

## Using Competency-based Tasks in Undergraduate Students' Education Organization at Research University

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**Abstract:** The article is devoted to the issues of working out and implementing various tasks used in teaching undergraduate students and aimed at forming project and research competencies. The article presents the data of the research conducted at the Faculty of Psychology, Tomsk State University (Russian Federation). The research draws on the study of the global educational trends in the stated field, the study of the tasks' content and students' work peculiarities. The conclusion is drawn on the necessity of considering activating teaching methods while working out and implementing such tasks in order to activate undergraduate students' knowledge, their research potential. We see the research competence as the key one in determining student's academic and professional success and suppose that such kind of education based on research will allow the students to generate knowledge independently to fulfill academic and professional assignments in future.

**Keywords:** Competencies; project and research activity in university; activating teaching methods; undergraduate education.

The competence-based approach to university education is focused on developing students' ability to gain and produce knowledge on his/ her own, to conduct communication effectively, to act productively in situations of uncertainty. Thus, the competences in project and research activity as well as in communication which reflect the result and the content of education start playing a crucial role. The application of competency-based approach raises the interest in organizing students' self-study process as the process of special competencies shaping and development.

The concept of competency as a 'cluster of life outcomes' and the factor influencing the effectiveness of an employee's activity was introduced by D. McClelland (McClelland, 1973). In 1984 J. Raven contributed to the discussion on competency with his book "Competence in Modern Society: Its Identification, Development and Release". He defined competency as a common set of cognitive, affective, and conative components and conceptualize them as *motivational dispositions* (Raven, 1984). Nowadays many researchers hold that there is no common understanding of competences and competencies (Urunbasarova, Jandididnov, Uaidullakzyzy 2014). For instance, R. Meyers sees competence as not only compliance with the certain criteria of the activity, but also a demonstration of the behavioral problems at work implementation (Meyers, 1998). The researchers of the Center for Vocational Education and Training, Ohio State University define competence as specific, well-diagnosed knowledge, set of skills necessary for the effective activity of chosen area (Columbus, 1995). A group of Saint Petersburg scholars (A. Shekhonin, V. Tarlykov, M. Budko and others) describe competence as a set of interdependent personal qualities critical to act effectively and productively in a particular sphere. They believe competence initiate action leading to planned result (Shekhonin et

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al., 2014). Modern scholarly discussions see competence as the main element of the educational system crucial to the current labor market condition (Serrano-Guerrero, Romero & Olivas J.A., 2013) and to knowledge management in a modern university (Butnariu M., Preliminary J.M., 2012). Russian education researchers also actively investigate the issues of competence-based approach in education (V. Bolotov, I. Zimnaya, I. Frumin, D. Ivanov ), discuss pedagogical and psychological aspects of professional competences shaping (A. Belkin, A. Bodaleva, V. Vedensky, N. Kuzmina, A. Markova) (Kudryvtseva, Taskina, 2013). Global discussions are also connected with such aspects of the topic as professional competences shaping – of communicative one (Bissenbaeva Z., Aurenova M., Aubakirova Z. & Uaidullakzy E., 2014), project competence (Supadol P., Sukreeyapong W., Intrakumhaeng P., Siripan K. & Nesusing N., 2014). Some researchers describe project activity of competence as the most crucial to competence shaping (De los Rios, Cazorla, Diaz-Puente & Yagüe Blanco, 2010; Carmenado, Diaz-Puente and Blanco, 2011; Balkevičius, Mažeikienė, Švedienė, 2013; Fernandes, 2014).

One should note that in Russia discussion on competence and mechanisms of its shaping is emphasized by transition to the new Federal state education standards (FSES). The analysis of the requirements for mastering main undergraduate educational programs shows that the federal standard is detected through the competences students get shaped according to their educational profile. In the federal standard and educational programs much emphasis is placed upon students' self-study, shaping of students' overall competences. Such competences imply the knowledge of 'basic values of the world culture' and 'aspiration for personal growth' demonstrated by university graduates (Main curriculum 'Human potentials management', 2011). Students' self-study activity is regarded as one of competence shapings method by a group of Russian scholars (A. Kovalev, A. Bushli, I. Kuzmin, P. Gloriozov, I. Lerner). It is also interpreted as the system of organized pedagogical conditions for autonomous learning management by V. Graf, I. Ilyasov, V. Lyaudis and as students' self-education activity by S. Zinoviev. T. Starshinova, E. Khairullina and R. Saifullina (2013) describe students' self-study on the one hand, as a particular type of academic activity which stimulate students' interest, involvement, learning autonomy, on the other hand, as a series of arrangements or pedagogical conditions which enable to manage students' self-guided learning. N. Teltevskeya (2013) recognize the importance of students' self-study as 'the development of student's independence leads a student to understanding the role self-education plays for his/her professional success as well as it determines his/her attitude towards social environment phenomena, influences student's value system, and eventually stimulates students' need for self-learning, self-education and self-development'. Self-study activity requires the particular conditions for its organization. We see variety of self-study tasks as the key condition for managing the process successfully. Discussing the issue of peculiarity of self-study tasks aimed at competence shaping, A. Shekhonin et al. (2014) state that such tasks 'organize students' educational, research, project, quasi-professional activities and not information or actions reproduced by learners'.

The analysis of the literature on competences and their shaping in students' self-study has shown that the issue of competence-oriented tasks needs deeper covering and detailed investigation.

The stated issue is highlighted within the strategy of development currently implemented by Tomsk state university as a leading research university. The strategy marks the transition to the model of research university. The model is known in global educational community for its idea of commitment to research and advancement of knowledge (Geiger, 2004; Graham and Diamond, 1997; Altbach and Salmi, 2011) and encompasses its own patterns of institutional structure, intellectual organization and financing. Besides the named features, one should also emphasize the issue of education quality and learning productivity in research universities raised by various researchers

(Kember, 1997; Kuh and Hu, 2001; Braxton, 2011). The mission of a research university is to discover and develop new knowledge. The mission is tightly connected with development of new generations of scholars through providing them with high-quality education. Thus, it becomes evident that the transition to the status of research university will be connected with the transformation of the content and place of students' self-education as well as shaping students' project and research competences as key requirements for today professionals.

Drawing on the contexts described above, we define the objectives of the research as – research context construction - defining the trends of students' self-study work organization – experience reconstruction and definition of the potential of undergraduate students' self-study tasks for their project and research competence shaping.

### **Methodology**

The research was conducted within the frames of humanization research methodology and research on educational innovations (Prozumentova, 2005). According to that methodology, students' self-study work plays an important part in shaping core competences among which the research competences are regarded as the main ones (Prozumentova, 2010). In the stated methodology, the research draws on reconstruction of innovative experience precedents.

The material for our research is the information retrieved from world research universities' web sites, the educational program for undergraduate students designed by the employees of the Chair of Education, Faculty of Psychology, TSU.

### **Results**

In new standards of higher professional education, mastering the skills of self-study work and organizing personal educational activity is one of the main requirements and self-study work is considered to be a part of study load. To define the development trends for self-study work, we draw on the world experience of education organization. We have studied the experience of the universities stated as referential ones for TSU according to Tomsk university program of competitiveness increase. Those universities are Lund University (Sweden), Utrecht University (Netherlands), the University of Texas in Austin (USA).

The study of the university web-sites has detected the following trends in undergraduate students' self-study work organization.

In the stated university, undergraduate education is recognized as the first stage of university education on which shaping of basic academic skills (research, learning skills, project work) takes place as well as further students' professional and scientific self-determination. Among the skills described in foreign universities' educational programs are the basics of critical thinking, reflection analysis. Students' self-study work is a component of study workload, classroom instruction – self-study work ratio is 1:2, 1:3. The main methods of self-study work organization are case-study, project method, essay. The tasks for self-study work are designed for individual work as well as team activity. The latter type of tasks is becoming more wide-spread due to their potential for cooperative communication and collaborative activity organization. One should also mention the implementation of blended learning which allows students to immerse in subject and use e-learning environment as the communicative environment in their studies and research.

**Situation. Reconstructing students' self-study work organization experience at the Chair of Education Management, Faculty of Psychology, Tomsk State University, present time.**

We have studied the experience of self-study tasks implementation at the Chair of Education Management. The aim of the analysis is to define the particular characteristics of the tasks content and the activity of students accomplishing the tasks, to find the tasks potential for project and research competences shaping.

**Identifying Content and Forms of Students' Self-study Activity: Case of the Chair of Education Management. Justifying Selection of Research Base and Materials**

In order to conduct the stated research, we have chosen the experience of the Chair of Education Management (hereinafter referred to as the Chair) due to the several reasons presented further.

First, since 2010 the Chair has been implementing its own unique model in which teaching research as a part of professional training plays the central role. As G. Prozumentova, the head of the Chair, notes (2010), "Defining the problem of research skills acquisition by students, one should hold that although teaching research corresponds to modern professional community requirements for a university graduate, it is limited to student being trained for performing scientific activity, whereas the aim of teaching research is to teach them to acquire and use knowledge for finding solutions to their professional problems. Within the frameworks of competence-based approach, when knowledge is produced and used in any professional field, we need a model of education organization which would be aimed at students' training not only for academic or scholarly, and scientific activity, but also for achieving their professional goals". Thus, we specify the problem of research competences acquisition as the following:

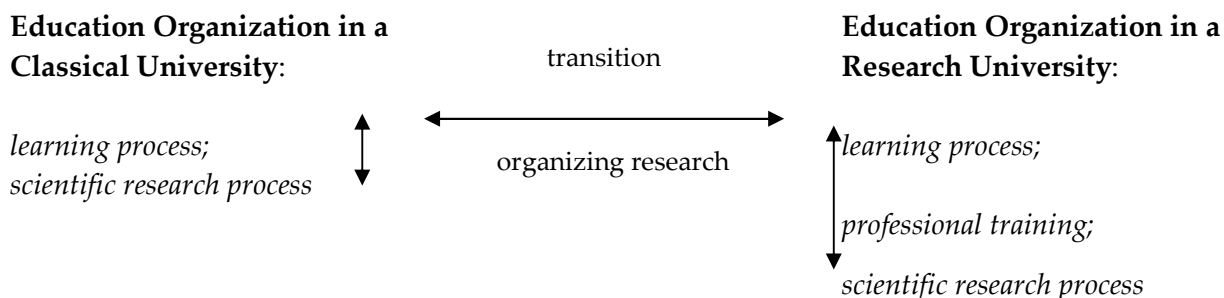


Fig. 1. Specifying the problem of research competences acquisition

The presented scheme shows that the transition to the status of research university is connected with changing content and place of

- a) professional training in education organization;
- b) influence of professional training on the content of learning and scientific research process;
- c) teaching research in all the educational dimensions. (Prozumentova, 2010).

Drawing on the presented model, the professors of the Chair implement annually the program of term and final research tutoring (designed by G. Prozumentova and O. Kalachikova). That program lies out of the field of the present research. However, the conceptual rationale for the issue of students'

research competences shaping mentioned above are considered to be the sufficient factor for the studied topic.

Second, the Chair worked out and implemented the program of staff development for professors of Tomsk State University 'Competence approach implementation in students' self-study activity organization (designed by G. Prozumentova and E. Sukhanova) self-study organization' full-time and on-line since 2010. The participation of more than 500 professors in the program proved its being in demand in the university and in the region and also showed the importance of spreading the experience of the Chair in students' self-study organization. That program contained the units dedicated to state policy and external challenges to students' self-study as well as the precedents of students' self-study organization in the educational process performed by the Chair. The analysis of the questionnaires filled in by the program participants showed the relevance of the Chair's experience and opportunities of its use in different universities offered for discussion.

Third, the Chair worked out the competence-based curricula, the assignments for students' self-study, introduced rating system and tutoring. The head of the Chair, G. Prozumentova (2010) believes that, such forms of education "allow young people not simply know but act effectively, find solutions to social transformation, innovation development, get oriented to high achievements in professional competences acquisition".

All the mentioned reasons justified our choice of the Chair of Education Management as the one for further analysis of students' self-study oriented assignments, definition of the peculiarities of students' self-study oriented assignments' content and forms and their potentials for students' self-education.

We have also analyzed the content of the core Educational Program for undergraduate students majoring in human resources management designed and implemented at the Chair of Education Management. Our analysis was focused on the correspondence between students' competences to be shaped and the objectives of students' professional education. The analysis has showed that among the types of students' future professional activities one can find analytical and project activity, among the objectives of their future professional activity of that major one can name the analysis of company human resources potential, analysis of social processes and relations in a company, analysis of system and processes of human resources management as well as participation in design and implementation of various projects. Thus, among the competences shaped by the program there are the competences connected with project and research activity such as capacity of finding managerial and economic solutions working out the algorithms of their implementation, eagerness to bear responsibility of the results; mastering the methods of quantified analysis and modeling, theoretical and experimental research; capability of organizing effectively group work based on the knowledge of group dynamics and team-building principles; skill in defining goals, objectives and types of running HR evaluation procedures according to company strategic plans; capability of participating in implementation of organizational change program, etc.

Thus, the analysis of the education program has demonstrated that the Chair maintains the orientation towards *project content* in professional training (creating the necessary tools for professional activity) through shaping the competences in problem definition and solution, in project activity and creating the measures for professional activity enhancement. Additionally, the competences in team-building, leadership and overcoming difficulties are shaped. On the other hand, the analysis of the educational program has showed *research content* developed through the necessity of creating knowledge and methods for definition and solution of the problems connected with professional quality enhancement.

## Content Analysis

The analysis was based on the presumption that if we analyze self-study assignments, we should be focused on assignments' content and the way students work with them. The key feature of the assignments' potential for students' self-education is the organization of the conditions for students' transition to active learning position. That position means that students have opportunity to influence correction, development of educational content, methods, values and goals. The feature of that transition period is considered to be replacing skills-transmission assignments with the ones aimed at demonstration and shaping of students' own meanings of subject content, their initiatives to implement the meanings in learning setting and solving professional tasks.

The analysis of self-study tasks and types of self-study activities gave the following results.

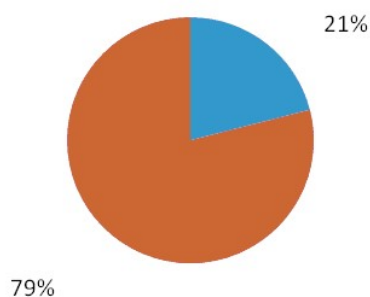


Fig. 2. Self-study tasks

The diagram shows that only 21% assignments are theory-based ones (aimed at getting knowledge), the majority of self-study assignments are practice-based (aimed at producing knowledge). It means that knowledge produced by students themselves is prevalent, the issues of practical application of acquired knowledge are highlighted.

Analyzing the assignments, we found out the following methods of students' self-study assignments organization:

- A. Collection of inshaping on the course.
- B. Working with cases – case analysis – problem definition – proposing solutions to the defined problem.
- C. Working with cases – working out cases on particular situations study.
- D. Research on subject topics in organization.
- E. Working out a project or project proposals.
- F. Working out various tools, ways of practical activity organization.
- G. Analysis – reconstruction of an individual's experience.
- H. Expert review of an individual's activity.

## Competency-based Tasks

- Collection of information on the course
- Working with cases – case analysis – problem definition – proposing solutions to the defined problem
- Research on subject topics in organization
- Working out a project or project proposals
- Working out various tools, ways of practical activity organization
- Analysis – reconstruction of an individual's experience
- Expert review of an individual's activity

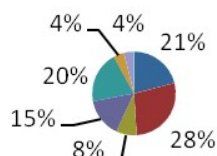


Fig. 3. Methods of students' self-study assignments organization

The data presented in the diagram showed that the chosen methods can be ranked in the following rating. The major part of all the assignments are the ones with case-study (28%) including situations analysis and problem definition as well as working out recommendations for problem solution. Next, there come the assignments aimed at analyzing the modern theories and approaches within the subjects (21%). Such assignments create a *researcher-analyst position* that students take and that is essential to their professional success considering new trends of university development in the status of research university.

Also much attention is paid to students' work on various tools for practical activity (20%). Then we can see project proposals and research in various organizations (8%). Thus, there is the necessity for the methods aimed at forming *creator position* crucial within the frames of competency-based approach and new federal state educational standards.

One should mention that analysis of an individual's experience reconstruction (4%) and self-expert review (4%) represent the least part among the assignments. The stated methods show the transition to *expert position* showing a certain level of students' competences that allows them to set their expert focus to review each other's works, work out criteria for work evaluation and assessment of professional activity.

- analytical work
- research
- project work

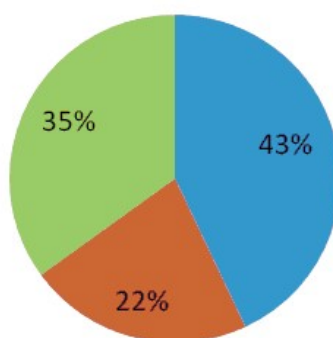


Fig. 4. Basic students' activity while accomplishing self-study assignments

The diagram shows that the basic activity of students accomplishing self-study assignments is analytical work: students analyze modern approaches and concepts, practice-based cases which represent the major part of the assignments. That is the basis for solving practical problems by students through projecting their professional activity tools. Students are oriented by the offered assignments to project task definition and solution, projection solution process, creating tools for improving the quality of professional activity.

### Conclusion

The conducted analysis of self-study tasks designed for undergraduate students has shown that the educational program designed by the Chair professors contain various task aimed at project and research competences shaping. That is provided by the assignments' content, their orientation to practical use of acquired knowledge as well as the applied teaching methods. The major part of the tasks is connected with active learning methods as case-study, project method, etc., analytical work, reflective and expert self-review of students' activity. The research showed that the basic activity for students self-study work is analytical work that prepares students for project and research activity.

The possible dynamics of students' positions has demonstrated: from analyst of professional activity, then – creator of activity tools – research of situation required changes in activity - creator of projects changing activity, and eventually – expert evaluating results of professional activity.

Thus, students' self-study work organization at the Chair of Education Management is connected with quality performance of the new Federal state educational standards. The standards include project and research competences as core ones for university majors. Project competences demonstrate students' ability to transform the existing reality. Research competences represent the *ability to produce new knowledge* within the reality. The potential of self-study assignments influences *students' choice of their* position towards education, their future professional activity (new meanings and goals shaping) that is the process of students' self-education.



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