Problems of Organizing the Educational Process in Small Academic Groups at the University and Ways to Solve them (On the Materials of Kabardino-Balkarian State University)

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Abstract. Purpose: The purpose of the research of this problem is to obtain relevant information about the features of student education in small groups, as well as to develop recommendations for improving the educational process.

Design /Methodology/Approach: The article considers methodological issues of organizing the educational process in small academic groups for bachelors and specialists (masters) in the conditions of reducing classroom classes. In recent years, groups of students with small numbers have appeared in higher education in some areas of training in senior courses. Practice shows that conducting classes in a small group causes a number of difficulties. Despite the conditions of almost individual training, students quickly get tired; they are disconnected from academic work; the quality of education is reduced; there is a need to adapt previous methods and forms of education to a new situation, and from the point of view of organizing the educational process economic problems for the university administration arise.

Findings: The authors presented the reasons for the appearance of small groups at the university, the economic feasibility of training small groups and approaches to solving this problem. Guidelines for optimizing financial costs in the education of small academic groups have also been identified.

Originality/Value: The novelty of the research consists in generalization and application of the known and innovative methods of education to underfilled groups. The increasing role of the teacher and level of his professionalism which directly depends on extent of mastering the electronic information and education environment, innovative methods of training and ability to apply them in educational process taking into account specifics of work in relation to low-complete groups is established.
1 Introduction

In the modern conditions of globalization and fierce competition in the educational services market, “issues of financial management in higher education” (Ligidov et al. 2019a, b) become relevant. It should be noted that “the relevance of research into the problems of improving the efficiency of the functioning of the educational field is undisputed” (Ligidov et al. 2019a, b). The issues of organizing educational work in underfilled groups (IFG) for higher education and the need to regulate them, taking into account the peculiarities of the implementation of educational programs of undergraduate, specialty and master’s studies, are relevant in modern conditions.

The growing consequences of the socio-economic recession of recent years are beginning to affect the economy of universities. With limited economic resources and minimal basic cost standards, higher education institutions have to educate small groups of students at great cost. They fully agree with the arguments presented in the studies of Pavlov F.P. and his colleagues that: “a small comprehensive training group is very limited in resources under the traditional method of training” (Pavlov 2012). As practice shows, including the world, a “personal” approach to training is expensive. This problem cannot be solved without innovative educational technologies and modernization of the modern educational process.

2 Materials and Method

For the effective implementation of public policy in the field of higher education, it is recommended to observe the ratio of 1 of the higher-education teaching personnel (HETP) to 12 students (i.e. 1 to 12). In other words, academic groups with less than 12 students belong to the category of small educational groups (Information and Legal Portal ГРААНТ.РУ 2014). It is difficult to disagree with the researchers’ conclusions that: “finding a balance between high-quality education and the cost of training will solve the task relevant for the university environment - the training of highly professional personnel in small groups with appropriate competencies in demand in the labor market” (Pavlov 2012).

As the experience and practice of the last 3–4 years at Kabardino-Balkarian State University named after H.M. Berbekov (KBSU) academic group shows, in most cases, the recruited full-fledged groups for 1 year become small in 2–4 courses as a result of deductions due to failure (academic debt) or unreasonable distribution of the contingent of students in the directions. It is obvious that from the point of view of the financial management of the university, with the established normative ratios of the Roadmap of the Government of the Russian Federation between the number of teachers and...
students, providing full-fledged traditional classes provided for in study plans in groups where the number of students is less than 12 entails excessive university expenses.

As numerous studies show, the problem of small groups is mainly typical for regional universities, but there are few proposals and recommendations for resolving it. The issues of regulating educational work in small schools have been relatively well solved, but the events presented for them in literature and in the media for the most part do not apply to higher educational institutions.

The commitment to the emergence of a fairly large number of small groups in the university environment is due to a number of objective and subjective reasons, the main of which, in our opinion, are:

- reduced demand for engineering, science and humanities among applicants and, as a result, a small number of recruits for selected areas of training;
- a decrease in the level of training of graduates of general education institutions, especially in natural-scientific and technical disciplines, which in turn leads to numerous student deductions based on the results of intermediate certification from junior courses, thus increasing the number of small groups;
- a large number of fields in different specialties/areas of training;
- lack of unification in working curricula and educational programs etc.

3 Results

The results of the studies conducted on the problem of underfilled groups (UFG) on the materials of Kabardino-Balkarian State University (KBSU) are presented in Table 1.

Table 1. Comparative analysis of UFG in KBSU for 2018–2019 and 2019–2020 academic years in higher and secondary vocational education programs

| Education level       | Mode of Study | 2018–2019 academic year | 2019–2020 academic year |
|-----------------------|---------------|-------------------------|--------------------------|
|                       |               | The number of UFG       | The number of students studying in UFG | Total Number of academic groups | Percentage of UFG of the total number of academic groups |
| Bachelor's programme  | ISM           | 39                      | 33                       | 240 | 198 | 16,7 |
|                       | on-site and off-site training | 1               | 2                       | 7   | 14  | 14,3 |
| Master's programme    | ISM           | 18                      | 28                       | 179 | 74  | 37,8 |
|                       | on-site and off-site training | 1               | 1                       | 7   | 1   | 100  |
| Specialist            | ISM           | 1                       | 1                        | 10  | 138 | 0,7  |
| IVE                   | ISM           | 0                       | 0                        | 0   | 125 | 0    |
|                       | on-site and off-site training | 0               | 0                       | 0   | 20  | 0    |
| Total in KBSU         |               | 60                      | 65                       | 443 | 570 | 11,4% |
Table 1 shows that the total number of UFG in the 2019–2020 school year at KBSU was 65 units or 11.4% of the total number of training groups (570). The population of students studying at UFG is 443, that is, the population of students in the small group is on average 6–7 people.

For comparison, an analysis of the number of UFG for 2017–2019 was carried out. The data is presented in Table 2.

Table 2. Comparative analysis of UFG in KBGU for the period 2017–2019.

| Indicators | Years       |
|------------|-------------|
|            | 2017 2018 2019 |
| Total number of training groups at KBSU | 469 486 570 |
| Number of UFG | 96 60 65 |
| Number of UFG of total training groups, in % | 20,4 12,4 11,4 |

As it can be seen from Table 2, over the past three years, the university management has carried out work to reduce the share of UFG in the total number of academic groups from 20.4% to 11.4%, which is beneficial from the position of financial management of the university. The decrease in the share of UFG was achieved mainly due to the diversification of curricula in compliance with the requirements of federal state educational standards and other regulatory documents, and, of course, the transfer of students to an individual curriculum. As it can be seen from the Table 2, according to the results of the 2019–2020 school year, about 1% of UFG was optimized compared to the 2018–2019 school year, and 9% compared to the 2017–2018 school year, respectively (Ligidov et al. 2020).

More clearly, the dynamics of UFG in KBSU for 2017–2019 can be seen in Fig. 1.

![Fig. 1. Dynamics of UFG in 2017–2019 Source: developed and compiled by the authors.](image-url)
Summary information on the number of small groups according to the EGST (enlarged groups of specialties/training areas) in the KBSU is presented in Table 3.

Table 3. Number of UFG in KBSU for the academic year 2019–2020 in the areas of training/specialty and in training units

| № п/п | KBSU educational departments | EGST (enlarged groups of specialties/training areas) | Number of UFG |
|-------|------------------------------|----------------------------------------------------|---------------|
| 1.    | SHI (Social and Humanitarian Institute) | 41.00.00 Political science and regional studies | 3             |
| 2.    |                               | 42.00.00 Media; information and library science     | 3             |
| 3.    |                               | 44.00.00 Education and Pedagogical Sciences        | 1             |
| 4.    |                               | 45.04.01 Linguistics and literary criticism        | 16            |
|       | **SHI Total**                 |                                                    | **23**        |
| 5.    | IIER (Institute of Informatics, Electronics and Robotics) | 03.00.00 Physics and Astronomy | 2             |
| 6.    |                               | 09.00.00 Computer Science and Computing            | 1             |
| 7.    |                               | 11.00.00 Electronics, radio engineering and communication systems | 4             |
| 8.    |                               | 15.00.00 Mechanical engineering                    | 9             |
| 9.    |                               | 27.00.00 Technical Systems Management              | 2             |
|       | **IIER Total**                |                                                    | **18**        |
| 10.   | ICB (Institute of Chemistry and Biology) | 04.00.00 Chemistry | 1             |
| 11.   |                               | 05.00.00 Geosciences                               | 4             |
| 12.   |                               | 18.00.00 Chemical engineering                      | 3             |
|       | **Total**                     |                                                    | **8**         |
| 13.   | IPM (Institute of Physics and Mathematics) | 01.00.00 Mathematics and Mechanics | 1             |
| 14.   |                               | 03.00.00 Physics and Astronomy                     | 7             |
|       | **IPM Total**                 |                                                    | **8**         |
| 15.   | ILEF (Institute of Law, Economics and Finance) | 38.00.00 Economics and management | 4             |
|       | **ILEF Total**                |                                                    | **4**         |
| 16.   | IPPSE (Institute of Pedagogy, Psychology and Sports Education) | 37.00.00 Psychological sciences | 1             |
| 17.   |                               | 49.00.00 Physical culture and sport                | 2             |
|       | **IPPSE Total**               |                                                    | **3**         |
| 18.   | IACD (Institute of Architecture, Construction and Design) | 54.00.00 Visual Art; Arts and Crafts | 1             |
|       | **IACD Total**                |                                                    | **1**         |
|       | **Total**                     |                                                    | **65**        |
From the materials presented in Table 3, we can conclude that the problem of small groups is more characteristic of two training units of KBSU: SHI - 23 groups, which is 35%; IIER - 18 or 28%. Together, the number of UFG in these two educational departments is more than 63%. The remaining UFG are distributed among other educational departments. This distribution can be seen graphically in Fig. 2.

| Educational Department                                      | UFG Number |
|-------------------------------------------------------------|------------|
| Social and Humanitarian Institute                           | 23         |
| Institute of Informatics, Electronics and Robotics          | 18         |
| Institute of Chemistry and Biology                         | 8          |
| Institute of Physics and Mathematics                       | 8          |
| Institute of Law, Economics and Finance                    | 4          |
| Institute of Pedagogy, Psychology and Sports Education     | 3          |
| Institute of Architecture, Construction and Design         | 1          |

Fig. 2. Number of UFG in KBSU educational departments (in units). Source: developed and compiled by the authors.

Therefore, out of 131 fields of education implemented in the 2019–2020 academic year in 35 educational fields, or 26.7% of the total number from year to year, the presence of UFG is being observed. It should be noted that UFG is completely absent in medical specialties and in all 4 colleges at KBSU, i.e. in secondary vocational education programs.

Our studies using the example of KBSU also confirm the opinions of other researchers that the UFG problem is most characteristic of humanitarian, engineering and natural science fields of training/specialties. Reducing the demand for these areas of training/specialties is an understandable process. This situation generally reflects the current picture in the national economy. And this problem also needs to be solved.

In connection with the situation that has arisen today due to the coronavirus pandemic, our life is undergoing dramatic changes. The problem of lost profits due to the availability of UFG at the university becomes especially acute in the current conditions of the world pandemic of a new coronavirus infection (COVID-19), due to which additional financial costs are carried out. The university is forced to look for ways to reduce the economic consequences of the pandemic. At the same time, it is necessary to “balance the interests of an educational institution and the interests of students who are also in a difficult financial situation today” (Alikaeva 2015). The financial losses of KBSU from the availability of 65 UFG in the 2019–2020 academic year according to approximate estimates of specialists of the planning and financial department of KBSU amount to more than 34 million rubles or more than 2% of the total income of KBSU coming from educational activities. In other words, the monthly losses of the university
from the presence of such a number of UFG in the 2019–2020 academic year amounted to about 3.5 million rubles.

Reducing the number of small groups will require serious management decisions at the university level. Here I want to quote A.P. Gorbunov and his colleagues: “it is necessary to search and evaluate the possibilities of mobilizing reserves for increasing the efficiency of modern universities” (Gorbunov et al. 2016).

According to researchers and experts, an important area may be “reasonable unification, both in the name of disciplines and in the ratio of types of classes, which will allow in many cases, especially when studying general disciplines, to combine small groups into complete ones. This will help to ensure the normal organization of the educational process, in which individual classes will be excluded and the volumes of contact load with the student planned by the curriculum will be preserved. This problem can be solved through the implementation of individual educational trajectories (individual plans), which requires the development of local regulatory acts of the university. It is important that the content of individual plans cannot contradict the requirements of federal state educational standards” (Ivanishchev and Sidchenko 2017).

The most simplified option to solve the problem of UFG is to initially lay down in the work curriculum to minimize the audience contact load per student, respectively, and the higher-education teaching personnel load. This means that it is necessary to combine as much as possible into in-line groups of UFG students to study the same disciplines, reduce the audience contact load, reduce the total number of disciplines, etc. Moreover, as additional measures, it is necessary to intensify work on using the electronic information and educational environment of the university and remote educational technologies at the maximum level. Also, UFG needs to use more widely various methods of independent work of students under the guidance of a teacher. Here it is worth fully agreeing with Zimina L.E., who argues that “effective training of university students is impossible without their purposeful independent work.” (Zimina 2017). The current level of development of information and communication technologies, active and interactive learning tools as forms of innovative student education technologies at UFG involves more active use of crossword solutions, case stages, simulation, and experience study in the educational process. The criteria for assessing the effectiveness and effectiveness of students’ independent work in mastering materials should be search skills, the ability to analyze educational material, “highlight a significant, correctly interpret models of ethnocultural consciousness and national identity in the content of texts” (Betuganova et al. 2019) creative approach to understanding educational material.

Probably, we will agree with the author's position of Antyukhov and his colleagues, who believe that “it is worth paying attention to personal-oriented educational technologies based on interactive pedagogical interaction of all participants in the educational process: teachers with students and students among themselves” (Antyukhov et al. 2016).

Such interaction implies the following logic of educational activity: “1) motivation - 2) the formation of a new experience - 3) its understanding through application - 4) reflection. Interactive training involves compulsory work of students in small groups on the basis of cooperation and cooperation, which involves the use of game forms of training in pedagogical activities” (Retivykh 2012).
New training technologies include training using “project-oriented methods”. “We agree with Sidnenko’s position (2018): “Project-oriented training is based on methods for developing the potential of a person who can use the competencies of applying the rules of one situation in others with the condition of compiling” design scenarios: promising, strategic, critical, accompanying.”

4 Conclusion

On the ground of the above said, we can state that the KBSU is faced with the task of organizing and strengthening the work to reduce the number of UFG in the next academic year and in subsequent years in order to optimize the cost and rational use of financial resources. An optimistic option for the university in the future is to reduce the share of small groups to 5%, which, in turn, will minimize expenses of up to 1% at UFG from the total income of KBSU received from paid additional educational services.

A study conducted on the problem of organizing the training of small groups at the university allowed us to draw a number of conclusions that can be used in the practical activities of various educational institutions. The novelty of the study lies in the generalization and application of known and innovative methods of training to UFG. The findings may also be of interest to researchers for further analysis.

The main results are as follows:

1. A rather difficult task is the development of methodological materials for UFG and their constant updating in the conditions of the formed system of normalizing the load of faculty. The solution of this problem is assumed to be possible if there are certain achievements in organizing the independent work of students by adapting them to the peculiarities of educational activities in the UFG.
2. The organization of independent work of students in small groups to a greater extent involves the development by pedagogical workers of tutor, moderator, management and advisory competencies for effective communication in the educational process.
3. The use of innovative teaching methods in small groups should be inextricably linked with the development of e-learning and distance education technologies. With the transition to a knowledge-based digital economy, IT technologies are becoming a key driver of development.
4. The role of the teacher is increasing and, accordingly, the level of his professionalism depends on the degree of mastery of the electronic information and educational environment, innovative teaching methods and the ability to apply them in the educational process, taking into account the specifics of work in relation to small groups.
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