Research article

Individual Psychological Specificity of Self-Realization of IT Specialists

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Abstract. The research of the structure of the phenomenon of self-realization among specialists in the digital sphere in the context of information and computer activities is presented. The authors analyzed the hierarchy and components of self-realization among IT workers with different sets of individual psychological characteristics, which, through clustering, were divided into three subtypes: (1) introverted-confident; (2) extroverted-active; and (3) extroverted-prosocial. The study involved 154 people, including 42 women and 112 men aged 22–44 (mean age = 32.09 ± 5.71); all of them were employees of leading Russian IT companies in Moscow. Following psychodiagnostic techniques were applied: Individual-Typological Questionnaire (ITQ) by L.N. Sobchik, Eysenck Personality Inventory (EPI) — introversion – extroversion scale, Strategic Approach to Coping Scale (SACS) questionnaire by S. Hobfoll, and Multidimensional Personality Self-Realization Inventory (MPSI) by S.I. Kudinov. The results showed that the structure of self-realization had its own specific features depending on the personality type of the IT employees. For the respondents of cluster I (introverted-confident personality type), the main variables of the self-realization process were optimism, internality and constructiveness, which led to success and a positive assessment of the self-realization process. For the respondents with extroverted-active characteristics in the hierarchy of personal self-realization, the key components of self-realization were social and corporate attitudes, egocentric motivation, internality, conservatism, and destructiveness. The respondents with extroverted-prosocial traits had pronounced subjective personal attitudes, internality, creativity, destructiveness, and social barriers, with predominant limiting factors of self-realization. The results of the study can be considered in the context of psychological support for the IT specialists based on their individual psychological traits.

Key words: IT-specialists, individual typological features, extraversion, introversion, coping behavior, coping strategies, self-realization, self-expression

Introduction

To date, our society has transformed from industrial to post-industrial, causing the active development of the digital sphere, in particular information technologies (IT), which many scientists consider as the fourth round of the scientific and

technological revolution (Druzhilov, 2018; Nebratenko, Burlutskiy, 2020; Volkov, 2022). Advances in the IT industry have made this area of professional activity very popular. There is a steady increase in requirements for the professional activities of IT specialists as well as for their individual typological traits. In this regard, the problem of studying professional self-realization in the context of the individual characteristics of IT specialists is becoming increasingly relevant (Vodyanova, 2009).

Various issues of digitalization that affect different aspects of our lives are studied in a broad, interdisciplinary context. Empirical studies by a number of authors examine a wide range of problems related to the digital sphere, ranging from the use of digital technologies in the educational process (Zemnukhova, 2013; Sklyarova, Malyshev, 2021; Crysdian, 2022; Flaminiano, 2022) and professional activities (Pavlova et al., 2019; Schehl, 2019; Lippke et al., 2021; Shamionov, Suzdaltsev, 2022) to the study of the characteristics of Internet behavior of users, including addictions (Ageeva, 2007; Lyvers et al., 2021; Aziz et al., 2022; Wang, 2023).

However, within the framework of psychology, the problem of the information sphere remains understudied (Plotkina, 2010). Works on the psychology of professional activity practically do not cover a comprehensive description of the personal characteristics of representatives of the IT sphere, nor do they consider their changes in the course of carrying out activities in the information system (Babaeva, 1998; Voiskunsky, 2002). While understanding the individual typological characteristics of such specialists is necessary to build a forecast for the success of their activities, as well as to provide psychological support for the process of personal self-expression (Vijh et al., 2022; Tripathi, Kalia, 2022).

The process of self-realization, i.e. formation of an individual as a successful, effective specialist, is influenced not only by acquired knowledge, abilities and skills, but also by a certain set of individual personal characteristics, including features of the motivational and emotional-volitional spheres, skills of regulation and criticality in the implementation of behavior and activities (Ivanov, 2008; Kostakova, Belousova, 2014; Katkalo, Pecherkina, 2022).

In our opinion, the study and prediction of successful personal self-expression is the most promising and comprehensive within the framework of the multi-system approach to the study of self-realization conducted by S.I. Kudinov (Kudinov, 2007). This approach involves identifying forms, types and levels of the process of self-realization. Due to the complex, structural organization of this phenomenon, it seems important to study its features in the context of its individual and personal uniqueness, its association with personal characteristics (Kudinov, Belyaeva, 2023). The self-realization of specialists in the digital sphere is determined by a combination of external and internal factors, which include individual psychological characteristics and features.

Based on the above, a comprehensive, systematic study of the individual psychological characteristics of IT industry specialists in the process of their self-realization seems to be significant and necessary. At the present stage of development of psychological science, the personality traits of specialists in the digital sphere in the context of professional self-realization remain poorly studied, based on which this empirical study can be considered relevant.

The purpose of the study is to identify the individual psychological characteristics of the personality of IT specialists and the specific features of personal self-realization depending on the typology of individual traits.

Research hypotheses: (1) based on the leading individual typological characteristics, a typology of personal characteristics of IT specialists is formed, which determines the characteristics of individual self-realization; and (2) a specific set of personality traits is one of the prerequisites for successful self-realization.

Methods

Participants. The study involved 154 respondents aged 22–44 (mean age = 32.09 ± 5.71). The sample was made up of technical specialists, employees of leading Russian IT companies (Moscow): developers, analysts, testing specialists, designers, system administrators, DevOps engineers, project managers.

Techniques. To study the individual characteristics of the respondents (IT industry specialists), the following psychodiagnostic techniques were used: (1) *Eysenck Personality Inventory (EPI)*, adapted by A.G. Shmelev. The structure of the questionnaire includes 57 questions aimed at identifying the main properties of a person's temperament: 'extraversion' and 'neuroticism'. In our study, we relied only on data related to the parameters 'extroversion-introversion'; (2) *Individual-Typological Questionnaire (ITQ)* by L.N. Sobchik, which includes 91 questions. In accordance with the key, the scores are summed up and form eight scales corresponding to the basic personality traits, namely: 'extroversion', 'spontaneity', 'aggressiveness', 'rigidity', 'introversion', 'sensitivity', 'anxiety', and 'lability'; (3) *Strategic Approach to Coping Scale (SACS) questionnaire (SACS)* by S. Hobfoll, adapted by E. Vodopyanova and E.S. Starchenkova to assess the basic models of coping with stressful situations. The respondents were required to answer 54 questions, as a result of which the nine main strategies of coping behavior were diagnosed, namely: 'assertive actions' (an active line of behavior), the prosocial model of behavior is formed by the strategies 'seeking social support' and 'entering into social contact', the passivity of problem-solving behavior is evidenced by the coping strategies 'avoidance' and 'cautious actions', the direct-indirect line is represented by impulsive and manipulative actions, respectively, the antisocial form of coping behavior is 'aggressive actions' and 'asocial actions'. Next, the index of constructiveness of coping strategies was determined, and a conclusion was made about the adaptability/non-adaptation of behavior; and (4) *Multidimensional Personality Self-Realization Inventory*, by S.I. Kudinov, which included 102 statements[1]. The respondents' answers were grouped into 17 scales that form the main components of personal self-realization, namely: the value-goal component formed the scales of *Social and Corporate Attitudes* and *Subjective Personal Attitudes*; the *Activity* and *Inactivity* indicators showed the features of the dynamic component of self-realization; the emotional component was reflected in *Optimism* and *Pessimism*, the organizational component characterized the *Internality* and *Externality* scales, the *Sociocentrism* and *Egocentrism* scales formed the motivational orientation of the self-realization process; the cognitive component of self-realization was

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[1] Kudinov, S.I., & Kudinov, S.S. (2018). *Psychodiagnostics of personality*. Moscow: RUDN University. (In Russ.)

determined by *Creativity* and *Conservatism*; the *Constructiveness* and *Destructiveness* scales reflected the content of the prognostic component; *Social Barriers* and *Personal Barriers* to self-realization diagnosed the competent-personal component; and an additional scale made it possible to assess the sincerity of the responses. Next, the dominant type of self-realization was revealed, i.e. personal, social or professional one.

Statistical processing was carried out using methods for calculating descriptive statistics and cluster analysis (*k*-means); comparative analysis was carried out using the Kruskal – Wallis *H* test (comparison of three independent samples), Pearson correlation test (Pearson's *r*) as well as factor analysis. Statistical data processing was carried out using the statistical package SPSS 13.0.

Results and discussion

The first stage of our work, when studying the individual personal characteristics of the respondents, as well as the main strategies for coping with problematic situations, involved division (using the *k*-means method) into three clusters, taking into account the prevailing individual psychological characteristics. The following clusters were obtained: (1) introverted-confident type (59 persons, including 47 men and 12 women, whose mean age was 32.47 ± 6.61 years), in which the leading tendency was 'introversion' ($k = 3.97$), dominant coping-strategies were 'aggressive actions' ($k = 19.95$) and 'assertive actions' ($k = 19.75$); (2) extroverted-active type (44 persons, including 32 men and 12 women, whose mean age was 30.6 ± 5.31 years), in which 'extroversion' predominated in the structure of individual characteristics ($k = 4.64$), and low indicators were determined for passive forms of coping, namely: 'avoidance' ($k = 15.81$) and 'indirect actions' ($k = 15.86$), which indicated a tendency to implement active coping strategies; and (3) extroverted-prosocial type (51 persons, including 33 men and 18 women, whose mean age was 32.94 ± 4.69 years); their personality profile was represented by the predominant tendency towards 'extraversion' ($k = 5.06$), in the structure of problem-solving behavior, the dominant coping strategies were 'entering into social contact' ($k = 26.00$) and 'asocial actions' ($k = 20.35$), indicating a prosocial orientation of behavior (Kudinov, Belyaeva, 2023).

To identify differences in the architecture of the self-realization profile among the respondents with different personality types, a comparative analysis was performed using the Kruskal – Wallis *H* test (Table 1).

About half of the components of effective self-realization differ statistically significantly in the three identified clusters. The respondents with predominant introversion exhibited *Subjective Personal Attitudes*, *Inactivity*, and *Internality* of the self-regulation process to a greater extent. In the cluster of extroverted-active respondents, *Activity* was significantly higher; they were in constant motion (external and internal), striving to realize their potential, but the lack of other links in the self-realization system prevented their successful self-expression. In the cluster of the respondents with extroverted-prosocial traits, the dominant components were *Constructiveness*, which brought satisfaction to the subject of self-realization and ease in learning new skills and specializations, as well as *Social Barriers*, which caused difficulties in self-expression due to insufficient life experience, uncomfortable environmental conditions, difficulties in anticipation and long-term planning.

We conducted a comparative analysis of various types of self-realization among the respondents in the previously identified clusters, according to which (Kruskal – Wallis H test) revealed statically significant differences between the clusters for all the types of self-realization (Table 2).

Table 1

Comparative analysis of the components of self-realization in the selected clusters, $n = 154$

Component	Cluster 1		Cluster 2		Cluster 3		H	p
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation		
Social and corporate attitudes	9.72	6.59	10.02	6.12	8.88	5.37	0.702	0.704
Subjective personal attitudes	19.78	5.61	19.59	4.32	17.18	3.91	**11.694**	0.003
Activity	8.54	6.52	11.23	5.97	7.23	5.26	**12.139**	0.002
Inactivity	21.678	5.01	18.11	5.83	20.53	6.16	**10.194**	0.006
Optimism	12.08	7.08	14.77	5.58	13.94	5.64	3.193	0.203
Pessimism	19.67	6.77	20.02	6.34	18.82	6.48	1.268	0.531
Internality	13.58	8.45	13.43	5.94	10.23	6.19	**6.371**	0.041
Externality	14.19	7.88	11.52	7.63	14.23	6.95	3.771	0.152
Sociocentric motivation	9.9	8.08	10.25	7.83	7.29	6.03	3.371	0.185
Egocentric motivation	22.91	6.87	23.34	6.39	23.76	3.52	0.53	0.767
Creativity	12.22	6.04	11.18	5.28	10	5.85	4.99	0.083
Conservatism	9.64	8.47	6.59	6,35	7.35	6.69	2.766	0.251
Constructiveness	8.37	5.94	9.34	5.89	11,29	5.26	**7.451**	0.024
Destructiveness	8.73	8.52	11.82	9.37	10.94	11.09	1.034	0.596
Social barriers	8.99	5.27	7.66	5.03	11.18	4.89	**11.966**	0.003
Personal barriers	4.28	3.93	4.29	3.94	3.65	3.46	1.235	0.539

Table 2

Comparative analysis of types of self-realization among the IT specialists with different personality types, $n = 154$

Types of self-realization	Cluster 1		Cluster 2		Cluster 3		H	p
	Mean	SD	Mean	SD	Mean	SD		
Personal	8.04	5.59	5.81	4.42	4.96	3.25	9.508	0.009
Social	13.87	6.97	10.96	5.56	10.56	5.63	6.395	0.041
Professional	9.01	5.72	7.78	5.60	5.38	5.51	15.859	0.000

The configuration of the types of self-realization in all the three clusters had a similar hierarchy, with a predominance of social self-realization, followed by professional self-realization, and then by a tendency towards self-development and spiritual growth.

According to the comparative analysis, both socially oriented tendencies ($H = 9.508$ at $p = 0.009$) and those oriented towards personal growth ($H = 6.395$ at $p = 0.041$) statistically significantly prevailed among the respondents with the introverted-confident personality type (Cluster 1). This cluster also reveals a high level of professional self-realization ($H = 15.859$ at $p = 0.000$), which indicates satisfaction with one's professional activities, recognition of one's contribution to increasing prestige and the fruits of one's activities. Despite some paradoxical re-

sults, the respondents with predominant introversion in the structure of individual psychological characteristics were more aware of the social significance of their professional activities and sought to carry out socially useful activities (Kudinov, Belyaeva, 2023).

Next, we examined the features of self-realization in each of the identified clusters.

The results of the analysis of the mean values obtained for the main variables of self-realization using the *MPSI* technique made it possible to establish that among the respondents with an introverted-confident personality type the following parameters predominate: *Subjective Personal Attitudes* towards self-realization (mean value = 19.78), *Inactivity* (mean value = 21.68), *Pessimistic Attitude* (mean value = 19.97), *Egocentric Attitude* (mean value = 22.91), and *Externality* of the organizational component (mean value = 14.19).

For a more complete understanding of the characteristics of self-realization of the respondents in Cluster 1, let us turn to correlation analysis. The results are presented in Table 3.

Table 3

**Intercorrelations of the self-realization variables
among the IT specialists with an introverted-confident personality type**

Self-realization variables	SCA	SPA	INT	EXT	OPT	PES	EGOC	SOC	CONS	DEST	SB
INT	.655***				.288*						
EXT		.384**									
EGOC		.333**			.263*			.344**			
CRT			.287*								
CNS				.406**	−.362**						
CONS		−.292*			.304**	−.334**					
DEST						−.295*		.312**	−.367**		
SB	.291*						.283*		.283*	.318*	
PB											−.367**

Note: the table shows only statistically significant correlations: * $p \geq 0.05$, ** $p \geq 0.01$, ***$p \geq 0.001$. *SCA* – social and corporate attitudes; *SPA* – subjective personal attitudes; *OPT* – optimism; *PES* – Pessimism; *INT* – internality; *EXT* – externality; *SOC* – sociocentric motivation; *EGOC* – egocentric motivation; *CRT* – creativity; *CNS* – conservatism; *CONS* – constructiveness; *DEST* – destructiveness; *SB* – social barriers; *PB* – personal barriers.

According to the table, *Internality* at a high level of significance is positively correlated with *Social and Corporate Attitudes* and *Optimism*. Essentially, we can say that the desire to take responsibility, the tendency towards introspection and reflection, the planned implementation of activities are associated with the need for self-realization for the benefit of society, effective functioning in a team, as well as self-confidence, a positive time perspective and attitudes for effectiveness.

Externality is interconnected with *Subjective Personal Attitudes*, where the dominant motivation is to realize one's potential solely for personal purposes, to obtain even greater benefits, regardless of other people. At the same time, responsibility for failures is more often attributed to *external* factors, colleagues and other circumstances.

Egocentric Motivation of the process of self-realization is positively correlated with *Subjective Personal Attitudes* of activity.

Creativity and *Internality* correlate with a positive sign, which indicates the ability to quickly navigate changing conditions. *Conservatism* of the self-realization process is associated positively with *Externality* and negatively with *Optimism*. Such IT specialists prefer to act according to routine, well-learned schemes, since they have difficulty in changing the program of action in the course of work due to the weakness of self-regulation and self-organization, which causes a negative psycho-emotional mood of the respondents in assessing and predicting their performance.

Constructiveness of the self-expression process correlates positively with *Optimism* but negatively with *Pessimism* and *Social and Corporate Attitudes* towards self-realization. The identified qualitative relationships indicate that the positive effectiveness of the process is associated with an initial positive attitude and a positive psycho-emotional state. The *Destructiveness* scale significantly inversely correlates with *Constructiveness*, which indicates the desire of the respondents to effectively achieve personal growth and obtain satisfaction from the process itself. Also, *Destructiveness* is paradoxically positively related to *Activity*, which, most likely, may be due to an overly active position, which is not always purposeful.

Among the basic components that determine effective self-realization of the respondents in this cluster are *Subjective Personal Attitudes*, *Egocentric Motivation* for self-realization, *Optimism* and *Internality* of self-regulation, reflecting the severity of the motivational-semantic, emotional and cognitive components of the self-realization construct.

To confirm the established intercorrelations, we conducted factor analysis with varimax rotation; the results are presented in Table 4.

Table 4

**Factor structure of the self-realization variables
among the IT specialists with an introverted-confident personality type**

Variables	Factor 1	Factor 2	Factor 3
SCA	0.275	−0.253	**0.886**
SPA	−0.327	−0.006	−0.296
ACT	0.496	0.064	−0.147
IN	−0.331	0.041	0.137
OPT	**0.768**	−0.402	0.254
PES	−0.593	0.124	0.085
INT	**0.696**	−0.081	0.565
EXT	−0.317	**0.852**	−0.215
SOC	0.547	0.314	0.004
EGOC	−0.024	−0.191	**0.716**
CRT	0.188	0.322	0.341
CNS	0.043	**0.891**	0.051
CONS	**0.785**	0.156	0.146
DEST	0.321	0.572	−0.321
SB	0.008	0.476	**0.735**
LB	0.034	−0.085	**0.841**

Note: SCA – social and corporate attitudes; *SPA* – subjective personal attitudes; *ACT* – activity; *IN* – inactivity; *OPT* – optimism; *PES* – pessimism; *INT* – internality; *EXT* – externality; *SOC* – sociocentric motivation; *EGOC* – egocentric motivation; *CRT* – creativity; *CNS* – conservatism; *CONS* – constructiveness; *DEST* – destructiveness; *SB* – social barriers; *PB* – personal barriers.

The first factor with high significant loadings includes such components of self-realization as *Optimism* (0.768), *Internality* (0.696) and *Constructiveness* (0.785), which indicates the predominance of a positive psycho-emotional state when carrying out one's activities, the desire for self-realization, and the rapid development of new ways of self-expression. These components are system-forming in the architecture of self-realization, which coincides with the results of the correlation analysis. The greatest contribution to the process of self-realization is made by the emotional, organizational and prognostic components.

The second factor includes the opposite aspects: *Externality* (0.852) and *Conservatism* (0.891). The third factor includes *Social and Corporate Attitudes* (0.886), *Egocentric Motivation* (0.716) and *Social Barriers* (0.835). For the majority of the respondents in this group, the process of self-expression is associated with the implementation of social and public goods, the usefulness of work activity, and its status. *Barriers* to self-expression are insignificant.

In the configuration of self-realization, the respondents with an extroverted-active type have more pronounced scales that are responsible for *Subjective Personal Attitudes* (mean value = 19.59) and *Egocentric Motivation* (mean value = 23.23) as well as *Inactivity* in carrying out their activities (mean value = 18.11). Among the respondents in this cluster, *Internality* (mean value = 13.43) of self-regulation predominates. The results of the intercorrelation analysis are presented in Table 5.

Table 5

**Intercorrelations of self-realization variables
among IT specialists with an extroverted-active personality type**

Self-realization variables	SCA	SPA	EXT	OPT	SOC	CONS	DEST
PES	−.300						
INT	.630***			.288*			
EXT		.315*					
EGOC	.457**			.263*	.344**		.383**
CONS			.358**	−.304**			
DEST					.383**	−.367**	
SB						.283*	.366*

Note: the table shows only statistically significant correlations: * $p \geq 0.05$, ** $p \geq 0.01$, ***$p \geq 0.001$. *SCA* – social and corporate attitudes; *SPA* – subjective personal attitudes; *OPT* – optimism; *PES* – Pessimism; *INT* – internality; *EXT* – externality; *SOC* – sociocentric motivation; *EGOC* – egocentric motivation; *CRT* – creativity; *CNS* – conservatism; *CONS* – constructiveness; *DEST* – destructiveness; *SB* – social barriers; *PB* – personal barriers.

In the structure of self-realization of the respondents with an extroverted-active type of individual characteristics, the value-goal component is associated primarily with the organizational and emotional component. Thus, *Social and Corporate Attitudes* towards self-realization are positively correlated with *Internality* and *Egocentric Motivation*. The respondents of this cluster, despite the desire to realize themselves in socially useful activities, adhere to subjectively significant motives in their work, and in the process of self-expression they have good control over themselves and their reactions. Their *Subjective Personal Atti-*

tudes are positively related to *Externality*. Their attitude towards greater realization of their potential in various areas, regardless of the interests of others, is largely due to a low level of self-organization.

Egocentric Motivation for self-expression is positively correlated with *Optimism*, *Social and Corporate Attitudes*, *Sociocentric Motivation*, and *Destructiveness*. In the structure of motivation of the respondents in this cluster, both individually significant and socially approved benefits coexist, however, self-realization is often unproductive and can bring disappointment in oneself, one's skills and abilities, but the attitude towards failures can be superficial and somewhat frivolous.

Destructiveness positively correlates with the excessive dominance of socially approved forms of behavior and motives in work, which at the level of maladaptation can manifest itself as a tendency to sacrifice oneself for the public good. Also, *Destructiveness* is negatively related to *Constructiveness*.

Social Barriers are positively correlated with *Destructiveness* (at a higher level of significance) and *Constructiveness*. Apparently, the more often the respondents exhibit anxiety, fears and a sense of inferiority, the more dissatisfied they are with their social status, the results of their work and the process of self-realization in general.

To confirm the correlation relationships, let us turn to the results of the factor analysis presented in Table 6.

Table 6

**Factor structure of the self-realization variables
among the IT specialists with an extroverted-active personality type**

Variables	Factor 1	Factor 2	Factor 3
SCA	**0.864**	0.031	−0.144
SPA	0.063	0.014	0.524
ACT	0.341	0.268	0.146
IN	0.297	−0.204	0.263
OPT	0.415	0.046	−0.491
PES	−0.265	−0.203	**0.706**
INT	**0.711**	−0.031	−0.203
EXT	−0.483	0.336	0.289
SOC	0.093	**0.751**	−0.212
EGOC	**0.769**	0.025	0.112
CRT	−0.036	−0.016	0.670
CNS	−0.099	**0.793**	0.369
CONS	0.429	−0.227	0.002
DEST	−0.081	**0.853**	−0.143
SB	0.348	0.531	0.217
LB	−0.463	0.096	−0.134

Note: SCA – social and corporate attitudes; *SPA* – subjective personal attitudes; *ACT* – activity; *IN* – inactivity; *OPT* – optimism; *PES* – pessimism; *INT* – internality; *EXT* – externality; *SOC* – sociocentric motivation; *EGOC* – egocentric motivation; *CRT* – creativity; *CNS* – conservatism; *CONS* – constructiveness; *DEST* – destructiveness; *SB* – social barriers; *PB* – personal barriers.

The first factor with significant weights includes the following indicators: *Social and Corporate Attitudes* (0.864), *Egocentric Motivation* for self-expression (0.769)

and *Internality* of the self-organization process (0.711). These variables act as system-forming ones in the configuration of the structure of personal self-realization, which is combined with the data of correlation analysis. The presence of these variables in the first factor indicates the dominance of the value-goal component, the organizational component and the motivational component.

The second factor at a high level of significance includes *Destructiveness* (0.853), *Sociocentric Motivation* (0.751) and *Conservatism* (0.793). The variables in this factor relate mainly to the cognitive-prognostic component of the self-realization process, prevalently with a negative connotation.

The third factor with a small specific weight includes *Pessimism* (0.706). This scale constitutes the last factor; the degree of its influence on the process of self-expression is low.

As a result, the data from the factor analysis confirm the results of the correlation analysis and indicate that the key components of the self-expression process are *Social and Corporate Attitudes*, *Egocentric Motivation*, *Internality*, *Conservatism* and *Destructiveness*.

The IT specialists with an extroverted-prosocial personality type exhibit the following most pronounced components of self-realization: *Adaptation Attitudes* (mean value = 17.88) and *Inactivity* (mean value = 20.53). At the next level of the hierarchy are *Pessimism* (mean value = 18.82) and *Externality* (mean value = 14.23). The leading factors are those that hinder the process of personal self-realization (mean value = 11.18). Let us consider the psychological structure of the phenomenon of self-realization by examining intercorrelations, which are presented in Table 7.

Table 7

**Intercorrelations of self-realization variables
among IT specialists with extroverted-prosocial type of self-realization**

Self-realization variables	SCA	SPA	IN	ACT	OPT	PES	CONS	DEST	SB
PES	−.284*								
INT	.664***								
EXT		.463**		−.363**					
EGOC	.353**								
CNS	.340**	.343**			−.359**				
CONS		−.315*	.363**						
DEST						−.431**	.349**		
SB	.344*						.346**	.475***	
PB								−.321**	−.381**

Note: the table shows only statistically significant correlations: * p ≥ 0.05, ** p ≥ 0.01, ***p ≥ 0.001. *SCA* – social and corporate attitudes; *SPA* – subjective personal attitudes; *OPT* – optimism; *PES* – Pessimism; *INT* – internality; *EXT* – externality; *SOC* – sociocentric motivation; *EGOC* – egocentric motivation; *CRT* – creativity; *CNS* – conservatism; *CONS* – constructiveness; *DEST* – destructiveness; *SB* – social barriers; *PB* – personal barriers.

As shown in Table 7, *Social and Corporate Attitudes* are, at a statistically significant level, interconnected with *Internality*, *Conservatism* and *Social Barriers*, but negatively correlate with *Pessimism*. These correlations indicate that the more often the respondents implement socially oriented attitudes, the more often

they discover motives aimed at achieving personal benefits, career growth and self-development.

Subjective Personal Attitudes of self-realization at a high level of significance correlate with *Externality*, *Conservatism*, and at a negative level with *Constructiveness*. The predominant attitudes towards achieving high personal results lead to disruptions in the process of self-organization, shifting responsibility to others, intellectual and behavioral stereotyping, as well as to a decrease in constructiveness and satisfaction with the process of self-realization.

Activity negatively correlates with *Externality* at a high level of statistical significance. The more the respondents strive to demonstrate an active position in carrying out their professional activities, the less pronounced their dependence on other people and external circumstances is. *Inactivity* is positively related to *Constructiveness*, where a thorough, detailed approach to the process of activity leads to positive results in the process of self-expression.

The emotional component of the self-realization process negatively correlates with *Conservatism* (*Optimism*) and *Destructiveness* (*Pessimism*). The lower the level of *Conservatism* is, the more pleasure and positive emotions the process of self-realization brings.

To confirm the system-forming variables of the self-realization processes, we carried out a factor analysis (Table 8).

Table 8

**Factor structure of the self-realization variables
among the IT specialists with an extroverted-prosocial personality type**

Variables	Factor 1	Factor 2	Factor 3
SCA	0.673	0.484	0.003
SPA	**0.713**	0.092	−0.389
ACT	0.167	0.255	0.431
IN	−0.258	−0.349	−0.223
OPT	−0.447	0.304	0.195
PES	−0.094	−0.467	**0.725**
INT	**0.759**	−0.014	0.169
EXT	0.146	0.014	**−0.768**
SOC	0.341	0.057	0.414
EGOC	0.211	0.341	0.592
CRT	**0.797**	−0.209	0.194
CNS	0.619	0.327	−0.398
CONS	−0.455	0.118	0.016
DEST	−0.128	**0.857**	−0.014
SB	0.058	**0.787**	−0.135
LB	−0.215	−0.639	−0.288

Note: SCA – social and corporate attitudes; *SPA* – subjective personal attitudes; *ACT* – activity; *IN* – inactivity; *OPT* – optimism; *PES* – pessimism; *INT* – internality; *EXT* – externality; *SOC* – sociocentric motivation; *EGOC* – egocentric motivation; *CRT* – creativity; *CNS* – conservatism; *CONS* – constructiveness; *DEST* – destructiveness; *SB* – social barriers; *PB* – personal barriers.

The first factor with significant weights includes such components as *Subjective Personal Attitudes* towards self-realization (0.713), *Internality* (0.759) and *Creativity* (0.797). The content of this factor, which determines the specifics of

the process of self-expression, suggests that these IT specialists are characterized by taking responsibility, a high level of organization and planning of their activities, a willingness to try new things, and master competencies and skills in the implementation of their activities. The dominant motive of their activity is the urge to maintain their positions and achieve personal success.

The second factor included the following components: *Destructiveness* (0.857) and *Social Barriers* (0.787). These variables limit the possibilities of self-realization and lead to failure of the self-expression process.

The third factor includes *Pessimism* (0.725) and *Externality* (–0.768). Considering that these variables belong to the third factor with the smallest weights, they have the least impact on the process of personal self-realization.

Thus, the results of the correlation and factor analyzes allow us to conclude that a specific feature of the phenomenon of self-expression among the IT specialists with an extroverted-prosocial personality type is the predominance of *Subjective Personal Attitudes*, *Internality* of the self-realization process, *Creativity*, *Destructiveness* and *Social Barriers*, with dominant limiting factors of value-target, organizational and cognitive-prognostic components of the self-realization process.

Conclusion

The study established a hierarchy of components of self-realization of the IT specialists, depending on their individual typological characteristics. For the respondents with an introverted-confident personality type, the main variables of the self-realization process are *Optimism*, *Internality* and *Constructiveness*, which lead to success and a positive assessment of the self-realization process. For the respondents with extroverted-active characteristics in the hierarchy of personal self-realization, the key components of self-realization are *Social and Corporate Attitudes*, *Egocentric Motivation*, *Internality*, *Conservatism* and *Destructiveness*. The respondents with extroverted-prosocial traits have pronounced *Subjective Personal Attitudes*, *Internality* of the self-realization process, *Creativity*, *Destructiveness* and *Social Barriers*, with predominant limiting factors of value-target, organizational and cognitive-prognostic components of the self-realization process.

Based on the data obtained, we can say that the IT specialists with increased individual psychological characteristics of the introverted-confident type show the highest rates in all three types of self-realization, namely: personal, social and professional, as well as in the general level of personal self-realization. The data obtained allow us to consider this set of traits as one of the prerequisites for the successful personal self-realization of IT specialists.

References

Ageeva, N.A. (2007). Characteristics of internet-addicted persons. *RUDN Journal of Psychology and Pedagogics*, (1), 67–79. (In Russ.)

Aziz, M., Erbad, A., Belhaouari, S.B., Abdelmoneium, A.O., Al-Harahsheh, S., Bagdady, A., & Ali, R. (2022). The interplay between adolescents' Internet addiction and family-related factors: Three common patterns. *International Journal of Adolescence and Youth, 27*(1), 418–431. https://doi.org/10.1080/02673843.2022.2115307

Babaeva, Yu.D., & Voiskunskii, A.E. (1998). Psychological consequences of informatization. *Psikhologicheskii Zhournal, 19*(1), 89–100. (In Russ.)

Crysdian, C. (2022). The evaluation of higher education policy to drive university entrepreneurial activities in information technology learning. *Cogent Education, 9*(1), 2104012. https://doi.org/10.1080/2331186x.2022.2104012

Druzhilov, S.A. (2018). Contemporary information environment and human ecology: Psychological aspects. *Hygiene and Sanitation, 97*(7), 597–603. (In Russ.) https://doi.org/10.18821/0016-9900-2018-97-7-597-603

Flaminiano, J.P.C., Francisco, J.P.S., & Alcantara, S.T.S. (2022). Information technology as a catalyst to the effects of education on labor productivity. *Information Technology for Development, 28*(4), 797–815. https://doi.org/10.1080/02681102.2021.2008851

Ivanov, M.S. (2008). *Psychology of personal self-realization in computer gaming activities.* Kemerovo: Kuzbassvuzizdat Publ. (In Russ.)

Katkalo, K.D., & Pecherkina, A.A. (2022). Theoretical model of personal and professional self-realization. *Bulletin of the Moscow Region State University. Series: Psychological Sciences*, (2), 6–19. (In Russ.) https://doi.org/10.18384/2310-7235-2022-2-6-19

Kostakova, I.V., & Belousova (Grigorieva), S.S. (2014). Psychological basis of career and job satisfaction in adults. *National Psychological Journal,* (3), 80–85. (In Russ.) https://doi.org/10.11621/npj.2014.0310

Kudinov, S.I. (2007). Multisystem approach to the study of personal self-realization. *Siberian Pedagogical Journal,* (11), 337–346. (In Russ.)

Kudinov, S.I., & Belyaeva, E.N. (2023). Individual psychological prerequisites for self-realization of IT specialists. *Izvestiya of Saratov University. Educational Acmeology. Developmental Psychology, 12*(3), 215–226. (In Russ.) https://doi.org/10.18500/2304-9790-2023-12-3-215-226

Kudinov, S.I., Kudinov, S.S., & Burcev, A.O. (2023). Responsibility as a prerequisite for professional self-realization of employees of the judicial system. *Applied Legal Psychology,* (2), 39–51. (In Russ.) https://doi.org/10.33463/2072-8336.2023.2(63).039-051

Lin, C.-Y., & Huang, C.-K. (2021). Employee turnover intentions and job performance from a planned change: The effects of an organizational learning culture and job satisfaction. *International Journal of Manpower, 42*(3), 409–423. https://doi.org/10.1108/ijm-08-2018-0281

Lippke, S., Dahmen, A., Gao, L., Guza, E., & Nigg, C.R. (2021). To what extent is Internet activity predictive of psychological well-being? *Psychology Research and Behavior Management, 14*, 207–219. https://doi.org/10.2147/prbm.s274502

Lyvers, M., Senturk, C., & Thorberg, F.A. (2021). Alexithymia, impulsivity and negative mood in relation to internet addiction symptoms in female university students. *Australian Journal of Psychology, 73*(4), 548–556. https://doi.org/10.1080/00049530.2021.1942985

Nebratenko, G.G., & Burlutskiy, A.N. (2020). The fourth industrial revolution as a subject of social philosophy: A critical analysis. *Philosophy of Law*, (1), 116–121. (In Russ.)

Pavlova, N.D., Voronin, A.N., Grebenschikova, T.A., & Kubrak, T.A. (2019). Development of approach to typology of internet communities based on discursive markers of collective subjectivity. *RUDN Journal of Psychology and Pedagogics, 16*(3), 341–358. (In Russ.) https://doi.org/10.22363/2313-1683-2019-16-3-341-358

Pecherkina, A.A., & Katkalo, K.D. (2021). Personal and professional self-realization: Analysis of research by domestic and foreign authors. *Pedagogical Education in Russia,* (1), 88–95. (In Russ.) https://doi.org/10.26170/2079-8717_2021_01_11

Plotkina, L.N. (2010). Professionally significant characteristics of it specialists: Social and psychological analysis. *Izvestia of Samara Scientific Center of the Russian Academy of Sciences, 12*(5–1), 37–144. (In Russ.)

Schehl, B., Leukel, J., & Sugumaran, V. (2019). Understanding differentiated internet use in older adults: A study of informational, social, and instrumental online activities. *Computers in Human Behavior, 97*, 222–230. https://doi.org/10.1016/j.chb.2019.03.031

Shamionov, R.M., & Suzdaltsev, N.V. (2022). The ratio commitment to social activity on the Internet and physical space among young people. *RUDN Journal of Psychology and Pedagogics, 19*(1), 21–38. (In Russ.) https://doi.org/10.22363/2313-1683-2022-19-1-21-38

Shmelev, A.G. (2002). *Psychodiagnostics of personality traits*. St. Petersburg: Rech' Publ. (In Russ.)

Sklyarova, T.V., & Malyshev, V.S. (2021). The specifics of training highly qualified personnel in postgraduate studies using information and communication technologies in Russia and abroad. *RUDN Journal of Psychology and Pedagogics, 18*(1), 153–173. (In Russ.) https://doi.org/10.22363/2313-1683-2021-18-1-153-173

Sobchik, L.N. (2005). *Psychology of individuality. Theory and practice of psychodiagnostics*. St. Petersburg: Rech' Publ. (In Russ.)

Tripathi, A., & Kalia, P. (2022). Examining the effects of supportive work environment and organisational learning culture on organisational performance in information technology companies: The mediating role of learning agility and organisational innovation. *Innovation, 26*(2), 257–277. https://doi.org/10.1080/14479338.2022.2116640

Turkle, S. (2005). *The second self: Computers and the human spirit (twentieth anniversary edition)*. Cambridge: The MIT Press. https://doi.org/10.7551/mitpress/6115.001.0001

Vijh, G., Sharma, R., & Agrawal, S. (2022). Effect of competency on employee performance and the mediating role of commitment: An empirical investigation in the IT industry. *Journal of Information and Optimization Sciences, 43*(7), 1573–1587. https://doi.org/10.1080/02522667.2022.2128518

Vodopyanova, N.E. (2009). *Psychodiagnostics of stress*. St. Petersburg: Piter Publ. (In Russ.)

Vodyanova, N.V. (2009). Self-realization of personality in the Internet in the context of communicative anthropology. *Bulletin of Chelyabinsk State University*, (11), 57–62. (In Russ.)

Voiskunsky, A.E. (2002). Internet research in psychology. In I. Semenov (Ed.), *Internet and Russian Society* (pp. 235–250). Moscow: Gendal'f Publ. (In Russ.)

Volkov, Yu.K. (2022). Technoscience, humanity and Man: In search for a formula of co-existence. *Epistemology & Philosophy of Science, 59*(1), 211–224. (In Russ.) https://doi.org/10.5840/eps202259115

Wang, F. (2023). School burnout and mind wandering among adolescents: The mediating roles of internet addiction and the moderating role of resilience. *The Journal of Genetic Psychology, 184*(5), 356–371. https://doi.org/10.1080/00221325.2023.2209127

Zemnukhova, L.V. (2013). Information technology as professional field. *Sociological Journal*, (4), 49–58. (In Russ.) https://doi.org/10.19181/socjour.2013.4.435

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Conflicts of interest:
The authors declare that there is no conflict of interest.

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Исследовательская статья

Индивидуально-психологическая специфика самореализации ИТ-специалистов

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Аннотация. Приведены результаты исследования структуры феномена самореализации у специалистов цифровой сферы в условиях информационно-компьютерной деятельности. Проведен анализ иерархии и компонентов самореализации у работников ИТ-сферы с различными набором индивидуально-психологических особенностей, которые путем кластеризации разделены на три подтипа: 1) интровертированно-уверенный; 2) экстравертированно-активный; 3) экстравертированно-просоциальный. Выборку составили 154 человека – 42 женщины, 112 мужчин в возрасте от 22 до 44 лет (средний возраст – $32,09 \pm 5,71$) – сотрудники ведущих российских IT-компаний в Москве. Использовались следующие психодиагностические методики: индивидуально-типологический опросник (ИТО) Л.Н. Собчик, личностный опросник Айзенка (EPI) – шкала интроверсия – экстраверсия, опросник «Стратегии преодоления стрессовых ситуаций (SACS)» С. Хобфолла, многомерный опросник самореализации личности (МОСЛ) С.И. Кудинова. Показано, что структура самореализации имеет свои особенности в зависимости от типа личности сотрудников ИТ-сферы. У специалистов первого кластера (интровертированно-уверенный тип личности) основными переменными процесса самореализации являются оптимистичность, интернальность, конструктивность, что приводит к успешности, положительной оценке процесса самореализации. У ИТ-специалистов с экстравертированно-активными особенностями в иерархии самореализации личности ключевыми составляющими самореализации выступают субъектно-корпоративные установки, эгоцентрическая мотивация, интернальная саморегуляция, консервативность и деструктивность. У респондентов с экстравертированно-просоциальными чертами отмечается преобладание субъектно-личностных установок, интернальность процесса самореализации, креативность, деструктивность и социальные барьеры с преобладанием сдерживающих факторов самоосуществления. Полученные результаты можно рассматривать в контексте психологического сопровождения специалистов ИТ-сферы с опорой на их индивидуально-психологические черты.

Ключевые слова: ИТ-специалисты, индивидуально-типологические особенности, экстраверсия, интроверсия, совладающее поведение, копинг-стратегии, самореализация, самовыражение

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