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Better Performance of Students: Education Conditions During Adaptation to the University

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Abstract

Many researchers highlight performance as one of the factors of first-year students' effective adaptation. The relevance of the studied problem lies in the fact that students having good results of final exams in a comprehensive school face challenges while adapting to the university. In order to ease the process of moving from the usual regular school life to a university period, we offered first-year students a special educational course of study "Introduction to Learning". We tried to determine whether the study of the special course "Introduction to Learning" by first-year students will affect the results of their training during the adaptation period. The leading research method for this problem is comparative analysis which let us identify if the course "Introduction to Learning", included in the curriculum, affects the learning outcomes during the first semester of the first-year students' adaptation period. Comparing the first semester grades of the groups studied the proposed course, and the groups which did not study one, we received the following results: students of the experimental groups showed higher results in the first half of the year. Our special course supported the process of adaptation by students of the first year and their successful educational process. The developed syllabus of the course "Introduction to Learning" is aimed at preparing students for study in new conditions of a university and at improving learning outcomes of first-year students in the first semester of the adaptation period.

Keywords: adaptation, first-year students, assessment, academic performance, study course

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Introduction

Employers and universities are interested in the level of professional education that students receive; therefore many philosophers, psychologists, physiologists, sociologists, and teachers focus on student's life. The relevance of the problem under study is due to the fact that some students, having good results of final exams in a comprehensive school, experience difficulties in the period of their adaptation to the educational process. One of the indicators of successful adaptation of first-year students is academic performance (Solovyov, 2004). If we follow the opinion of some scientists, performance is determined by the results of final examination in a comprehensive school (Khavenson & Solovyeva, 2014; Mayorova, 2014; Zamkov & Peresetsky, 2013). To make it easier for students to pass through the adaptation period and begin student's life, as well as study more successfully and show good performance starting from the first semester, many scientists suggest introducing certain conditions. Analyzing scientific researches on the problem, we came to conclusion that we can offer the tested condition that would facilitate adaptation of first-year students in the first semester, thereby helping to improve learning outcomes. We propose to include a special course of study "Introduction to Learning" in a curriculum.

 The course consists of the following sections:

- Trajectories of movement within a profession or company,

- Model of personal efficiency,

- Training on self-development and career planning.

The course lasts for 36 academic hours.

To solve the identified problem, we addressed the following scientific studies: theories and practices of modern higher education, studies considering a student as a subject, studies addressing problems in the field of social adaptation of students in an educational institution, studies describing methods used in a scientific research.

Purpose and objectives of the study

The hypothesis of the research is the assumption that the study of a special study course "Introduction to Learning" aimed at students' adaptation facilitates increasing learning outcomes of students of the first year and has a positive impact on the successful adaptation to education.

The following tasks were solved during the study: 1) explore psychological and pedagogical literature on the problems of social adaptation of first-year students in an educational institution; 2) determine indicators of social adaptation of students; 3) develop a special study course "Introduction to Learning"; 4) develop a methodology to assess and evaluate the level of social adaptation of students, determine the research facility and groups of students to conduct research; 5) implement the course "Introduction to Learning" and evaluate its impact on the success of adaptation process.

Literature review

Scientists explore the problem of adaptation of university students from different perspectives. For example, relationship between adaptation and stress (Clinciu, 2013); relationship between student adaptation and physiology (Panikhina, 2011); relationship between adaptation and psycho-physiological and psychological indicators of students from different social groups (Notova et al., 2015); relationship between adaptation motivation and students' mental health status (Bailey & Phillips, 2016); relationship between adaptation and social media communication (Nalbone et al., 2016); relationship between adaptation and parenting style, current relationships with parents, and psychological well-being of a family (Wintre & Yaffe, 2000); the process of adaptation at the university and growing relationship problems with parents and friends, distancing from the habitual cultural environment (Lehmann, 2014); students' adaptation during their education (Zhegulskaya, 2011); foreign students and their adaptation to university processes (Akhtar et al., 2015); cultural assimilation of schoolchildren from rural locations in urban culture and adaptation at the university (Xiulan, 2015); consideration of the methodological system that contributes to successful educational adaptation of first-year students (Poptsov & Surovikina, 2012); introduction of new forms of learning into the educational process (Gabdrakhmanova, 2015); creativity in teacher-student collaborative activities, which promotes students' adaptation to the educational process (Khuziakhmetov & Gabdrakhmanova, 2016); social activity and academic performance (Nuñez, 2009). Problems of first-year students in social and psychological adaptation at a university are expressed in a disadvantaged sociometric status, problems in communicating and establishing relationships with fellow students and teachers, inability to use skills necessary for self-cognition and learning (Andrienko et al., 2019); performance of the first-year students is influenced by their individual characteristics: abilities, aptitudes and place of residence (Krasilnikov & Smirnova, 2017).

Some scientists quite broadly consider the highlighted problem, revealing the interconnections of such spheres as economics and education in vocational institutions. They describe these connections in educational and professional standards, demands of employers and professional training in vocational and higher education (Ronzhina et al., 2019). Some scientists offer specific conditions that encourage students

to adapt and improve first-year academic performance. For example, a mentoring program that has a positive effect on adaptation to the university and ways to deal with students' stress (Zhou et al., 2020). In addition, many authors propose using a program aimed at assessing the degree of adaptation of students to educational activity in professional socialization (Tyumaseva et al., 2018).

The continuing education courses organized for university teachers also address the problem of first-year students' adaptation (Gabdrakhmanova et al., 2015). This is only a part of the researches devoted to the problem of adaptation by university students of the first year. Analyzing these works and many other scientific studies on the problem under consideration, it turned out that the issues related to the study of adaptation in the first semester of first-year students are very relevant, but insufficiently studied.

Comparative analysis has been found in many studies (Graf, 2016; Mahoney, 2004; Skocpol & Somers, 1980). For example, comparison of the results of final examination in a comprehensive school and academic performance in the first semester of a first-year student was presented by many researches (Shchegoleva & Surovtsova, 2015; Poldin, 2011). Our study describes the comparison of performance indicators of students int wo groups: experimental and control.

Methodology

To confirm the hypothesis, we used a set of research methods that complement each other:

- theoretical: synthesis and analysis of literature - philosophical, methodological, pedagogical, psychological, sociological and methodical; method of generalization;

- empirical: document research method, questionnaires, qualitative and quantitative analysis of experimental results, statistical methods.

The research was conducted in the Institute of Geology and Petroleum Technologies of the Kazan (Volga region) Federal University. This is a large institution that has close ties with employers. But the most important thing is that leading personnel of the Institute were interested in our research and provided assistance.

Experiment description and procedure.

The experiment was held from 2016 to 2019. The KFU Institute of Geology and Petroleum Technologies implements several major educational programs of higher education: "Geology", "Geology and Geochemistry of Fossil Fuels", "Geophysics", "Petroleum Engineering", etc. When students are enrolled in

the first year at a certain training program, results of the some final exams of a comprehensive school (Unified State Examination - USE) are taken into account.

290 students participated in the current study (the first academic year - 94, the second academic year - 87, the third academic year - 109). The total number of academic groups of students is 12. First-year students of "Geology" major took part in the study.

At the initial stage of our research we studied the data on the results of first-year students' performance in the first term of 2016-2017 academic year ("Geology" major (Table 1)).

Table 1. Results of first-year students' performance in the first term of 2016-2017 academic year ("Geology" major)

Year	Major	Group	Number of students	Performance – passed exams (% of students)	Quality of performance – good grades (% of students)
1	geology	1	24	71	33
1	geology	2	23	39	17
1	geology	3	23	52	28
1	geology	4	19	79	47
1	geology	5	24	75	33
1	geology	6	23	70	21

Groups 1 and 5 were defined as experimental (due to the fact that curriculum of the mentioned group included "Introduction to Learning" course program), and groups 2 and 3 as control. According to the data presented in Table 1, it is clearly seen that students who have successfully mastered school curriculum show not so high learning outcomes when becoming students. Only 33% of "Geology" students in groups 1 and 5 had good grades, and "Petroleum engineering" demonstrated very low results. To understand the reasons that impede the successful learning of students, a survey was conducted among first-year students after they finished the first semester. In each study course, students were asked to express their opinion: to put a satisfaction rating on the studied course (on a five-point system) and write their comments and suggestions. It should be noted that five points were not assigned to any course of study.

Then a special course program "Introduction to Learning" was developed, aimed at solving typical problems of freshmen during their adaptation at the university. A special course "Introduction to Learning"

was implemented as a part of the educational process in the first semester. Classes were held in the form of trainings where students got acquainted with the principles of functioning of a professional team, corporate norms and standards, social and cultural characteristics of representatives of various social communities.

During the trainings, individual, pair and group forms of organization of students' activities were used, each of which is aimed at solving different types of tasks. So, performing individual tasks, students master the content of self-organization and self-education processes and get acquainted with the psychological and pedagogical principles of independent building the process of acquisition and improvement of professional and other activities. Performing group activities, students learn to work in a team, effectively complete the tasks of professional activity in the process of interaction in a team. Distribution of team roles in the process of working in small groups when performing training tasks allows to develop a cooperation strategy in planning and organizing team work; as well as use a collaborative strategy to guide team work to achieve a goal, delegate and set up a work schedule.

The final work on the course is a project that is carried out by students individually or in pairs, depending on the complexity of the selected task. The problematic area for the project is related to self-esteem and self-development of future geologist professional competencies in the learning process, as well as continuous professional self-education. Students formulate the theme of the project themselves under the guidance of a teacher. During the implementation of the course final project, students develop the ability to determine goals and establish priorities when choosing the way of decision-making taking into account conditions, means, personal opportunities and time prospects of achievement; to independently build the process of mastering the information selected and structured to carry out professional activities; to analyze and creatively use the available experience in accordance with the tasks of self-development; to independently build the process of mastering and developing a specific professional activity. Working on the project, students learn to draw up a plan of successive steps (work flow chart) to achieve a given goal; to participate in the planning of a team work together with the group; to delegate and make the work schedule.

During the subject mastering, when analyzing and evaluating the results of individual and team work, a comprehensive assessment of activity results is used, this includes expert assessment, mutual evaluation and self-assessment. All mentioned above contributes to formation and development of the following abilities: objectively assess the possibility of self-fulfillment while independently building the process of mastering a specific professional activity; analyze and adjust personal and professional development plans, taking into account available resources; critically characterize the consequences (results) of personal and collective (team) actions.

As a result of studying the proposed course, a student can specificate the image of a professional university's graduate and also determines which competencies are necessary to be formed and developed in the process of studying a university major. A student gains understanding that in order to become a highly sought professional, one must successfully learn. Success does not come easily; you need to go to success by composing a specific individual track and making efforts.

Results

At the first step of Formative assessment, according to the results of the survey of first-year students, the following sentences were determined as frequent: "a teacher speaks quietly", "speak louder at the lecture"; "increase the amount of seminars"; "do not have time to conduct laboratory work", etc. This information was brought to the teachers in order to apply new teaching methods in the educational process that would help students become successful in their classes.

At the second step of Formative assessment, the special course of study "Introduction to Learning" was included in the curriculum of the 2017-2018 academic year. This discipline was introduced only to 2 groups of the major "Geology" - 1 and 5. At the end of the first semester of the following data were obtained (Table 2).

Table 2. Results of first-year students' performance in the first semester of 2017-2018 academic year ("Geology" major)

Year	Major	Group	Number of students	Performance – passed exams (% of students)	Quality of performance – good grades (% of students)
1	geology	1	17	82	29
1	geology	2	17	47	12
1	geology	3	33	67	24
1	geology	4	26	73	27
1	geology	5	20	80	45
1	geology	6	20	65	15

Although the quality of academic performance decreased by 4%, a general increase in learning outcomes can be seen in the first group: according to the data shown above, academic performance of the experimental group No. 1 increased by 11%. In experimental group No. 5, academic performance increased

by 5%, and quality of academic performance - by 12%. This is a very high rate. Control groups did not show significant changes.

In the 2018-2019 academic year, after the implementation of the experimental program in the first semester, the following data were obtained (Table 3).

Table 3. Results of first-year students' performance in the first semester of 2018-2019 academic year ("Geology" major)

Year	Major	Group	Number of students	Performance – passed exams (% of students)	Quality of performance – good grades (% of students)
1	geology	1	28	81	35
1	geology	2	28	32	3
1	geology	3	27	63	16
1	geology	4	15	7	20
1	geology	5	26	77	58
1	geology	6	25	12	4

In experimental group No. 1 academic performance dropped by 1%, but quality improved by 6%. In experimental group No. 5 academic performance dropped by 3%, but quality improved by 13%. In control groups, academic performance and quality decreased. Thus, the introduction of the special course "Introduction to Learning" in the educational process contributed to improving the quality of student learning in experimental groups.

Discussions

As already mentioned, in the Russian Federation, school graduates enter universities basing on the Unified State Exam (USE) results. Despite the fact that students have good USE results in a comprehensive school, they hardly finish the first semester at the university. Quite a lot of the researches in education and psychology all over the world are devoted to this problem. Introduction of a special adaptation course in the first semester when students experience the greatest difficulties while adapting to a learning process and new social conditions will partially solve this problem. Indeed, introduction of a special adaptation course is not the only solution. Moreover, not every institute's director would agree on conducting a survey with all the students and including a new course of study into a curriculum as it

is not directly related to the study major. Administration of the Institute of Geology and Petroleum Technologies of KFU showed a high interest in conducting the study as they were concerned about the high percentage of expulsions of first-year students due to difficulties in mastering the educational program, although those students had quite high results of the USE. It was this contradiction that prompted the idea that the problem may lie not in the difficulty of the educational program or poor preparedness of students, but in the difficulty of adapting to new learning conditions. Special course of study helps first-year students to adapt faster, which is reflected in student performance indicators. The leading personnel of the Institute contributed to the development and implementation of a special adaptation course "Introduction to Learning", which after getting the experiment results, is currently included in all curricula.

Conclusion

According to the results we received during the study, we identified that study of the special course "Introduction to Learning", which is included in the curriculum at the Institute of Geology and Petroleum Technologies, has a positive effect on the first-year students' performance and contributes to their successful adaptation. The proposed study course is one of the factors contributing to the rapid adaptation and successful study of first-year students.

It is essential to establish the next stage of the experiment in order to determine the dynamics of the study course impact on students' performance during the first and subsequent years.

Acknowledgements

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