Modern pedagogical education requirements for students at construction and mechanical engineering faculties

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Abstract. The professional activity of a fundamentalist teacher with classical education fully involved in the general educational and scientific process, and a teacher who successfully combines his professional activity with industrial one is considering. Professional characteristics of a teacher with a higher education and acquirements obtained at an industrial enterprise are compared to attainments of a teacher with fundamental pedagogical education to monitoring and eliminating gaps in students’ knowledge.

1. Introduction
The statement that the system of higher education and the involvement of students in the production process is becoming global and is taken as an axiom by many researchers in this field [1]. In the Russian system of higher education, traditionally inclined to think within national boundaries, recently the fact of the globalization of the education system has also become generally accepted [2]. At the moment, the country's universities are facing an extremely ambitious task: by 2020, five of them should be in the top 100 universities in the world. Based on the tasks set, the system of higher education in Russia as a “test pilot” is one of the area’s most subject to reform attempts.

2. The reasons for part-time teachers
Modern economic conditions require from higher education teachers unceasing professional, pedagogical and scientific activities [3-5]. According to Presidential Decree No. 597 of May 7, 2012, “On Measures to Implement State Social Policy,” in the regions, by 2018, it was necessary to ensure an increase for teachers at higher professional education institutions and researchers’ salaries to 200% of the average salary in the region. Of course, the overall wage level of university teachers and researchers has increased over the past six years, but their final increase does not measure up to the level set by presidential decree [6]. Therefore, like many other categories of working citizens, teachers have to combine their professional activities with different ways of earning, similar to the disciplines they teach.

Of course, there are a lot of ways of profession combinations and they may have more creative meanings. For example, as did the Czech humanist teacher Jan Amos Komensky, who compared a teacher with a gardener who lovingly grows plants in a garden, with an architect who carefully builds
knowledge of every corner of a human being, with a sculptor carefully scaling and polishing the minds and souls of people, with the commander energetically leading offensive against barbarism and ignorance [7]. This phrase is absolute truth, which can be taken even as an ideal, but unfortunately, in the era of capitalism the familiar aphorism “Spiritual food cannot be full” immediately comes to mind. That is why the phrase of the head of the Government of the Russian Federation can rightly be considered fair, that “a modern teacher can not only receive a salary on a schedule, but also earn something else”.

In addition to the financial component in the combination of professions, which is fundamental for the teacher [8], there are a number of advantages for students to be described in this article.

First of all, it is worth noting that, despite the significant differences between production and teaching, in general, their combination is appropriate. And the point is not only that as a result, students get the opportunity to keep abreast of the latest achievements not only of science, but also of technology, but also that this experience is very useful for the teacher himself [9]. After all, teaching implies the need to be aware of the problems of a particular field of knowledge as a whole [10], not allowing you to follow KozmaPrutkov's classic statement “A specialist is like a flux: its fullness is one-sided”. Production practice is a reliable preventive measure against excessive “fixation” on a particular topic, which makes it difficult to see problems in a particular industry in a wider context and, ultimately, reduces the teacher's productivity. In addition, the process of production in a particular profession often stimulates the teacher to the emergence of new ideas, provides an opportunity to see the usual problems in new perspectives. Conversely, in the process of communicating with students, production ideas and concepts undergo a kind of “common sense test”. By the degree of their clarity for the audience and by the way it reacts to different materials, what questions they ask, you can better understand the degree of validity of certain provisions, notice controversial and insufficiently elaborated points. Finally, the teaching experience lucidly expounds its ideas, gives a solid experience of public speaking, which is also important.

3. Differences in teaching approaches
Then you can try to identify the general and what may have its advantages or disadvantages when comparing a fundamentalist teacher with a classical education, fully immersed in the general educational and scientific process, and a teacher who successfully combines his professional activity with one or another industrial activity.

General:
- Teaching activity is a special type of social (professional) activity, which is aimed at the realization of the goals of education [11].
- A teacher who graduated from an institution of higher education and then took advantage of the knowledge acquired in it at work, as well as a teacher who has a basic pedagogical education, provide the listener with the same curriculum and readable disciplines agreed upon by the Ministry of Science and Higher Education of the Russian Federation.
- Equally fulfilled the conditions of the employment contract for a particular position.
- Having the basic skills of a successful teacher, such as:
  - constructive activity in the selection of educational material and the construction of the pedagogical process [12];
  - organizational activities with the implementation of a system of actions aimed at the active involvement of students in various activities, as well as the organization of joint activities; communicative activity and the establishment of pedagogically expedient relations of a teacher with pupils, other teachers, parents, members of the public [13];
  - control and evaluation component [14].

All these and many other components provide continuous learning activities in which the student masters a particular discipline and achieves the goals set by the teacher.
Skills and abilities of a teacher involved in production, distinguishing him from a fundamentalist teacher with a classical education:

- The adult generation of citizens is always striving to pass on to the younger generation the accumulated practical experience of mankind [15-17], so that society can be maintained and developed; this can be called culture. Therefore, a person who owns a culture is one of the main goals of society. To achieve this goal, a special activity is organized in society - pedagogical. Given the interconnectedness of concepts, it can be assumed that all pedagogical activity has its beginnings in practical, even more correct, experimental activities. But it is impossible to convey the whole culture through pedagogical activity, and for this, the necessary and necessary for mastering part of the practical experience that can be taught by the person who has it is selected.

- Pedagogical activity can be carried out by a socially educated person who has a pedagogical (professional) education. The subject of pedagogical activity is the whole part of the culture selected and intended to be transferred to the younger generation, the special processing of which makes it possible to achieve the set goal. But what to do with the ability to interest or give a student to relax and recover? It is always easier for production teachers to find interesting and not well-known examples from their many years of work.

- The means by which pedagogical activity is carried out are, first of all, natural properties and qualities belonging to a person: the ability to realize, understand, use knowledge and skill, as well as various kinds of tools, including books. But it is not uncommon when a teacher with production experience is ready to show modern, already completed work of his enterprise, capable of attracting trainees and interest them in their future profession.

- In the absence of pedagogical qualifications, a production teacher can master a number of courses or receive, for example, a diploma of “Higher School Teacher”, where the future specialist will be presented with all the nuances of professional pedagogical activity.

- Of the minuses it can be noted that although the current legislation does not contain a ban on the combination of professions in combination for teachers and they can look for additional income without restrictions, but the teacher often does not have enough time and energy for this. Here it is time to remember the phrase by A.P. Chekhov, who later became a saying, “Chase two hares, you will not catch a single one”.

4. Summary
It is worth noting that the presence in the faculty of a higher educational institution of a teacher involved in an adjacent profession is not at all obligatory, because the practical skills of students are promoted by practical training, which they carry out annually and by the results of which a report is made. But in the modern world this is becoming the norm, the pros and cons of which are displayed in this article.

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