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**COMMUNICATIVE FACTORS OF SOCIO-PSYCHOLOGICAL
ADAPTATION OF STUDENTS AND WORKERS IN THE ARCTIC**

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Abstract

The purpose of the study was to clarify the role of interpersonal relations in adaptation to studying at university and working and living in the Arctic region. For this purpose, an empirical study of students and persons with work experience in the Arctic region were conducted. The study subjects were: 87 students of Saint-Petersburg Mining University and 72 employees of the Arctic region, representing various professions. It was found, that communicative competence is especially important for adaptation and satisfaction with both work in the Arctic and studies. Its progress can be facilitated by activities aimed at developing communication skills, which in the future will be useful for successful adaptation to professional career. The ability to create favorable interpersonal relationships and derive satisfaction from work can forecast success in adaptation to working and living conditions in the Arctic. Favorable interpersonal relations are noted by the respondents as one of the most important factors for adaptation, both in the case of studying at university and in the conditions of work in the Arctic. Thus, the ability to create favorable interpersonal relationships and get satisfaction from studying or work can promote successful adaptation to both studying at university and working and living conditions in the Arctic.

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Keywords: Arctic region, interpersonal relationships, Socio-psychological adaptation, students.



1. Introduction

Social and psychological adaptation of workers and students is an important aspect of the effectiveness of work and studying. In both cases, there are factors that facilitate and hinder adaptation, and often these factors are similar in professional and student environment. This article analyzes the role of interpersonal relations in social and psychological adaptation of students and workers in the Arctic region. This choice of respondents was determined by the relevance of development of methods of attracting manpower to the Arctic, on the one hand, and by the need to identify common psychological factors of successful adaptation to various activities, on the other. In addition, it is possible to develop students' communicative competence during their studies, which will later allow them to successfully adapt to new conditions of professional activity, in particular to extreme ones, such as those faced by workers in the Arctic region.

Let us consider possible psychological factors affecting successful adaptation of students. Researchers mention that these include emotional intelligence (Garg, Levin, & Tremblay, 2016), sense of life purpose, low level of aggressiveness and anxiety, stable positive attitude to the surrounding reality, subjective feeling of satisfaction with relations, work, life. Difficulties in communication, complex relationships in a new team and emotional stress hinder adaptation (Chuchelina, 2007). Thus, according to various studies (Chuchelina, 2007; Garg, Levin, & Tremblay, 2016; Mizintseva, Komarova, Sardarian, & Yakubova, 2016; Sharok 2018), interpersonal relations with other students and teachers are one of the significant factors of successful social and psychological adaptation and satisfaction with the educational process.

Satisfaction with the relationship with teachers is influenced by how students perceive them. Such personal qualities as respect for students and benevolence are most important for students (Beljaeva, 1998; Vasil'eva & Judina, 2007). Communication with peers is also an important aspect of students' social and psychological adaptation and their satisfaction with learning. Having friends, satisfaction with their study group and high status in the student group characterize a well-adapted personality (Sharok, 2018). Other researchers note that interpersonal relationships affect satisfaction with studies not directly but indirectly through problem solving or coping behavior (Park & Yim, 2016).

The importance of psychological well-being (including adequate self-esteem and lack of stress and depression) for social and psychological adaptation of first year students and their success in learning is often the subject of research (Sorokina, 2005). In particular, it was found that high level of psychological distress at university correlates with low satisfaction with studies, which in turn has a negative impact on adaptation (Cotton, Dollard, & De Jonge, 2002). It was also found that interest in science is an important factor in the satisfaction with learning and contributes to successful adaptation to university. This interest can be developed through passion for learning using new teaching concepts or innovative teaching methods or courses (Rassadina, 2016; Goldobina & Orlov, 2017; Katuntsov, Kultan, & Makhovikov, 2017; Overchenko, Marinin, & Mozer, 2017; Vakhnin; 2017). Supervision and mentoring also have a positive impact on adaptation and satisfaction both with learning and work (Tabarsa & Nazari, 2016). Consequently, the expertise of the teaching staff, the ability of teachers to form interest in the subject and science is, according to some researchers, one of the most important factors of student satisfaction with education at

university (Solinas, Masia, Maida, & Muresu, 2012). And it is closely connected with further motivation to enjoy their professional career (Kim, Seo, & Lee, 2016).

Returning to interpersonal relations, it is worth mentioning that they are also considered as one of the main factors of successful adaptation to the Arctic, since the social surrounding has a greater impact on coping behavior and psychological well-being than the environment itself (Roberts, 2011). Accordingly, it can be assumed that those individuals who are able to establish positive interpersonal relations have great adaptive potential.

It is important to say that in the process of adaptation to the conditions of the Arctic region, psychological well-being may decrease, since the adaptation is accompanied by negative psychological effects: growing depression, irritability, deterioration of cognitive functions, social alienation, deterioration of interpersonal relations, hostility, rapidly emerging anger, sleep disorder, loss of appetite, anxiety and apathy (Leach, 2016). Therefore, it is important to know how to facilitate adaptation and prevent such negative influences.

Moreover, in each population it is possible to distinguish heterogeneous constitutional types differing from each other by features of adaptation to new conditions due to differences in their genotypic characteristics. Especially clearly differ from each other types of "Stayer" and "Sprinter" (Hasnulin, Artamonova, Hasnulina, & Pavlov, 2014). Given that sprinters are adapted to extreme workplace conditions faster than stayers, while the latter show greater adaptability during prolonged stay in extreme conditions, it is necessary to determine which of the types is more professionally qualified to work in the Arctic. To do this, it is also necessary to take into account psychological characteristics of the representatives of these types. Sprinters are characterized by a great force of nervous system excitation, mobility, balance, extraversion and neuroticism (Yurov, 2013). This determines their qualities such as high resistance to intense short-term loads, rapid fatigability when performing monotonous work, impulsiveness, unbalance. In case of chronic psycho-emotional stress, sprinters may develop maladaptive states, neurotic and vegetative disorders (Finogenko, 2012). It is important to say that among those living in adverse climatic conditions of the Arctic, the share of stayers significantly exceeds the share of sprinters (Hasnulin, Artamonova, Hasnulina, & Pavlov, 2014).

2. Problem Statement

Thus, it is important to find out whether there are general patterns in the role of psychological factors, and interpersonal relations in particular, influencing adaptation to various aspects of work, whether it is an educational environment or extreme working conditions.

Objectives of the study: comparison of the role of interpersonal relationships in social and psychological adaptation to studying at university and the conditions of working and living in the Arctic, designing ways of development of communicative skills in a student environment in order to form an adaptable personality.

3. Research Questions

Hypotheses of the study:

- 1) psychological characteristics common for stayers have a positive impact on human predisposition to work in the Arctic and contribute to adaptation;
- 2) psychological features that ensure establishment of interpersonal relations are especially important for adaptation and satisfaction with both work in the Arctic and studying at university;
- 3) the factor of interpersonal relations is considered by students and workers as one of the most important for adaptation, both in the case of studying at university and working in the Arctic.

4. Purpose of the Study

Thus, the purpose of the study was to clarify the role of interpersonal relations in adaptation to studying at university and working and living in the Arctic.

5. Research Methods

For this purpose, we conducted an empirical study of students and persons with work experience in the Arctic region

To achieve the goal of the study and test the hypotheses, we used the method of questioning and the method of psychodiagnostics (The social and psychological adaptation questionnaire developed by C. Rodgers and R. Dymond).

1. The questionnaire for respondents with work experience in the Arctic, diagnosed the following parameters:

- work experience in the Arctic;
- willingness to continue working in the Arctic;
- matching income level with expectations;
- importance of different social benefits;
- importance of different infrastructure;
- concern about adverse factors and climatic conditions;
- importance of a safe environment;
- importance of obtaining on-site high-tech medical assistance;
- assessment of the probability of an employee's resignation in case of exacerbation of chronic diseases;
- implicit ideas about the factors of successful adaptation in the Arctic;
- real factors contributing to and hindering adaptation to the Arctic;
- reasons that could force to abandon work in the Arctic;
- expectations from work in the Arctic and degree of their compliance with reality;
- implicit concepts of work in the Arctic;
- 12 personal characteristics that affect success of adaptation to working conditions in the Arctic (by the method of personal differential, where different poles of the scale represent opposite personal characteristics, and the subject chooses which pole is closer to his personal qualities, assessing their severity on a scale from 0 to 3);

- demographic characteristics: gender, age, occupation, place of residence and labour organisation (permanent or rotational).

This article analyzes only the psychological aspects of adaptation to working and living in the Arctic region.

2. The questionnaire, intended for students, contained questions on various aspects of adaptation:

- - reasons for choosing a particular university;
- - differences between school and university education;
- - expectations for studying at university;
- - situations that cause anxiety at university;
- - factors contributing to and hindering adaptation to university;
- - group status;
- - satisfaction with the course and the study group;
- - specifics of relations with the teachers and the group curator;
- - demographic issues (gender, age, year of study, hometown, residence specifics, admission score).

3. The social and psychological adaptation questionnaire developed by C. Rodgers and R. Dymond contains 101 statements. 37 of them meet the criteria of personal adaptation, 37 - disadaptation, 26 are neutral. The latter category also includes the so-called "scale of lies". The scale of answers includes 7 points: "0" – this does not apply to me at all;" 1 " – It is not common for me in most cases;" 2 " – I doubt this is true about me;" 3 " – I hesitate to say it is true about me;" 4 " – it looks like me, but there is no confidence;" 5 " – it looks like me;" 6 " - it's just about me. The authors identified 6 integral indicators that allow to analyze the survey results: adaptation; acceptance of others; internality (level of subjective control); self-perception; emotional comfort; determination to dominate. Each of the above indicators is calculated by an empirically derived formula. The interpretation of the survey results is carried out according to standards that differ depending on the age of the testee. In the studied sample group the mean values of integral indicators are the following: adaptation=69.1 (SD=13.43), self-acceptance=75.03 (SD=18.22), the acceptance of others=71.25 (SD=15.7), emotional comfort=62.6 (SD=17.67), internality=66.25 (SD=11.78), determination to dominate=56.6 (SD=16.15).

We used the following methods of statistical data processing: analysis of primary statistics, analysis of contingency tables (for nominative data), correlation, comparative and variance analyses (for metric data). For statistical processing we used the program Statistica 10.0.

The study subjects were:

87 students of Saint-Petersburg Mining University: 30 first-year students (21 girls and 9 boys, average age=18,12); 27 second-year students (22 girls and 5 boys, average age=18,62) and 30 fourth-year students (27 girls and 3 boys, average age=20,73). The sample group was divided into groups depending on the level of social and psychological adaptation (by the method of C. Rodgers and R. Dymond). The group with low adaptation (L) consisted of students whose adaptation rates were below 56, which is 25% of the sample group, and the group with high adaptation (H) — students with adaptation rates above 69, which also was 25%. The remaining 50% were within the mean values.

72 employees of the Arctic region, representing various professions. The average age of the respondents was 44.4 years, 39 respondents were women and 33 were men. To achieve the goal of the

study, the sample was divided into groups depending on the intention to continue working in the Arctic: 19 people consider this possibility, 9 are most likely to consider such a possibility. These respondents formed the group "Yes" (28 people). 15 subjects are not likely to consider such a possibility, 19 – do not consider. These subjects formed the group "No" (34 people). 10 - have difficulties answering.

6. Findings

First, let us look at the distribution of responses in the student sample group, and then in the sample group of workers in the Arctic region.

As a result of the survey, it was found that, according to the respondents, the adaptation of first-year students depends on the following factors: interaction with the teachers (36.6%), interaction with the coursemates (28.6%), the university atmosphere (12.6%), joint university activities (10.3%), personal characteristics (9.2%), necessary information (5.7%), time (4.6%), interest of the students (1.1%), extracurricular activities (1.1%), studies (1.1%).

As factors that hinder the adaptation of first-year students, the respondents identified the following: personal characteristics of students that prevent establishment of relationships (31%), new requirements (18.3%), organizational moments (17.2%), changes (16%), attitude of senior students (6.8%), arrogance of other students (3.4%), excessive concentration on education (1.1%), insufficient knowledge (1.1%). 13.8% of respondents noted that no factors affect adaptation of first-year students.

The following situations cause anxiety or tension among students: educational requirements (mid-term exams, term papers, library-research papers) (63,2%), organizational moments (mainly queues) (9,1%), conflictual relations with the teachers (9,1%), insufficient amount of information (5.7%), public speaking (3.4%), lack of time (2.3%), coursemates (1.1%). 11.5% of the respondents said that there was nothing to worry or stress about during their studies.

Comparative analysis showed that the students with a high level of adaptation are more satisfied with their studies at university ($H=4.21$; $L=3.57$; $t=-2.27$; $p\leq 0.05$) and at the level of statistical trend are more satisfied with their study group ($H=4.34$; $L=3.76$; $t=-1.91$; $p=0.06$) and the amount of information received from the group curator ($H=0.56$; $L=0.28$; $t=-1.9$; $p=0.06$). Satisfaction with the studies and their social environment is one of the indicators of successful adaptation, which confirms efficacy of adaptation as a psychological feature of an individual. Students with a low level of adaptation more often describe situations as disturbing if they are related to problems of interpersonal communication: conflicts with teachers ($H=0\%$; $L=10,53\%$) and coursemates ($H=0\%$; $L=5,26\%$). Problems in interpersonal communication are a serious obstacle to successful adaptation.

As a result of the analysis of the factors of socio-psychological adaptation among students of different years at university with the help of contingency tables it was found that, according to first-year students, joint events could facilitate adaptation (1stY=of 20.69%, 2ndY=4,76%, 4thY=0%) ($\chi^2=41,51$; $p\leq 0.05$). As a factor hindering adaptation, first-year students often name personal characteristics that negatively affect interpersonal relations (1stY=34.78%, 2ndY=25.93%, 4thY=23.08%), and less often educational requirements (1stY=4.35%, 2ndY=29.63%, 4thY=19.23%) ($\chi^2=28.08$; $p\leq 0.05$). The survey was conducted at the beginning of a school year, which affected the results. The first-year students at that time had not yet established a strong interpersonal relationship and felt the need to establish new friendly

contacts. The academic requirements did not often cause anxiety and did not interfere with adaptation, because the surveyed first year students were motivated to study and receive high quality education and were only at the beginning of the educational process and did not know whether studying at university was going to be easy or difficult.

The correlation analysis confirmed the data obtained by other analyses and showed the following correlations: direct correlation between satisfaction with studies and their status in the group ($r=0.23$; $p\leq 0.05$), the amount of information from the curator ($r=0.33$; $p\leq 0.01$); direct correlation between satisfaction with their study group and status in the group ($r=0.30$; $p\leq 0.01$), the amount of information from the curator ($r=0.24$; $p\leq 0.05$), acceptance of others ($r=0.48$; $p\leq 0.001$); direct correlation between adaptation and satisfactory relationships with the teachers ($r=0.23$; $p\leq 0.05$); direct correlation between acceptance of others and the status in the group ($r=0.33$; $p\leq 0.01$), the amount of information from the curator ($r=0.24$; $p\leq 0.05$); direct correlation between emotional comfort and good relationships with the teachers ($r=0.25$; $p\leq 0.05$).

Thus, the main factor contributing to adaptation of students to university, and therefore affecting satisfaction with the educational process, is the factor of interpersonal communication: relationships with others (other students, teachers and the group curator), satisfaction with their social environment and emotional acceptance of other people, the status in the group. In turn, the nature of interpersonal relations is determined by psychological characteristics of the student's personality.

Next, let us analyze the results of the survey in the group of workers in the Arctic region.

As a result of the qualitative analysis of factors that influenced the adaptation of respondents to the Arctic, we identified 10 categories of responses.

Table 01. Factors contributing to adaptation to the Arctic

Factors	% Respondents
Interpersonal relationships (family, environment, team)	22.97
The Arctic is birthplace	16.22
Inevitability	10.81
Good job	9.46
Money	8.11
Youth	5.41
Health	4.05
Warmth and light	2.70
Developed infrastructure	1.35
Did not answer	18.92

As it can be seen from Table 01, the factor of interpersonal relations (in the family, in the social environment, at work) has played a paramount importance in the adaptation of the respondents. Many participants did not need to adapt to the Arctic because they were living in the conditions they were accustomed to as they were born in the Arctic region. A little less often the subjects pointed to the inevitability of adaptation: a person can get used to anything. It can be assumed that for them life and work in the Arctic is hardly evaluated in a positive context. Even less often respondents noted that good and

interesting work helped them to adapt. Thus, the ability to create favorable interpersonal relationships and derive satisfaction from work can forecast success in adaptation to working and living conditions in the Arctic.

A qualitative analysis of the factors that made it difficult to adapt to working and living conditions in the Arctic identified 11 categories of responses presented in Table 02.

Table 02. Comparison of the factors that made it difficult to adapt, and the reasons for refusal to work in the Arctic

Factors	Made it difficult to adapt, %	Reason for refusal to work, %
Climate	28.38	4.05
Nothing	10.81	1.35
Health	6.76	16.22
Hard work	4.05	1.35
Family factors	4.05	2.70
Poorly developed infrastructure	2.70	2.70
Distance to work	2.70	0
Relations in team	2.70	0
Accommodation	1.35	17.57
Low wage	1.35	22.97
Loss of benefits	-	1.35
A new job	-	6.76

It can be seen from Table 02 that the main obstacle to adaptation to the Arctic is climatic conditions. Health problems have a negative impact less often. And even less frequent - difficult working conditions, family problems, difficulties in relations in the team, poorly developed infrastructure, no accommodation at the initial stage and low wages. For 10.81% of the respondents adaptation was not complicated by anything. This is due to the fact that about the same percentage of respondents were originally from the Arctic region.

As a result of the analysis of the mean values of self-assessment of psychological characteristics (Table 03), it was found that workers in the Arctic region consider themselves to be very friendly, sociable, even-tempered, cheerful, calm, stable, diligent, determined and strong. To a lesser extent, they are characterized by such qualities as equanimity, ability to work under high pressure for short periods of time, concentrating exclusively on work, which are the qualities of Stayer. They also tend to have self-esteem above average. In other words, the respondents have a positive image of themselves. Especially important qualities are those that ensure the establishment of interpersonal relations: friendliness and sociability. Given the fact that the conditions of work in the Arctic require the ability to successful and conflict-free communication, diagnosis of these qualities to determine professional suitability is particularly important.

Table 03. Mean values for self-assessment of psychological characteristics

Psychological traits	Mean values
(1) Hostile / (7) Friendly	6.16

(1) Unsociable / (7) Sociable	5.88
(1) Sad / (7) Cheerful	5.40
(1) Weak / (7) Strong	5.40
(1) Impulsive / (7) Even-tempered	5.28
(1) Indecisive / (7) Decisive	5.24
(1) Changeable / (7) Stable	5.09
(1) Restless / (7) Diligent	5.04
(1) Sprinter / (7) Stayer	4.63
(1) Unflappable / (7) Irritable	3.44
(1) High self-esteem / (7) Low self-esteem	3.10
(1) Calm / (7) Anxious	2.72

Next, let us analyze the results in the selected group. The comparative analysis revealed differences in the degree of strength of such quality as sociability, depending on the degree of readiness to work in the Arctic. It is more pronounced with the respondents refusing to continue working in the Arctic ($t = -2.07$; $p \leq 0.05$). This result can be explained by the fact that working conditions in the Arctic can frustrate the need for human communication. That is why an excessively severe expression of this quality may be considered as an unfavorable factor. These results once again confirm the need to diagnose communication skills in the selection of personnel for working in the Arctic region.

The study proves the need for development of communication skills. One of the ways can be the business role-playing game "Discussion" as part of a psychology course at university (Sharok, 2014). The objectives of the business game are to improve communication and find effective ways of behavior in business and personal communication. The tasks that the business game solves are the following: developing skills and abilities of effective partner communication, acquiring knowledge of social psychology and group communication, developing skills of active listening, establishing contact, public speaking, correcting self-image and image of other people, developing some mental processes (attention, memory, analytical abilities).

The business game "Discussion" allows to form knowledge and skills necessary for effective communication. As a result of the game, students discover their strengths and weaknesses in interpersonal communication and learn methods of neutralization of communication barriers and the algorithm of partner communication, following which it is possible to significantly improve the efficiency of business communication.

For students of technical universities learning and practising business communication is of particular importance, because it contributes to the formation of an accomplished professional, psychologically competent and effective in various situations.

7. Conclusion

Thus, according to the study of psychological factors of adaptation to studying at university and to the conditions of working and living in the Arctic, the following conclusions can be drawn.

Communicative competence is especially important for adaptation and satisfaction with both work in the Arctic and studies. Its progress can be facilitated by activities aimed at developing communication skills, which in the future will be useful for successful adaptation to professional career.

Favorable interpersonal relations are noted by the respondents as one of the most important factors for adaptation, both in the case of studying at university and in the conditions of work in the Arctic.

Workers in the Arctic region consider themselves to be very friendly, sociable, even-tempered, cheerful, calm, stable, diligent, determined and strong. To a lesser extent, they are characterized by such qualities as equanimity, ability to work under high pressure for short periods of time, concentrating exclusively on work, which are the qualities of Stayer.

Thus, the ability to create favorable interpersonal relationships and get satisfaction from studying or work can promote successful adaptation to both studying at university and working and living conditions in the Arctic.

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