)	.281	7.14	< .001				
(Intercept)				8.840	3.4058	2.60	.013
Extraversion				.200	.0665	3.00	.004
Openness				−.163	.0772	−2.11	.040
Achievement motivation				.281	.1241	2.26	.029

We can see more differences in the obtained regression models, both with the models obtained for the two previous indicators of attitudes to DETs and between the models obtained for different samples in this case for the use of digital technologies in education. In the total sample, only *Motivation for self-respect* is retained as a positive predictor, *Extraversion* and *Amotivation* (at the trend level) are added to it, and *Introjected motivation* is a negative predictor. In the sample of natural science students, only *Achievement motivation* remains as a negative predictor and *Conscientiousness* appears as a positive predictor (only one time). In the sample of medical students, *Introjected motivation* persists as a negative

predictor, while *Neuroticism* and *Motivation for personal growth* first appear as positive predictors. In the sample of psychological students, there is not a single predictor that would be repeated for all the three Indicators of Attitudes towards DETs. *Extraversion* is a positive predictor only in two cases: for *General involvement in the digital space* and for *The use of digital technologies in education*. In the latter case, *Achievement motivation* is a positive predictor (as compared to the natural sciences students), and *Openness* appears for the first time as a significant but negative predictor in this sample (in contrast to the positive impact of this personality trait in the other samples and for the other Indicators of Attitudes towards DETs).

Thus, we partially confirmed our assumption that the scales of academic motivation have a greater impact on attitudes towards DETs among university students as compared to personality traits. However, the differences in these impacts, which we have assumed in the samples of students of different fields of study, have turned out to be even larger than we have expected. In general, the impact of personality traits is more pronounced for the psychological students' attitudes, and the impact of scales of academic motivation is more pronounced for the medical students' attitudes.

Conclusion

The purpose of this exploratory study is to consider and to compare the impacts of the academic motivation and personality traits on attitudes toward DETs among Russian university students from different fields of study (Psychology Sciences, Medical Sciences, and Natural Sciences). Summarizing the results of the study, we can draw the following conclusions.

Firstly, the regression models using the FFM personality traits and scales of academic motivation as predictors can explain the different percentage of variance in attitudes towards DETs in the different student samples: from 6.61 to 8.19% in the total sample, from 11.1 to 16.1% in the natural science students, from 10.2 to 26.1% in the medical students, and from 21.0 to 28.1% in the psychology students. We are inclined to interpret the higher percentage of explained variance in the sample of psychological students by the fact that psychology belongs to the "person-to-person" professions, for which not only professional but also personal qualities of specialists are important.

Secondly, among the scales of academic motivation, *Motivation for self-respect* is most often a positive predictor of different Indicators of Attitudes towards DETs in all the studied samples. *Amotivation* is a negative predictor of all the studied Indicators of Attitudes towards DETs in the total sample, *Achievement motivation* is a negative predictor of all the studied indicators of attitudes towards DETs in the natural science students, *Introjected motivation* is a negative predictor of all the studied Indicators of Attitudes towards DETs in the medical students, and *Intrinsic cognition motivation* is a positive predictor of two of the three studied Indicators of Attitudes towards DETs in the psychology students. In this case, it should be noted that for the psychological students, unlike the other samples, only *Intrinsic academic motivation* (*Cognition* and *Achievement*) is a positive predictor of attitudes towards DETs.

Thirdly, among the personality traits, *Openness* is most often a positive predictor of general interest and involvement in digital technologies in all the samples, except for the psychological students, for whom, more often, *Extraversion* is a positive and *Agreeableness* is a negative predictor of various Indicators of Attitudes towards DETs.

The limitations of this study are due to: (1) the relatively small size of the samples and their female-to-male ratio; (2) the technique for measuring attitudes towards DETs, which needs to be improved in accordance with new data obtained in the process of online learning during the pandemic lockdowns; (3) a certain lack of prior research on personality and especially motivational predictors of university students' attitudes to DETs; therefore, it is difficult to compare our results with those obtained by other researchers and provide a more comprehensive outlook on the problem.

Accordingly, we see ***the prospects*** of the present study in overcoming these limitations, as well as in the development of psychological support programs for university students to improve the effectiveness of the use of DETs.

References

Ahern, A., & López-Medina, B. (2021). Developing pre-service teachers' digital communication and competences through service learning for bilingual literacy. *Training, Language and Culture, 5*(1), 57–67. https://doi.org/10.22363/2521-442X-2021-5-1-57-67

Aleshkovski, I.A., Gasparishvili, A.T., Krukhmaleva, O.V., Narbut, N.P., & Savina, N.E. (2021). Russian students about learning under the Covid-19 pandemic: Resources, opportunities and assessment of the distance learning. *RUDN Journal of Sociology, 21*(2), 211–224. (In Russ.) https://doi.org/10.22363/2313-2272-2021-21-2-211-224

Aleshkovskiy, I.A., Gasparishvili, A.T., Krukhmaleva, O.V., Narbut, N.P., & Savina, N.E. (2020). Russian university students about distance learning: assessments and opportunities. *Higher Education in Russia, 29*(10), 86–100. https://doi.org/10.31992/0869-3617-2020-29-10-86-100

Andrew, M., Taylorson, J., Langille, D.J., Grange, A., & Williams, N. (2018). Student attitudes towards technology and their preferences for learning tools/devices at two universities in the UAE. *Journal of Information Technology Education: Research, 17*, 309–344. https://doi.org/10.28945/4111

Anourova, N.I. (2018). Digital technologies in education. *Digital Society as a Cultural and Historical Context of Human Development: Conference Proceedings* (pp. 29–32). Kolomna: State University of Humanities and Social Studies. (In Russ.)

Baeva, L.V., Khrapov, S.A., Azhmukhamedov, I.M., Grigorev A.V., & Kuznetsova, V.Yu. (2020). Digital turn in Russian education: From problems to possibilities. *Tsennosti i Smysly*, (5), 28–44. (In Russ.) https://doi.org/10.24411/2071-6427-2020-10043

Bakhov, I., Opolska, N., Bogus, M., Anishchenko, V., & Biryukova, Y. (2021). Emergency distance education in the conditions of COVID-19 pandemic: Experience of Ukrainian universities. *Education Sciences, 11*(7), 364. https://doi.org/10.3390/educsci11070364

Belinskaya, E.P., & Fedorova, N.V. (2020). Personal factors of evaluating the efficiency of distance education. *Obrazovanie Lichnosti*, (1–2), 44–53. (In Russ.)

Belinskaya, E.P., & Bronin, I.D. (2014). Adaptation of the Russian version of M. Berzonsky's Identity Style Inventory. *Psychological Studies, 7*(34), 12. (In Russ.) https://doi.org/10.54359/ps.v7i34.630

Berzonsky, M.D. (1989). Identity style: Conceptualization and measurement. *Journal of Adolescent Research, 4*(3), 268–282. https://doi.org/10.1177/074355488943002

Berzonsky, M.D. (1992). identity style and coping strategies. *Journal of Personality, 60*(4), 771–788. https://doi.org/10.1111/j.1467-6494.1992.tb00273.x

Berzonsky, M.D., & Kuk, L.S. (2000). Identity status, identity processing style, and the transition to university. *Journal of Adolescent Research, 15*(1), 81–98. https://doi.org/10.1177/0743558400151005

Bhagat, K.K., Wu, L.Y., & Chang, C.-Y. (2019). The impact of personality on students' perceptions towards online learning. *Australasian Journal of Educational Technology, 35*(4), 98–108. https://doi.org/10.14742/ajet.4162

Biryukov, S.D., & Vasilev, O.P. (1997). Psychogenetic study of the temperament properties and personality characteristics: Analysis of the structure of the studied variables. *Works of the RAS Institute of Psychology, 2*, 23–51. Moscow: Institute of Psychology RAS. (In Russ.)

Bodunov, M.V., & Biryukov, S.D. (1989). *Big 5: Five-Factor Inventory. Adapted and reproduced by special permission of the Publisher, Psychological Assessment Resources from the NEO Five Factor Inventory by P. Costa, R. McCrae*. Moscow: Institute of Psychology RAS.

Bychkova, P.A. (2020). *Psychological characteristics of students and their attitude to digital educational technologies* (MA in Psychology Thesis). Moscow: RUDN University. (In Russ.)

Chaturvedi, K., Vishwakarma, D.K., & Singh, N. (2021). COVID-19 and its impact on education, social life and mental health of students: A survey. *Children and Youth Services Review, 121*, 105866. https://doi.org/10.1016/j.childyouth.2020.105866

Corell-Almuzara, A., López-Belmonte, J., Marín-Marín, J.-A., & Moreno-Guerrero, A.-J. (2021). COVID-19 in the field of education: State of the art. *Sustainability, 13*(10), 5452. https://doi.org/10.3390/su13105452

Costa, P.T., & McCrae, R.R. (1992). *Revised NEO Five Factor Inventory (NEO-PI-R) and the NEO Five-Factor Inventory (NEO-FFI). Professional Manual*. Odessa: Psychological Assessment Resources.

De Martino, M., Gushchina, Y.S., Boyko, Z.V., Magnanini, A., Sandor, I., Guerrero Perez, B.A., & Isidori, E. (2020). Self-organisation in lifelong learning: Theory, practice and implementation experience involving social networks and a remote format. *RUDN Journal of Psychology and Pedagogics, 17*(3), 373–389. https://doi.org/10.22363/2313-1683-2020-17-3-373-389

Dixson, M.D. (2010). Creating effective student engagement in online courses: What do students find engaging? *Journal of the Scholarship of Teaching and Learning, 10*(2), 1–13.

Drozdikova-Zaripova, A.R., Valeeva, R.A., & Latypov, N.R. (2021). The impact of isolation measures during COVID-19 pandemic on Russian students' motivation for learning. *Education Sciences, 11*(11), 722. https://doi.org/10.3390/educsci11110722

Duncan, D.G., & Barczyk, C.C. (2016). Facebook's* effect on learning in higher education: An empirical investigation. *Information Systems Education Journal, 14*(3), 14–28.

Egorova, M.S., & Parshikova, O.V. (2016). Validation of the Short Portrait Big Five Questionnaire (BF-10). *Psychological Studies, 9*(45), 9. (In Russ.) https://doi.org/10.54359/ps.v9i45.492

Ellefsen, L. (2016). An investigation into perceptions of Facebook-use* in higher education. *International Journal of Higher Education, 5*(1), 160–172. https://doi.org/10.5430/ijhe.v5n1p160

Epskamp, S., Costantini, G., Haslbeck, J., Isvoranu, A., Cramer, A.O.J., Waldorp, L.J., Schmittmann, V.D., & Borsboom, D. (2012). *qgraph: Graph Plotting Methods, Psychometric Data Visualization and Graphical Model Estimation (R Package)*. Retrieved from https://CRAN.R-project.org/package=qgraph

* The social network *Facebook* is recognized as extremist and banned in the territory of the Russian Federation.

Gonçalves, S.P., Sousa, M.J., & Pereira, F.S. (2020). Distance learning perceptions from higher education students – the case of Portugal. *Education Sciences, 10*(12), 374. https://doi.org/10.3390/educsci10120374

Gorbunova, T.N., & Leontiev, A.N. (2021). Research of transition processes to u-learning in education. *Baltic Humanitarian Journal, 10*(1), 75–78. (In Russ.) https://doi.org/10.26140/bgz3-2021-1001-0017

Gordeeva, T., Sychev, O., & Osin, E. (2014). "Academic motivation scales" questionnaire. *Psikhologicheskii Zhurnal, 35*(4), 96–107. (In Russ.)

Gray, J.A., & DiLoreto, M. (2016) The effects of student engagement, student satisfaction, and perceived learning in online learning environments. *International Journal of Educational Leadership Preparation, 11*(1).

Guillén-Gámez, F.D., Romero Martínez, S.J., & Ordóñez Camacho, X.G. (2020). Diagnosis of the attitudes towards ICT of education students according to gender and educational modality. *Apertura, 12*(1). https://doi.org/10.32870/ap.v12n1.1786

Kerpelman, J.L., Pittman, J.F., & Adler-Baeder, F. (2008). Identity as a moderator of intervention-related change: Identity style and adolescents' responses to relationships education. *Identity: An International Journal of Theory and Research, 8*(2), 151–171. https://doi.org/10.1080/15283480801940073

Khangeldieva, I.G. (2018). Digital age: Is it possible to outstrip education? *Moscow University Pedagogical Education Bulletin*, (3), 48–60. (In Russ.) https://doi.org/10.51314/2073-2635-2018-3-48-60

Krouglov, A. (2021). Emergency remote teaching and learning in simultaneous interpreting: Capturing experiences of teachers and students. *Training, Language and Culture, 5*(3), 41–56. https://doi.org/10.22363/2521-442X-2021-5-3-41-56

Li, D. (2022). The shift to online classes during the Covid-19 pandemic: Benefits, challenges, and required improvements from the students' perspective. *Electronic Journal of E-Learning, 20*(1), 1–18. https://doi.org/10.34190/ejel.20.1.2106

Martha, A.S.D., Junus, K., Santoso, H.B., & Suhartanto, H. (2021). Assessing undergraduate students' e-Learning competencies: A case study of higher education context in Indonesia. *Education Sciences, 11*(4), 189. https://doi.org/10.3390/educsci11040189

Narbut, N.P., Aleshkovski, I.A., Gasparishvili, A.T., & Krukhmaleva, O.V. (2020). Forced shift to distance learning as an impetus to technological changes in the Russian higher education. *RUDN Journal of Sociology, 20*(3), 611–621. (In Russ.) https://doi.org/10.22363/2313-2272-2020-20-3-611-621

Nestik, T.A., Patrakov, E.V., & Samekin, A.S. (2017). The psychology of person's attitudes toward new technologies: Current state and further research directions. In A.L. Zhuravlev & V.A. Koltsova (Eds.), *Fundamental and Applied Research in Modern Psychology: Results and Development Prospects* (pp. 2041–2050). Moscow: Institute of Psychology RAS. (In Russ.)

Novikova, I., & Bychkova, P. (2022). Attitudes towards digital educational technologies, academic motivation and academic achievements among Russian university students. In D.A. Alexandrov, A.V. Boukhanovsky, A.V. Chugunov, Y. Kabanov, O. Koltsova, I. Musabirov & S. Pashakhin (Eds.), *Digital Transformation and Global Society (DTGS-2021). Communications in Computer and Information Science* (vol. 1503, pp. 280–293). Springer: Cham. https://doi.org/10.1007/978-3-030-93715-7_20

Novikova, I., Bychkova, P., & Zamaldinova, G. (2021a). Personality traits and attitude towards digital educational technologies in Russian university students. *Proceedings of the 15th International Technology, Education and Development Conference (INTED2021)* (pp. 9999–10005). Valencia: IATED. https://doi.org/10.21125/inted.2021.2087

Novikova, I.A., Bychkova, P.A., & Novikov, A.L. (2021b). University students' attitudes towards digital educational technologies before and after outbreak of COVID-19 pandemic. *Tsennosti i Smysly*, (2), 23–44. (In Russ.) https://doi.org/10.24412/2071-6427-2021-2-23-44

Novikova, I.A., Bychkova, P.A., & Novikov, A.L. (2022). Attitudes towards digital educational technologies among Russian university students before and during the COVID-19 pandemic. *Sustainability, 14*(10), 6203. https://doi.org/10.3390/Su14106203

Ozdamli, F. (2017). Attitudes and opinions of special education candidate teachers regarding digital technology. *World Journal on Educational Technology: Current Issues, 9*(4), 191–200. https://doi.org/10.18844/wjet.v9i4.2581

Peruta, A., & Shields, A.B. (2017). Social media in higher education: understanding how colleges and universities use Facebook*. *Journal of Marketing for Higher Education, 27*(1), 131–143. https://doi.org/10.1080/08841241.2016.1212451

Peytcheva-Forsyth, R., Yovkova, B., & Aleksieva, L. (2018). Factors affecting students' attitudes towards online learning – the case of Sofia University. *AIP Conference Proceedings, 2048*(1), e020025. Melville: AIP Publishing. https://doi.org/10.1063/1.5082043

Popova, O.I. (2019). Digitalization of education and university brand: students' attitude to processes. *Management Issues*, (3), 245–250. (In Russ.) https://doi.org/10.22394/2304-3369-2019-3-245-250

R Core Team. (2021). *R: A Language and Environment for Statistical Computing. (Version 4.1.1) (Computer Software)*. Retrieved from https://cran.r-project.org

Radu, M.-C., Schnakovszky, C., Herghelegiu, E., Ciubotariu, V.-A., & Cristea, I. (2020). The impact of the COVID-19 pandemic on the quality of educational process: A student survey. *International Journal of Environmental Research and Public Health, 17*(21), 7770. https://doi.org/10.3390/ijerph17217770

Revelle, W. (2019). *psych: Procedures for psychological, psychometric, and personality research (R package)*. Retrieved from https://cran.r-project.org/package=psych

Rizun, M., & Strzelecki, A. (2020). Students' acceptance of the COVID-19 impact on shifting higher education to distance learning in Poland. *International Journal of Environmental Research and Public Health, 17*(18), 6468. https://doi.org/10.3390/ijerph17186468

Romero Martínez, S.J., Ordóñez-Camacho, X.G., Guillen-Gamez, F.D., & Bravo Agapito, J. (2020). Attitudes towards technology among distance education students: Validation of an explanatory model. *Online Learning, 24*(2), 59–75. https://doi.org/10.24059/olj.v24i2.2028

Simonson M., Zvacek S.M., & Smaldino S. (2019). *Teaching and learning at a distance: Foundations of distance education* (7th edition). Charlotte: IAP.

Soldatova, G.U., & Nestik, T.A. (2016). Technophiles and technophobes. *Deti v Informatsionnom Obshchestve*, (25), 20–29. (In Russ.)

Soldatova, G.U., & Rasskazova, E.I. (2018). Brief and screening versions of the Digital Competence Index: Verification and application possibilities. *National Psychological Journal* (3) 47–56. (In Russ.) https://doi.org/10.11621/npj.2018.0305

Strekalova, N.B. (2019). Risks of implementation of digital technologies into education. *Vestnik of Samara University. History, Pedagogics, Philology, 25*(2), 84–88. (In Russ.) https://doi.org/10.18287/2542-0445-2019-25-2-84-88

The Jamovi Project. (2021). *Jamovi. (Version 2.2) (Computer Software)*. Retrieved from https://www.jamovi.org

* The social network *Facebook* is recognized as extremist and banned in the territory of the Russian Federation.

Tugrul, T.O. (2017). Perceived learning effectiveness of a course Facebook* page: Teacher-led versus student-led approach. *World Journal on Educational Technology: Current Issues, 9*(1), 35–39. https://doi.org/10.18844/wjet.v9i1.1029

Unger, S., & Meiran, W.R. (2020). Student attitudes towards online education during the COVID-19 viral outbreak of 2020: Distance learning in a time of social distance. *International Journal of Technology in Education and Science, 4*(4), 256–266. https://doi.org/10.46328/ijtes.v4i4.107

Vladova, G., Ullrich, A., Bender, B., & Gronau, N. (2021). Students' acceptance of technology-mediated teaching – how it was influenced during the COVID-19 pandemic in 2020: A study from Germany. *Frontiers in Psychology, 12*, 636086. https://doi.org/10.3389/fpsyg.2021.636086

Yasmin, M. (2022). Online chemical engineering education during COVID-19 pandemic: Lessons learned from Pakistan. *Education for Chemical Engineers, 39*, 19–30. https://doi.org/10.1016/j.ece.2022.02.002

Yuzefovich, T.S. (2018). *Relation between activity of using digital technologies and educational motivation and academic achievement in students of different areas of study* (MA in Psychology Thesis). Moscow: RUDN University. (In Russ.)

Article history:
Received 28 August 2022
Revised 11 October 2022
Accepted 15 October 2022

For citation:
Novikova, I.A., Bychkova, P.A., Novikov, A.L., & Shlyakhta D.A. (2022). Personality traits and academic motivation as predictors of attitudes towards digital educational technologies among Russian university students. *RUDN Journal of Psychology and Pedagogics, 19*(4), 689–716. http://doi.org/10.22363/2313-1683-2022-19-4-689-716

Bio notes:

Irina A. Novikova, Ph.D. in Psychology, Associate Professor, is Associate Professor at the Psychology and Pedagogics Department, Peoples' Friendship University of Russia (RUDN University) (Moscow, Russia). ORCID: 0000-0001-5831-1547, Scopus ID: 35766733000, Researcher ID: Q-5276-2016, eLIBRARY SPIN-code: 7717-2834. E-mail: novikova-ia@rudn.ru

Polina A. Bychkova, MA in Psychology, is graduate student at the Psychology and Pedagogics Department, Peoples' Friendship University of Russia (RUDN University) (Moscow, Russia). ORCID: https://orcid.org/0000-0002-6526-7262, Scopus ID: 57222720667, Researcher ID: ACD-4333-2022. E-mail: bychkova.polina.97@mail.ru

Alexey L. Novikov, Ph.D. in Philology, Associate Professor, is Associate Professor at the General and Russian Linguistics Department, Peoples' Friendship University of Russia (RUDN University) (Moscow, Russia). ORCID: 0000-0003-3482-5070, Scopus ID: 56005222400, Researcher ID: Q-5419-2016, eLIBRARY SPIN-code: 3416-1350. E-mail: Novikov-al@rudn.ru

Dmitriy A. Shlyakhta, Ph.D. in Psychology, Associate Professor, is Associate Professor at the Psychology and Pedagogics Department, Peoples' Friendship University of Russia (RUDN University) (Moscow, Russia). Scopus ID: 57191998066, eLIBRARY SPIN-code: 6172-5460. E-mail: shlyakhta-da@rudn.ru

* The social network *Facebook* is recognized as extremist and banned in the territory of the Russian Federation.

DOI 10.22363/2313-1683-2022-19-4-689-716
УДК 159.923

Исследовательская статья

Личностные черты и академическая мотивация как предикторы отношения студентов к цифровым образовательным технологиям

И.А. Новикова, П.А. Бычкова, А.Л. Новиков, Д.А. Шляхта

Российский университет дружбы народов,
Российская Федерация, 117198, Москва, ул. Миклухо-Маклая, д. 6
novikova-ia@rudn.ru

Аннотация. В современную эпоху цифровизации разработка и внедрение цифровых образовательных технологий (ЦОТ) находятся в центре многочисленных дискуссий педагогов, психологов, социологов, медиков и т. д. Более того, пандемия COVID-19 мгновенно сделала ЦОТ неотъемлемой частью современной общественной жизни во всем мире. Однако как до, так и во время пандемии COVID-19 относительно мало внимания уделялось изучению мотивационных и личностных характеристик студентов вузов, связанных с их отношением к ЦОТ и эффективностью использования ЦОТ в обучении. В настоящем исследовании приняли участие 173 студента (61 % – девушки) российских вузов разных направлений обучения (естественные науки, медицина, психология) в возрасте от 17 до 26 лет. Отношение студентов к ЦОТ диагностировалось с помощью авторской методики «Опросник отношения студентов вузов к ЦОТ». Учебная мотивация студентов измерялась с помощью шкал академической мотивации Т.О. Гордеевой и др. Для диагностики черт личности применялся NEO Five-Factor Inventory в русскоязычной адаптации М.В. Бирюкова и С.Д. Бодунова. Для статистического анализа использовались методы описательной статистики, *U*-критерий Манна – Уитни и множественный регрессионный анализ. Результаты исследования показали, что шкалы учебной мотивации являются более значимыми предикторами отношения к ЦОТ по сравнению с личностными чертами студентов. Однако существуют особенности соотношения мотивационных и личностных предикторов ЦОТ у студентов разных направлений обучения, особенно у студентов-психологов. Выводы данного исследования свидетельствуют о том, что учет таких психологических факторов, как учебная мотивация и личностные черты студентов, может способствовать оптимальному внедрению ЦОТ в современный образовательный процесс.

Ключевые слова: цифровые образовательные технологии, отношение, цифровая компетентность, студенты, академическая мотивация, Пятифакторная модель личности, черты личности

Благодарности и финансирование. Исследование выполнено при поддержке Программы стратегического академического лидерства РУДН «Приоритет-2030», публикация подготовлена при поддержке научного проекта № 051320-0-000 на кафедре психологии и педагогики филологического факультета РУДН.

Список литературы

Алешковский И.А., Гаспаришвили А.Т., Крухмалева О.В., Нарбут Н.П., Савина Н.Е. Студенты России об обучении в период пандемии Covid-19: ресурсы, возможности и оценка учебы в удаленном режиме // Вестник Российского университета

дружбы народов. Серия: Социология. 2021. Т. 21. № 2. С. 211–224. https://doi.org/10.22363/2313-2272-2021-21-2-211-224

Алешковский И.А., Гаспаришвили А.Т., Крухмалева О.В., Нарбут Н.П., Савина Н.Е. Студенты вузов России о дистанционном обучении: оценка и возможности // Высшее образование в России. 2020. Т. 29. № 10. С. 86–100. https://doi.org/10.31992/0869-3617-2020-29-10-86-100

Анурова Н.И. Цифровые технологии в образовании // Цифровое общество как культурно-исторический контекст развития человека: сборник научных статей / под общ. ред. Р.В. Ершовой. Коломна: Государственный социально-гуманитарный университет, 2018. С. 29–32.

Баева Л.В., Храпов С.А., Ажмухамедов И.М., Григорьев А.В., Кузнецова В.Ю. Цифровой поворот в российском образовании: от проблем к возможностям // Ценности и смыслы. 2020. № 5 (69). С. 28–44. https://doi.org/10.24411/2071-6427-2020-10043

Белинская Е.П., Бронин И.Д. Адаптация русскоязычной версии опросника стилей идентичности М. Берзонски // Психологические исследования. 2014. Т. 7. № 34. С. 12. https://doi.org/10.54359/ps.v7i34.630

Белинская Е.П., Федорова Н.В. Личностные факторы оценки эффективности дистанционного образования // Образование личности. 2020. № 1–2. С. 44–53.

Бирюков С.Д., Васильев О.П. Психогенетическое исследование свойств темперамента и личностных характеристик: анализ структуры изучаемых переменных // Труды Института психологии РАН / отв. ред. А.В. Брушлинский, В.А. Бодров. М.: ИП РАН, 1997. Т. 2. С. 23–51.

Бычкова П.А. Психологические особенности студентов и их отношение к цифровым образовательным технологиям: ВКР магистра. М.: РУДН, 2020. 105 с.

Горбунова Т.Н., Леонтьев А.Н. Исследование процессов перехода к u-learning в сфере образования // Балтийский гуманитарный журнал. 2021. Т. 10. № 1 (34). С. 75–78. https://doi.org/10.26140/bgz3-2021-1001-0017

Гордеева Т.О., Сычев О.А., Осин Е.Н. Опросник «Шкалы академической мотивации» // Психологический журнал. 2014. Т. 35. № 4. С. 96–107.

Егорова М.С., Паршикова О.В. Психометрические характеристики Короткого портретного опросника Большой пятерки (Б5-10) // Психологические исследования. 2016. Т. 9. № 45. С. 9. https://doi.org/10.54359/ps.v9i45.492

Нарбут Н.П., Алешковский И.А., Гаспаришвили А.Т., Крухмалева О.В. Вынужденное дистанционное обучение как стимул технологических изменений высшей школы России // Вестник Российского университета дружбы народов. Серия: Социология. 2020. Т. 20. № 3. С. 611–621. https://doi.org/10.22363/2313-2272-2020-20-3-611-621

Нестик Т.А., Патраков Э.В., Самекин А.С. Психология отношения человека к новым технологиям: состояние и перспективы исследований // Фундаментальные и прикладные исследования современной психологии: результаты и перспективы развития / отв. ред. А.Л. Журавлёв, В.А. Кольцова. М.: Изд-во «Институт психологии РАН», 2017. С. 2041–2050.

Новикова И.А., Бычкова П.А., Новиков А.Л. Отношение студентов к цифровым образовательным технологиям до и после начала пандемии COVID-19 // Ценности и смыслы. 2021. № 2. С. 23–44. https://doi.org/10.24412/2071-6427-2021-2-23-44

Попова О.И. Цифровизация образования и бренд вуза: отношение студентов к процессам // Вопросы управления. 2019. № 3 (39). С. 245–250. https://doi.org/10.22394/2304-3369-2019-3-245-250

Солдатова Г.У., Нестик Т.А. Технофилы и технофобы // Дети в информационном обществе. 2016. № 25. С. 20–29.

Солдатова Г.У., Рассказова Е.И. Краткая и скрининговая версии индекса цифровой компетентности: верификация и возможности применения // Национальный психологический журнал. 2018. № 3 (31). С. 47–56. https://doi.org/10.11621/npj.2018.0305

Стрекалова Н.Б. Риски внедрения цифровых технологий в образовании // Вестник Самарского университета. История, педагогика, филология. 2019. Т. 25. № 2. С. 84–88. https://doi.org/10.18287/2542-0445-2019-25-2-84-88

Хангельдиева И.Г. Цифровая эпоха: возможно ли опережающее образование? // Вестник Московского университета. Серия 20: Педагогическое образование. 2018. № 3. С. 48–60. https://doi.org/10.51314/2073-2635-2018-3-48-60

Юзефович Т.С. Соотношение активности использования цифровых технологий с учебной мотивацией и академической успешностью у студентов разных направлений обучения: ВКР магистра. М.: РУДН, 2018. 114 с.

Ahern A., López-Medina B. Developing pre-service teachers' digital communication and competences through service learning for bilingual literacy // Training, Language and Culture. 2021. Vol. 5. No 1. Pp. 57–67. https://doi.org/10.22363/2521-442X-2021-5-1-57-67

Andrew M., Taylorson J., Langille D.J., Grange A., Williams N. Student attitudes towards technology and their preferences for learning tools/devices at two universities in the UAE // Journal of Information Technology Education: Research. 2018. Vol. 17. Pp. 309–344. https://doi.org/10.28945/4111

Bakhov I., Opolska N., Bogus M., Anishchenko V., Biryukova Y. Emergency distance education in the conditions of COVID-19 pandemic: experience of Ukrainian universities // Education Sciences. 2021. Vol. 11. No 7. P. 364. https://doi.org/10.3390/educsci11070364

Berzonsky M.D. Identity style and coping strategies // Journal of Personality. 1992. Vol. 60. No 4. Pp. 771–788. https://doi.org/10.1111/j.1467-6494.1992.tb00273.x

Berzonsky M.D. Identity style: conceptualization and measurement // Journal of Adolescent Research. 1989. Vol. 4. No 3. Pp. 268–282. https://doi.org/10.1177/074355488943002

Berzonsky M.D., Kuk L.S. Identity status, identity processing style, and the transition to university // Journal of Adolescent Research. 2000. Vol. 15. No 1. Pp. 81–98. https://doi.org/10.1177/0743558400151005

Bhagat K.K., Wu L.Y., Chang C.-Y. The impact of personality on students' perceptions towards online learning // Australasian Journal of Educational Technology. 2019. Vol. 35. No 4. Pp. 98–108. https://doi.org/10.14742/ajet.4162

Bodunov M.V., Biryukov S.D. Big 5: Five-Factor Inventory. Adapted and reproduced by special permission of the Publisher, Psychological Assessment Resources from the NEO Five Factor Inventory by P. Costa, R. McCrae. Moscow: Institute of Psychology RAS Publ., 1989.

Chaturvedi K., Vishwakarma D.K., Singh N. COVID-19 and its impact on education, social life and mental health of students: a survey // Children and Youth Services Review. 2021. Vol. 121. Article 105866. https://doi.org/10.1016/j.childyouth.2020.105866

Corell-Almuzara A., López-Belmonte J., Marín-Marín J.-A., Moreno-Guerrero A.-J. COVID-19 in the field of education: state of the art // Sustainability. 2021. Vol. 13. No 10. P. 5452. https://doi.org/10.3390/su13105452

Costa P.T., McCrae R.R. Revised NEO Five Factor Inventory (NEO-PI-R) and the NEO Five-Factor Inventory (NEO-FFI). Professional Manual. Odessa: Psychological Assessment Resources, 1992.

De Martino M., Gushchina Y.S., Boyko Z.V., Magnanini A., Sandor I., Guerrero Perez B.A., Isidori E. Self-organisation in lifelong learning: theory, practice and implementation experience involving social networks and a remote format // RUDN Journal of Psychology and Pedagogics. 2020. Vol. 17. No 3. Pp. 373–389. https://doi.org/10.22363/2313-1683-2020-17-3-373-389

Dixson M.D. Creating effective student engagement in online courses: what do students find engaging? // Journal of the Scholarship of Teaching and Learning. 2010. Vol. 10. No 2. Pp. 1–13.

Drozdikova-Zaripova A.R., Valeeva R.A., Latypov N.R. The impact of isolation measures during COVID-19 pandemic on Russian students' motivation for learning // Education Sciences. 2021. Vol. 11. No 11. P. 722. https://doi.org/10.3390/educsci11110722

Duncan D.G., Barczyk C.C. Facebook's* effect on learning in higher education: an empirical investigation // Information Systems Education Journal. 2016. Vol. 14. No 3. Pp. 14–28.

Ellefsen L. An investigation into perceptions of Facebook-use* in higher education // International Journal of Higher Education. 2016. Vol. 5. No 1. Pp. 160–172. https://doi.org/10.5430/ijhe.v5n1p160

Epskamp S., Costantini G., Haslbeck J., Isvoranu A., Cramer A.O.J., Waldorp L.J., Schmittmann V.D., Borsboom D. qgraph: Graph Plotting Methods, Psychometric Data Visualization and Graphical Model Estimation (R Package). 2012. URL: https://CRAN.R-project.org/package=qgraph

Gonçalves S.P., Sousa M.J., Pereira F.S. Distance learning perceptions from higher education students – the case of Portugal // Education Sciences. 2020. Vol. 10. No 12. P. 374. https://doi.org/10.3390/educsci10120374

Gray J.A., DiLoreto M. The effects of student engagement, student satisfaction, and perceived learning in online learning environments // International Journal of Educational Leadership Preparation. 2016. Vol. 11. No 1.

Guillén-Gámez F.D., Romero Martínez S.J., Ordóñez Camacho X.G. Diagnosis of the attitudes towards ICT of education students according to gender and educational modality // Apertura. 2020. Vol. 12. No 1. https://doi.org/10.32870/ap.v12n1.1786

Jamovi (Version 2.2) (Computer Software). The Jamovi Project, 2021. URL: https://www.jamovi.org

Kerpelman J.L., Pittman J.F., Adler-Baeder F. Identity as a moderator of intervention-related change: identity style and adolescents' responses to relationships education // Identity: An International Journal of Theory and Research 2008. Vol. 8. No 2. Pp. 151–171. https://doi.org/10.1080/15283480801940073

Krouglov A. Emergency remote teaching and learning in simultaneous interpreting: capturing experiences of teachers and students // Training, Language and Culture. 2021. Vol. 5. No 3. Pp. 41–56. https://doi.org/10.22363/2521-442X-2021-5-3-41-56

Li D. The shift to online classes during the Covid-19 pandemic: benefits, challenges, and required improvements from the students' perspective // Electronic Journal of E-Learning. 2022. Vol. 20. No 1. Pp. 1–18. https://doi.org/10.34190/ejel.20.1.2106

Martha A.S.D., Junus K., Santoso H.B., Suhartanto H. Assessing undergraduate students' e-Learning competencies: a case study of higher education context in Indonesia // Education Sciences. 2021. Vol. 11. No 4. P. 189. https://doi.org/10.3390/educsci11040189

Novikova I., Bychkova P. Attitudes towards digital educational technologies, academic motivation and academic achievements among Russian university students // Digital Transformation and Global Society. DTGS 2021. Communications in Computer and Information Science / ed. by D.A. Alexandrov, A.V. Boukhanovsky, A.V. Chugunov, Y. Kabanov, O. Koltsova, I. Musabirov, S. Pashakhin. Cham: Springer, 2022. Vol. 1503. Pp. 280–293. https://doi.org/10.1007/978-3-030-93715-7_20

Novikova I., Bychkova P., Zamaldinova G. Personality traits and attitude towards digital educational technologies in Russian university students // Proceedings of the 15th International Technology, Education and Development Conference (INTED2021). Valencia: IATED, 2021. Pp. 9999–10005. https://doi.org/10.21125/inted.2021.2087

Novikova I.A., Bychkova P.A., Novikov A.L. Attitudes towards digital educational technologies among Russian university students before and during the COVID-19 pandemic // Sustainability. 2022. Vol 14. No 10. P. 6203. https://doi.org/10.3390/Su14106203

Ozdamli F. Attitudes and opinions of special education candidate teachers regarding digital technology // World Journal on Educational Technology: Current Issues. 2017. Vol. 9. No 4. Pp. 191–200. https://doi.org/10.18844/wjet.v9i4.2581

* Социальная сеть Facebook признана экстремистской и запрещена на территории РФ.

Peruta A., Shields A.B. Social media in higher education: understanding how colleges and universities use Facebook* // Journal of Marketing for Higher Education. 2017. Vol. 27. No 1. Pp. 131–143. https://doi.org/10.1080/08841241.2016.1212451

Peytcheva-Forsyth R., Yovkova B., Aleksieva L. Factors affecting students' attitudes towards online learning – the case of Sofia University // AIP Conference Proceedings. 2018. Vol. 2048. No 1. Article e020025. https://doi.org/10.1063/1.5082043

R: A Language and Environment for Statistical Computing. (Version 4.1.1) (Computer Software). R Core Team, 2021. URL: https://cran.r-project.org

Radu M.-C., Schnakovszky C., Herghelegiu E., Ciubotariu V.-A., Cristea I. The impact of the COVID-19 pandemic on the quality of educational process: a student survey // International Journal of Environmental Research and Public Health. 2020. Vol. 17. No 21. P. 7770. https://doi.org/10.3390/ijerph17217770

Revelle W. psych: Procedures for psychological, psychometric, and personality research (R package). 2019. URL: https://cran.r-project.org/package=psych

Rizun M., Strzelecki A. Students' acceptance of the COVID-19 impact on shifting higher education to distance learning in Poland // International Journal of Environmental Research and Public Health. 2020. Vol. 17. No 18. P. 6468. https://doi.org/10.3390/ijerph17186468

Romero Martínez S.J., Ordóñez-Camacho X.G., Guillen-Gamez F.D., Bravo Agapito J. Attitudes towards technology among distance education students: validation of an explanatory model // Online Learning. 2020. Vol. 24. No 2. Pp. 59–75. https://doi.org/10.24059/olj.v24i2.2028

Simonson M., Zvacek S.M., Smaldino S. Teaching and learning at a distance: foundations of distance education. 7th ed. Charlotte: IAP, 2019. 366 p.

Tugrul T.O. Perceived learning effectiveness of a course Facebook* page: teacher-led versus student-led approach // World Journal on Educational Technology: Current Issues. 2017. Vol. 9. No 1. Pp. 35–39. https://doi.org/10.18844/wjet.v9i1.1029

Unger S., Meiran W.R. Student attitudes towards online education during the COVID-19 viral outbreak of 2020: distance learning in a time of social distance // International Journal of Technology in Education and Science. 2020. Vol. 4. No 4. Pp. 256–266. https://doi.org/10.46328/ijtes.v4i4.107

Vladova G., Ullrich A., Bender B., Gronau N. Students' acceptance of technology-mediated teaching – how it was influenced during the COVID-19 pandemic in 2020: a study from Germany // Frontiers in Psychology. 2021. Vol. 12. Article 636086. https://doi.org/10.3389/fpsyg.2021.636086

Yasmin M. Online chemical engineering education during COVID-19 pandemic: lessons learned from Pakistan // Education for Chemical Engineers. 2022. Vol. 39. Pp. 19–30. https://doi.org/10.1016/j.ece.2022.02.002

История статьи:
Поступила в редакцию 28 августа 2022 г.
Принята к печати 15 октября 2022 г.

Для цитирования:
Novikova I.A., Bychkova P.A., Novikov A.L., Shlyakhta D.A. Personality traits and academic motivation as predictors of attitudes towards digital educational technologies among Russian university students // Вестник Российского университета дружбы народов. Серия: Психология и педагогика. 2022. Т. 19. № 4. С. 689–716. http://doi.org/10.22363/2313-1683-2022-19-4-689-716

* Социальная сеть Facebook признана экстремистской и запрещена на территории РФ.

Сведения об авторах:

Новикова Ирина Александровна, кандидат психологических наук, доцент, доцент кафедры психологии и педагогики, Российский университет дружбы народов (Москва, Россия). ORCID: 0000-0001-5831-1547, Scopus ID: 35766733000, Researcher ID: Q-5276-2016, eLIBRARY SPIN-код: 7717-2834. E-mail: novikova-ia@rudn.ru

Бычкова Полина Александровна, магистр психологии, аспирант, кафедра психологии и педагогики, Российский университет дружбы народов (Москва, Россия). ORCID: 0000-0002-6526-7262, Scopus ID: 57222720667, Researcher ID: ACD-4333-2022. E-mail: bychkova.polina.97@mail.ru

Новиков Алексей Львович, кандидат филологических наук, доцент, доцент кафедры общего и русского языкознания, Российский университет дружбы народов (Москва, Россия). ORCID: 0000-0003-3482-5070, Scopus ID: 56005222400, Researcher ID: Q-5419-2016, eLIBRARY SPIN-код: 3416-1350. E-mail: novikov-al@rudn.ru

Шляхта Дмитрий Александрович, кандидат психологических наук, доцент, доцент кафедры психологи и педагогики, Российский университет дружбы народов (Москва, Россия). Scopus ID: 57191998066, eLIBRARY SPIN-код: 6172-5460. E-mail: shlyakhta-da@rudn.ru