

DEVELOPMENT OF PERSONAL AND PROFESSIONAL COMPETENCE OF SENIOR PUPILS BY INTERACTIVE LEARNING METHODS

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***Abstract.** The use of interactive learning contributes to the development of personal and professional competence of senior pupils. The article presents data which prove that the most effective method is the psychological training. It develops skills of teamwork, constructive communication, skills of planning own professional future and the solution of social problems. Cognitive methods contribute to the development of competence of integration of personal and social interests in professional activities. Art therapies techniques are effective in the development of skills of cognitive reflection, the ability to analyze goals, interests and needs. The author gives a Scale diagnostic personal and professional competence of senior pupils, as well as describes the results of a formative experiment, in which the program was implemented psycho-pedagogical support of career self-determination of senior pupils.*

Keywords. Ability, cognitive reflection, experience, interactive learning, knowledge, personal and professional competence, professional choice, skill, willingness.

Introduction

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The problem of the development of competences using the methods of interactive learning is relevant to modern psychology. The majority of existing studies addressing the development of core competencies of the subjects of the educational process. For example, Dvulichanskaya N.N. found that the method of projects and case method are effective for the development of such competencies as the ability to identify the problem and find ways to solve it, the ability to assess and control the activities, and responsibility (Двуличанская, 2011).

Kolesnikova E.L. indicates that, in general interactive methods contribute to the development of creative abilities and increase the activity of the students (Колесникова, 2012).

Yafaeva V.G. found that such methods as discussions, graphic material organization, mutual learning have a positive influence on the development of professional competence of teachers (Яфаева, 2011).

But there are methodological problems in studying the influence of interactive teaching methods to the development of competence. Most researchers consider only certain methods of interactive learning, so there is no clear picture of what methods are most effective in the development of

competence. In addition, few studies have focused on the issue of personal and professional competence of senior pupils. This underlines the fact that this study is important. The purpose of this study was to verification of the effectiveness of the program of psychological and pedagogical support for career self-determination of senior pupils, based on the use of interactive methods and aimed at the development of personal and professional competences.

J. Sandberg believes that human competence is a concept that describes the nature of the relationship between the individual and professional activities and assumes essential knowledge and skills (Sandberg J., 2000). A similar view is held by McClelland (1973), Boyatzis (1982), Kolb (1984), Morgan (1988) and others.

Personal and professional competence as a kind of human competence is a multidimensional phenomenon that reflects a balanced ratio of the three components of personality: the value-motivational willingness, cognitive-operational willingness, emotional and personal willingness (Парфенова, 2011). Value-motivational willingness includes professional interests, a positive attitude toward learning and cognitive activity, professional expectations and intentions. Cognitive-operational willingness reflects the ability and willingness to practice and research activities. Emotional and personal willingness is activity and responsibility in the formation of professional competencies, self-regulation of emotional states.

Personal and professional competencies that are necessary for a successful career of self-determination of senior pupils were selected from a list of competencies specified in the Federal state educational standard for secondary schools. The selection of competencies was conducted by an expert survey. Experts were lecturers at the Faculty of psychology of the Pskov State University with degrees in psychology and professional experience of more than 10 years. Total are 5 people. Five competencies were selected as a result of the expert survey:

- Readiness and ability to lifelong education, including self-education;
- Conscious choice of future profession and opportunities for implementation their own life plans; relation to professional activities as opportunities to participate in overcoming personal, community, state, national problems;
- Ability to determine goals and plan activities; independently implement, monitor and correct activities;
- The ability to effectively communicate and interact in the process of joint activities, to take into account the positions of other stakeholders, effectively resolves conflicts;
- Possession of skills cognitive reflection as awareness made actions and thought processes and their results.

Materials and methods

Formative experiment was chosen as the main method of the study. The program of psychological and pedagogical support of senior pupils was developed for its implementation. The volume of this program was 100 hours of training including both classroom and distance lessons. The program consists of four parts:

1. Questions of career psychology;
2. Psychology of career choice;
3. The concept of professional-important qualities. The construction of professional profile;
4. Career planning, taking into account the socio-economic development of the region.

Classroom training was constructed using interactive learning methods. Interactive learning methods were divided into four groups: training, cognitive, play and art therapy. The lecture was also used as a traditional method of learning to be compared with the effectiveness of interactive methods. Distance lessons were to provide psycho-diagnostic testing of professionally important qualities and abilities.

Participants in the program „Career planning” were experimental group. Total are 32 people. Age of participants was 15-17 years. They were all pupils of 9-10 classes of schools of Pskov (Russia). The sample was formed by the method of randomization.

The control sample was created and is identical to the experimental group by age and sex. Participants in the control group were selected as the method of randomization. Selection is made of a plurality of senior pupils who are studying in the same classes with the participants in the experimental group.

Special scale was developed for the diagnoses of personal competencies are necessary for a successful career of self-determination of senior pupils. The text of the scale is presented in Table 1.

Psychometric testing of the reliability of this scale included the following procedures:

- Analysis of the internal structure of the scale and level of generalization using factor analysis; the results of this analysis are the basis of the processing algorithm answers (processing algorithm results on this scale is given in Table 2);
- Study the internal consistency of indicators based on the criterion of Cronbach's alpha. Criterion value for the scale was 0.969;
- Research of reliability of equivalent to half of the test. Make a correlation analysis of the total score for the even and odd questions. The value of the correlation coefficient was 0.939 with a significance level of 0.000;

- Analysis of test-retest reliability was performed by determining the correlation coefficients between the secondary factors obtained in the first and second diagnosis. There is a correlation between all scales with the value of the coefficient of not less than 0.448.

Table 1. Scale for diagnostics of the personal and professional competencies of senior pupils

Assess whether you possess the following knowledge											
1	Knowledge about the world of professions	1	2	3	4	5	6	7	8	9	10
2	Knowledge of the requirements for the individual who makes one or another profession	1	2	3	4	5	6	7	8	9	10
3	Knowledge about the needs of the labor market	1	2	3	4	5	6	7	8	9	10
4	Knowledge about own professional purposes	1	2	3	4	5	6	7	8	9	10
5	Knowledge about own needs and desires	1	2	3	4	5	6	7	8	9	10
6	Knowledge about own personal features	1	2	3	4	5	6	7	8	9	10
7	Knowledge of own opportunities	1	2	3	4	5	6	7	8	9	10
8	Knowledge of own abilities	1	2	3	4	5	6	7	8	9	10
9	Knowledge of the characteristics and laws of interaction between people	1	2	3	4	5	6	7	8	9	10
10	Knowledge about own career orientations	1	2	3	4	5	6	7	8	9	10
Assess whether you possess following skills											
11	Skill of planning for the future	1	2	3	4	5	6	7	8	9	10
12	Skill search for information about the professions of interest	1	2	3	4	5	6	7	8	9	10
13	Skill to analyze your goals, needs, desires	1	2	3	4	5	6	7	8	9	10
14	Skill understanding of the people	1	2	3	4	5	6	7	8	9	10
15	Skill to communicate	1	2	3	4	5	6	7	8	9	10
16	Skill of control their behavior and activities	1	2	3	4	5	6	7	8	9	10
17	Skill to make a mental introspection (reflection)	1	2	3	4	5	6	7	8	9	10
18	Skill to make reasoned decisions	1	2	3	4	5	6	7	8	9	10
19	The ability to choose favorable behavioral strategy	1	2	3	4	5	6	7	8	9	10
20	Skill to resist negative influences of other people	1	2	3	4	5	6	7	8	9	10
21	Skill to work in a team	1	2	3	4	5	6	7	8	9	10
22	Skill to take responsibility for own words, actions, and life in general	1	2	3	4	5	6	7	8	9	10
23	Skill to decide own problems independently	1	2	3	4	5	6	7	8	9	10
24	Skill harmonize their professional and personal interests	1	2	3	4	5	6	7	8	9	10
25	Skill to be useful to society	1	2	3	4	5	6	7	8	9	10
26	Ability to learn	1	2	3	4	5	6	7	8	9	10
27	Skill absorb and use the experience of other people	1	2	3	4	5	6	7	8	9	10
28	Skill to choose goals and achieve them	1	2	3	4	5	6	7	8	9	10
29	Skill to present themselves to the best advantage	1	2	3	4	5	6	7	8	9	10

Assess whether you have the following experience											
		1	2	3	4	5	6	7	8	9	10
30	Implementation of independent professional choice										
31	Search for the information you need about jobs, education	1	2	3	4	5	6	7	8	9	10
32	Making plans of their professional and career development	1	2	3	4	5	6	7	8	9	10
33	Continuing education and self-education, aimed at the development of the chosen profession	1	2	3	4	5	6	7	8	9	10
34	Use your existing resources to achieve career goals	1	2	3	4	5	6	7	8	9	10
35	Use your existing resources to achieve life goals	1	2	3	4	5	6	7	8	9	10
36	Confront obstacles that will arise in your life	1	2	3	4	5	6	7	8	9	10
37	Implementation analysis of your career and professional goals, desires, plans	1	2	3	4	5	6	7	8	9	10
38	Retreat from personal interests in favor of the public, if it will require the current situation	1	2	3	4	5	6	7	8	9	10
39	Experience of participation in socially useful activities	1	2	3	4	5	6	7	8	9	10
40	Experience in solving social problems	1	2	3	4	5	6	7	8	9	10
41	Work in a team	1	2	3	4	5	6	7	8	9	10
42	The ability to fend for themselves and their business	1	2	3	4	5	6	7	8	9	10

Table 2. Processing algorithm of results to Scale of diagnostics of personal and professional competencies of senior pupils

Factors of the first order	
<i>factor</i>	<i>scale issues that need to summarize</i>
Knowledge in the field of professional self-determination (KSD)	1, 2, 3, 4, 9, 10
Knowledge about the features of the self (KFS)	5, 6, 7, 8
Skills of cognitive reflection and self-control (SRC)	13, 16, 17, 18, 19, 22
Socially important skills (SS)	14, 15, 20, 21, 25
Skills to harmonize personal and public interests (SHI)	23, 24, 27, 29
Planning skills (PS)	11, 12, 26, 28
Experience in solving of personally and professionally important tasks (EST)	30, 31, 32, 33, 34, 35, 36, 37, 39, 42
Experience in solving of socially important problems (ESSP)	38, 40, 41

Factors of the second order	
<i>factor</i>	<i>formula for calculating</i>
The ability and willingness to integrate personal and social interests in professional activity	(SHI+ EST)/14
The ability and willingness to professional interaction and solving of socially important problems	(SS+ ESSP+ KSD)/14
The ability and willingness to cognitive reflection	(SRC+ KFS)/10
The ability and willingness to plan own career and professional future	PS/4

This scale was performed in the experimental group twice - after experimental exposure and six weeks after. The control group was tested once immediately after forming experiment.

Results

Analysis of the results of the experiment was conducted according to the following plan:

1. Analysis of the results of the first diagnosis of personal and professional competencies of senior pupils (comparison of the experimental and control groups);
2. Comparison of the results of the first and second diagnosis of personal and professional competencies in participants of the experiment;
3. Determination of contribution each group of interactive learning methods to the development of personal and professional competencies of senior pupils.

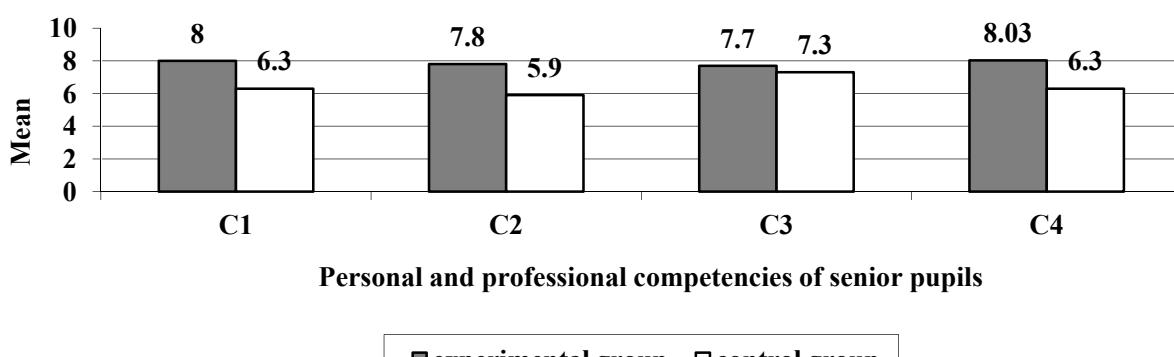


Fig.1. Intensity of personal and professional competence of senior pupils of experimental and control groups (C1 - The ability and willingness to integrate personal and social interests in professional activity; C2 - The ability and willingness to professional interaction and solving of socially important problems; C3 - The ability and willingness to cognitive reflection; C4 - The ability and willingness to plan own career and professional future)

According to the results of the first diagnosis was found that the severity of personal and professional competencies of senior pupils higher in the experimental group (Figure 1). This is confirmed by the results of comparative analysis using the U Mann-Whitney test. There were significant differences in the first ($U=109.5$; $p=0.000$), second ($U=108$; $p=0.000$) and fourth ($U=124$; $p=0.000$) competence.

Analysis of the frequency distribution of values on competences shows that in the control group it is normal. There is a shift to higher values in the experimental group.

Figure 2 illustrates the results of re-diagnosis of personal and professional competencies in the experimental group.

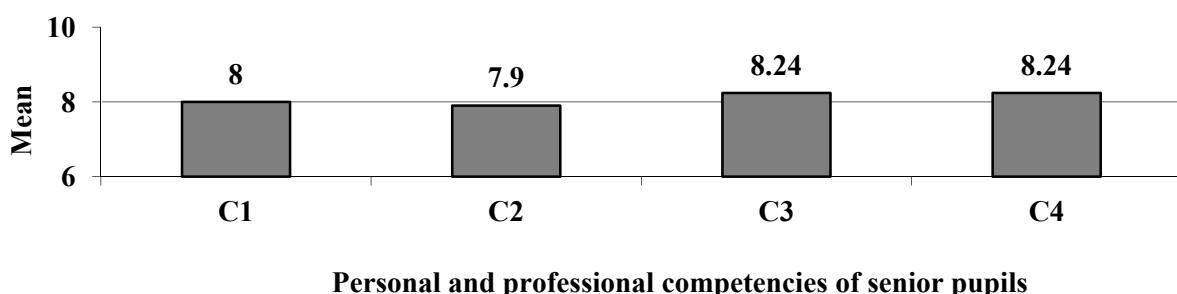


Fig.2. Intensity of personal and professional competence of senior pupils of experimental groups (the results of re-diagnosis)

Comparative analysis with the use of Wilcoxon test revealed no significant differences between the results of the first and second diagnosis of personal and professional competencies for senior pupils. But the analysis of mean values shows that the third and fourth competence values began to rise. Consequently, the senior pupils learned the knowledge and skills necessary for successful of career self-determination.

Regression analysis was done to determine the role of interactive learning methods in the development of personal and professional competencies in senior pupils. The task was to check the extent and nature of the influence of each of the four groups of methods for the development of each of our competencies. Consider the results.

1. The role of interactive learning methods in the development of the ability and willingness to integrate personal and social interests in professional activity.

The regression results are true, since the value of these parameters corresponds to the statistical significance:

- Multiple correlation coefficient is 0.932;
- The model describes the 86% of the variance;
- Fisher criterion value equal to 72,618 with a significance level of 0,000.

Cognitive methods ($\text{Beta}=1.432$; $p=0.000$) and techniques of art therapy ($\text{Beta}=-0.632$; $p=0.001$) have the greatest influence on the development of this competence. These data indicate that the use of cognitive methods of interactive learning significantly increase the level of development of this competence. In contrast, the technique of art therapy hampers the development of this competence. Likely this is due to the fact that art therapy techniques more focused on work with personal goals, needs, and characteristics.

2. The role of interactive learning methods in the development of the ability and willingness to professional interaction and solving of socially important problems:
 - Multiple correlation coefficient is 0.945;
 - The model describes the 89% of the variance;
 - Fisher criterion value equal to 58,570 with a significance level of 0,000.

Psychological training has the greatest influence on the development of this competence. ($\text{Beta}=0.657$; $p=0.000$). This is due to the fact that the method of psychological training uses the interaction between participants, requires a joint action with the subsequent discussion.

Lecture contributes to the development of this competence ($\text{Beta}=0.718$; $p=0.000$). Likely due to the fact that it is a source of information, knowledge needed to solve social problems.

Using cognitive methods of interactive training inhibits the development of this competence ($\text{Beta}=-0.403$; $p=0.033$). Perhaps this is due to the fact that they require a lesser degree of teamwork in comparison with psychological training and focused more on awareness of the problems rather than solving them.

3. The role of interactive learning methods in the development of the ability and willingness to cognitive reflection.

Regression analysis indicated highly correlated all the methods of interactive learning and the development of this competence. On the one hand, it shows the effectiveness of these methods, but on the other hand, does not allow identifying the degree of influence of each method.

4. The role of interactive learning methods in the development of the ability and willingness to plan own career and professional future.

The regression results are true, since the value of these parameters corresponds to the statistical significance:

- Multiple correlation coefficient is 0.993;
- The model describes the 98% of the variance;
- Fisher criterion value equal to 475,527 with a significance level of 0,000.

Psychological training has the greatest influence on the development of this competence. ($\text{Beta}=1.062$; $p=0.000$). Cognitive techniques are also effective ($\text{Beta}=0.148$; $p=0.033$). Lecture conversely inhibits the development of this competence ($\text{Beta}=-0.265$; $p=0.000$).

Conclusions

1. Specially organized program of psycho-pedagogical support of the process of career self-determination of senior pupils, based on the use of interactive learning methods, is more effective than traditional forms of career guidance. Formed personal and professional competence of senior pupils is an indicator of successful mastering the program.
2. Competencies that should be developed: a) the ability and willingness to integrate personal and social interests in professional activity; b) the ability and willingness to professional interaction and solving of socially important problems; c) the ability and willingness to cognitive reflection; d) the ability and willingness to plan own career and professional future. The level of development of these competencies for the program participants is higher than of senior pupils who participate in traditional forms of career guidance.
3. Psychological training is the most effective method of interactive learning for the development of personal and professional competence of senior pupils. This method contributes to the development of skills in teamwork, constructive communication, solving social problems, and planning skills of own professional future.
4. Cognitive techniques develop the ability and willingness to integrate personal and social interests in professional activities, the ability to plan, but inhibit the development of competence with the sphere of interpersonal interaction and solving social problems.
5. Art-therapy techniques are effective for the development of skills of cognitive reflection, but inhibit the development of socially important skills, as they are focused on the realization of own goals, interests and needs.
6. Efficiency of game interactive learning methods to the development of personal and professional competence of senior pupils has not been established.

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