

Postgraduate "Management" program design for small and medium business managers

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Abstract. The paper suggests an approach to teaching and implementing research in the master's degree studies, which are oriented at system training of heads/owners and managers of small and medium-sized businesses that do not have basic management education, but, as a rule, have a higher technical or technological education and sufficient practical experience. Hypothesis of the article is the assumption that the teaching specifics of this segment should be based on interdisciplinary coordination of content, organization of training, and communication. Verifying this hypothesis based on a review of the literature and identifying the specifics of the segment is the overall goal of the article. As a particular corollary we justify a special educational event (a cycle of research seminars) that integrates various components of training students in the master's program, in the framework of project activities logic that corresponds to the logic of the modern production process. We show the difference between this segment and consumers who are focused on the MBA and MIM programs, and provide examples from Russian reality. Taking into account the consumer characteristics of the segment, we propose an organizational and pedagogical approach to the formation of key competencies in the field of management for students representing this segment. In particular, we argue for teaching students of this group in the frame of the master's program, based on the project approach both in the content and in its organization. The article notes that the pedagogical features of the formation of project competencies in students of this segment dictate the use of the method of ascending from the abstract to the concrete as a basis for building a general learning strategy. Decomposition of the learning strategy and the master's thesis research demonstrates the need for interdisciplinary coordination of content, training and organizing communication.

1 Introduction

Postgraduate education in management is most commonly associated with Master of Business Administration (MBA) programs. Recently Master in Management (MIM) programs are gaining popularity in Europe [1] and other countries [2], including Russia. According to some estimates in recent years there has been a reduction in demand for MBA

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in Russian regions which is due to technological and economic trends as well as changes in consumer behavior of potential business school clients [3].

MIM programs, which at first glance are only a cheaper alternative to the MBA, have a different target audience and a number of other differences [4]. Some of them are:

- (a) significant practical experience is required for MBA students;
- (b) more theoretical content and at the same time more specific highly specialized focus of MIM programs; note that this is the reason that practical training for MIM is based on model, and therefore simplified, examples from practice;
- (c) in Russia there are also differences in accreditation procedures for programs: since 2013 MBA has been in the sphere of professional retraining programs and outside the state regulation of higher education programs. This leaves a certain freedom to choose training formats. MIM programs are usually based on state accreditation, for example, as part of "Management" Master program [5], but at the same time they are oriented on international and public accreditation. A striking example of this is the Graduate School of Management of St. Petersburg University [6].

The cost of MBA is significantly higher compared to MIM. In its turn the cost of MIM exceeds the cost of traditional Master's degree programs of higher education institutions, which in addition in some cases can be financed from the state budget.

These differences indicate, in fact, the presence of two consumer segments of postgraduate management programs. The first is the segment of ambitious practical and experienced people - professionals, managers who focus on high system competencies and appropriate positions in the company, as well as on overall personal development, and have the ability to incur significant training costs. The second is the segment of mostly beginning managers with higher education, but with no significant practical experience; they are also often ambitious and have the appropriate resources for training.

In recent years, a new segment of consumers of postgraduate management programs has emerged in the country's regions. The features of this segment include some characteristics of MBA and MIM target audience, at the same time as a whole they do not coincide. Typical representatives of this segment are managers, working at one or more enterprises in the same sphere of small or medium-sized businesses; having higher education, but not in Management. Segment need for training in management programs, according to the representatives of the segment themselves, is induced by the perceived need to systematize the accumulated practical management experience with future usage for development and implementation of various projects, which are becoming more complex not only in terms of technology, but also in terms of organization and management aspects.

The need is different from needs of MIM-program clients who do not have significant practical experience. This makes it necessary to go to the theoretical level of knowledge in the process of preparing students for the new segment, which, in turn, affects not only the content of the program, but also its didactic and methodological justification.

The new segment does not coincide with the segment of MBA programs either, since essentially its need, in contrast to the MBA, is to initially shape the management thinking, basing on sufficient production and technological practice, while MBA programs are aimed at bringing existing management thinking to the top level.

The article based on the review of publications devoted to the content, features of teaching for students-practitioners, and relating the results of such analysis with the features of this new segment, in particular, with perceived needs of segment representatives, makes an attempt to justify the organizational pedagogical approach to the formation of key competencies for the specified segment.

2 Materials and methods

2.1 General characteristics of the segment

Let's describe characteristic features of the new segment in more details. We will use as an example the group of master students of project-oriented[†] "Management" magistrature of the Novosibirsk State Technical University:

- Students are managers/owners of small and medium-sized businesses or heads of departments; almost all students have higher technical education.
- They are very well versed in the technical and technological aspects of their organizations or divisions.
- Students possess a significant arsenal of empirically formed methods and techniques of organization and management, which are recognized by the trainees themselves as fragmentary, unsystematic, and non-universal.
- Businesses are usually represented by a group of managers, including heads, and, in fact, they are focused on solving interrelated real problems of their enterprises within the framework of master's studies.
- There is a clear focus on solving specific practical problems of enterprises, which (by student opinion) are due to organizational and managerial circumstances, in particular, a relative lack of relevant management competencies.
- The initiative to turn to system education rather than to numerous short-term trainings comes from the heads of enterprises; at the same time, initial consultations revealed the students' tendency to normative knowledge, in the hope of obtaining ready algorithms for solving their problems, and not to the formation of system management thinking. However, students, which are heads of enterprises, have expectations of getting a more general, comprehensive, systematic understanding of the company's activities.
- Students do not have the opportunity to study on expensive MBA programs; MIM programs also did not attract their attention, both because of MIM's relative isolation from specific practices, and because of the lack of well-known MIM programs in the regions.

This example is not unique. Let's also mention HR-management postgraduate master program at the Omsk State University, completed by a group of managers with higher medical education and practical experience of managing relevant institutions. There are many other similar examples in Internet.

2.2 Content, organizational and pedagogical accents of training master students-practitioners

Various aspects of the formation of managerial competencies in engineers are considered in many works.

The article [7] analyses the teaching of engineering management subjects and examines the problems that arise in the process. Problems of disciplines integration in the training of engineers are considered in the paper [8], where the main emphasis is placed on the analysis of the relationship between economic and technical disciplines; however, it does not take into account the higher technical education that students already have (as in the case we are considering). Various aspects of the formation of entrepreneurial abilities in engineers are discussed in the following papers [9, 10] and others.

Some other aspects are considered in the paper [11], which shows the relationship between the leadership qualities of a manager and his managerial capability: (1)

[†] Adding the term "project" to the name of the program is explained by the features of the technological approach used for the education, see below.

mathematical-logical intelligence, (2) personality, and (3) socio-emotional intelligence. In our opinion, this problem is related to the one we consider through the prism of communication competencies.

The article [12] describes two aspects of the competencies formed by students: the specific and the general or transversal. The authors of the mentioned article substantiate the feasibility of using the methodology of problem-based learning for the development of the second group of competencies. More general questions of formation of practical and innovative abilities of Master's students are considered in [13].

The key type of educational activity for master degree students is the implementation of their dissertation research project. It should be noted that the development of projects for industry by students is not only the basis for interaction between educational institutions and enterprises, but it also demonstrates a high degree of satisfaction of all participants [14]. It is especially valuable when these training projects are not just based on real problems of the enterprise, but the authors of the projects are managers of enterprises, since this is essentially the mechanism of the above interaction.

This necessitates the use of appropriate pedagogical innovations, both didactic, methodological and organizational.

For example, [15], proposes a process model for managing training programs. Despite the fact that the model assumes process innovations in the training programs of engineers, still, in our opinion, the general principle of integration of educational objects and educational strategies is universal. The paper [16] suggests a mixed model strategy for teaching engineering students, based on a combination of project-based and problem-based learning. In this regard, we also note the work [17], which analyzes various concepts of organizing the educational process in order to integrate training and real business: from creating virtual student companies to implementing real business projects. The article concludes that the closer the students' activities are to real practice, the smaller is the traditional role of the teacher as the translator of knowledge and the greater is its role as an intermediary and consultant. Similar conclusions for students of PhD level are made in the work [18]. Some methods to develop projects and, as a result, projects' competencies, including the level of master degree studies, are considered in [19, 20]. It is possible to use similar methods in the case we are considering and not in a model-game environment, but in real production problems. In the article [21] authors analyze some didactic features of educational activities in the master's programs, in particular, the author substantiates the need to expand the communication qualities of a teacher: a facilitator replaces an experienced teacher. In work [10] command-learning is considered not only as a mean of learning, but also as a way of professional development of teachers.

From the above we conclude that the master's program for this segment should be implemented, first, in cooperation with the relevant departments of the University (technological, marketing, hr, etc.). This allows not only to integrate technical, technological and management competencies, but also to rely more effectively on the practical base that students have. Second, the program should be based on a project approach both in the scope of the program and in its organization. Let's also note the frequently expressed opinion about the feasibility of using team training in education.

2.3 Pedagogical features in the formation of project competencies of the considered segment of magistrature students

The need to develop project competencies in engineers and differences between postgraduate and graduate students are considered in [22]. The need for the formation of project competencies is justified in research [23, 24], and also manifests itself explicitly or implicitly in the requests of students. Let's just mention some topics of interest to students

for master's research: (a) development of corporate strategies; (b) creation of organization development programs; (c) managing technological and product developments; etc. - all this is a project activity.

The following components can be distinguished in the structure of project competence:

- Motivational, manifested in a positive-value attitude to professional activity.
- Cognitive, manifested in the creative development of professionally significant qualities.
- Activity-oriented, manifested, in particular, in the implementation of professional theoretical knowledge in real practice.
- Reflexive, which determines, in particular, the ability of a master's student to self-development in the professional sphere. In our case, we are talking about the field of management, and not about already existing students' competencies related to technical or technological content of projects.

Taking into account the characteristic features of students in this segment, in particular, their higher education, significant practical experience, and ability to identify the need for further professional development, we can note the high level of motivational, cognitive and activity components, and to a lesser extent, the reflexive component.

The results of an unusual quantitative optimization of the formation of innovative research competencies in the training of engineers are presented in the article [25]. It presents the following optimal combination of the interactive forms: "brainstorm - 10%, imitating training - 10%, didactic game - 10%, technologies projects - 40%, information and computer technologies - 20%, case-study - 10%, laboratory research workshop - 20%".

We note the main pedagogical conditions for the formation of project competence in master's student [26]:

- Content conditions, associated with the development of courses content with the emphasis of student attention on project management, and with the establishment of structural and logical inter-subject links of project and special courses for the development of project competence.
- Didactic conditions, which come from the increased role of inter-subject relations; intensification of forming the project competence in students by adding advanced courses to the students education curricula in order to ensure the integrity and continuity of their project preparation.
- Methodological conditions: application of a complex of traditional and innovative teaching methods in combination with various forms and means of training.
- Diagnostic conditions: implementation of monitoring of the project competence formation in students and its timely correction.

Relating accents in the need to develop the project competence in students and the necessary pedagogical conditions for that, allows us to offer a general approach to the formation of a reflexive component of the students' project competence in this segment.

The specified characteristics of the segment and the features of its requests imply that the most appropriate fundamental approach to building the general learning strategy is one of the general scientific methods of cognition, namely, the method of ascending from the abstract to the concrete. This particular method is aimed at revealing the essence of the object being studied by moving from the initial understanding of reality, grasping the individual key aspects of the studied entity, to the system of definitions and laws that form the corresponding thinking. "In the process of applying the method of ascent from the abstract to the concrete, knowledge moves from the concrete to the abstract and then back to the concrete, but already to the understood, analyzed concrete, which is represented as a unity of abstract definitions" [27]. Knowledge and corresponding thinking is formed, which, in particular, is reflected in that the students obtain a complex system of theoretical concepts based on practical primary concepts accepted as the original ones.

Visualizing the above idea, the overall process of learning management in the project magistrature program considered can be represented in the following diagram (Fig. 1).

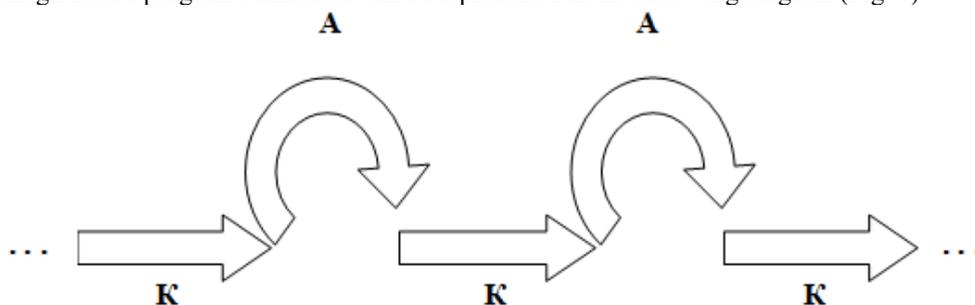


Fig. 1. General training scheme: K - stage of specification of knowledge; A - stage of abstraction, generalization.

3 Results

The understanding of the learning process, presented above in the general form (Fig. 1) and decomposed in Fig. 2 in fact, is reflected in the management approach to projects of the so-called cyclic or Agile type, when the project product (result) is not initially known, but is gradually formed during the implementation of the project‡.

Within the chosen strategy, we note that stage "K"(specification) consists of the following main elements: a) independent work of a master's student on a dissertation problem; b) current consulting of a master's student by a teacher; c) interaction of a master's student with the organization employees and external experts in order to clarify developments.

Stage " A "(abstracting) includes: a) presentation and defense of the results obtained in the previous stage "K"; participants of the relevant events are both teachers of the department and fellow students; b) theoretical adjustment of the research program for the next "K" period and clarification of students' need by refining the list of knowledge (courses), the lack of which become obvious during the stage.

The attribution of the latter components to the type "A" - the ascent from the concrete to the abstract - is due to the fact that this stage assumes communication with participants in the learning process, which requires at least terminological uniformity; formation of terminological apparatus, "growing" of concepts, such as classification, generalization, etc. is the most important result of mastering general scientific methods by students; and in addition, an understanding of the technological, technical subtleties and their associated nuances of the economic and managerial nature is significantly deeper (but not necessarily more systematic) in the research authors than in other participants of communication. This means that the perception and evaluation of the work will take place at a more general level (up to the general methodological level). That will become the natural circumstance that encourages the defender to reach the level of theoretical knowledge, thus anticipating a new cycle of ascent from the abstract to the concrete. One of the methods of systematization of research at the "A"-stages is the technology of T. Buzan's mind map [28].

‡ In Agile terminology, Stage K is a "sprint"; stage "A" - sprint planning + product release.

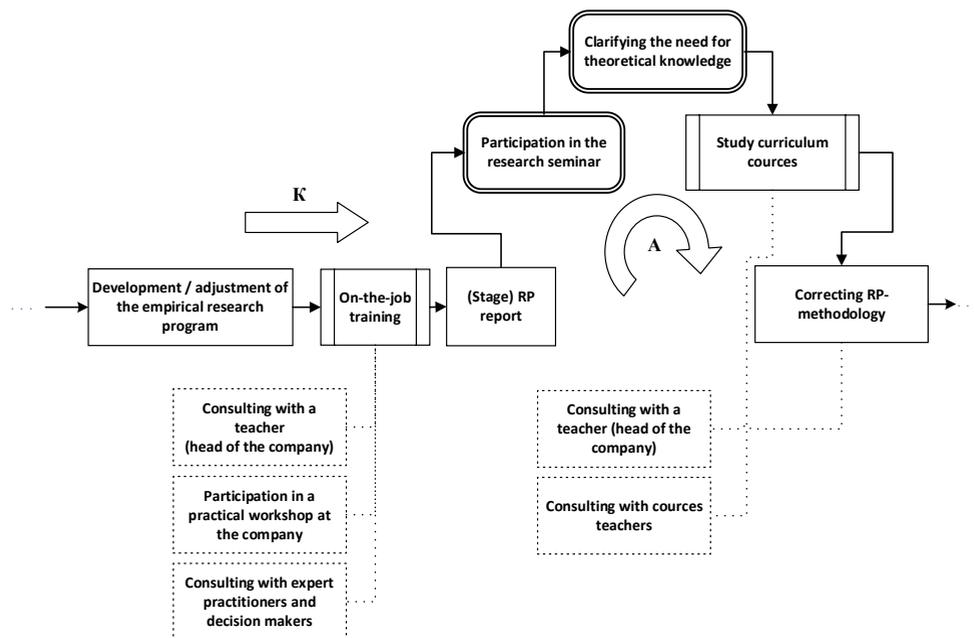


Fig. 2. The place of a research seminar in the cycle of dissertation research project (RP) development by a student: RP - research project; DM - decision maker.

The most important mechanism for cross-disciplinary coordination, of both engineering content, as well as organizational, managerial and communication, is a special educational event, which may have different names in the curriculum: for example, a research seminar, or others.

The seminar is aimed at solving the following tasks:

- Formation and development of the knowledge system on research methodology, methods and tools of scientific research; on methods of obtaining, analyzing, classifying and generalizing scientific information obtained from various sources.
- Development of research planning skills, analysis of theoretical and applied material, development of hypotheses, modeling management systems, and formulating and arguing scientific and practical results.
- Development of skills in selecting and implementing research methods that are adequate to the research goals and objectives.
- Development of skills for public presentation of fragments of a master's thesis, skills to conduct scientific discussion, defend and argue their position.
- Development of the ability to oppose and review scientific materials.

Characteristic features of the scientific seminar:

- The master's student acts in two roles: (a) as a speaker on the problem he/she is investigating; (b) as an opponent on topics developed by other students. As a speaker, a master's student is interested not only in justifying and communicating research results to the audience, but also in getting some "side-view" feedback. As an opponent of the research of fellow students, the master's student is interested not only in developing the skills of meaningful analysis of the proposed developments, which is important to him/her as a practicing manager; but also in improving management and communication skills.

- So there is an interest of all participants of the seminar: both student-speakers, and opponents. Of particular practical and pedagogical value is the case when students represent a common organization, where they work, and implement cross-project research problem

projects. Some of the features of training in such teams are also discussed in [29, 30, 31]. The latter, in particular, concludes that cooperative strategies for learning project management gives better results than individual.

4 Discussion

In a voluminous study [9], which analyzes almost 100 publications, the authors state the existence of problems in the vision of interdisciplinary education of engineers, demonstrate and summarize many of the provisions, marked by us above. The work, in particular, not only highlights the need for the formation of managerial and communication competencies; but also places the emphasis on the need for constructive coordination of various didactic components of training.

One of the aspects that we take into account in our work is an important circumstance that we distinguish training people who do not have basic management education from training those who have it. The latter have already formed a system of competencies (in particular, knowledge) in the field of management, and thus the abstraction stage for them at the initial stage has a subordinate meaning. And the general scientific method that most likely corresponds to this case, and distinguishes it from the case we are considering, is not the ascent from the abstract to the concrete, but the hypothetical-deductive method. Its peculiarity is that knowledge is not built at the expense of generalizations "from below", but it is built by unfolding "from above" (deduction) in the direction of empirical data. In other words, first a hypothesis is formed, then it is decomposed, then subjected to empirical testing, clarified and concretized.

This difference is reflected in the structure of master's research. For students with basic management education, the research begins with a theoretical study of the object and subject (theoretical chapter) based on the existing system of managerial knowledge, while for "non-managers", the research should begin with the empirical part, where the generalization and knowledge system formation takes place, which will then be clarified and specified. Relatively speaking, the first begins research with the "K" stage, the second starts with the "A" stage.

A very important element of the organization of training is the implementation of educational communications and the formation of components of scientific communications on their basis. We distinguish three directions there.

First, this is the ongoing interaction with the supervisor and consultant. The feature of such communications is their individual character, and the result is presented in the form of a text (research report), which develops the ability to express scientific ideas in writing.

Secondly, it is public communications with the participants of the master's program, when the master's student speaks at a scientific seminar about research results and responds to questions and comments from participants, thereby getting some "side-view" feedback, which actually leads them to a more complete, complex and thus more general and abstract level of knowledge. It is also important that in the course of such communication, other participants are also at the stage of abstracting and forming knowledge of a more general level. As a result, the readiness to changes is realized, and prerequisites for a clearer understanding of the problem based on the subsequent stage of concretization appear. In addition, students learn to speak on the topic of the work, work out the terminology, learn to ask and answer questions in a reasonable manner, develop the logic and methodology of work.

And third, it is also public communications, but this time with the participants (employees) of the company, who evaluate, first of all, the practical value and applicability of the results of the master's research, thereby encouraging the student, who is the head of an enterprise or a division, to go to the level of specification.

Research seminar, which is the most important integrating component of training students in the project magistrature, is organized using the technology of project activity. We agree with [32] that educational significance of the project method is that the logic of educational activities of students working on the project corresponds to the logic of modern production process. A series of research seminars in the project magistrature, in fact, assumes the analysis and evaluation of a complex of different production or business projects in one workshop, which provides mutual training of authors projects and achieving a synergistic learning effect. In addition, the scientific seminar can be successfully implemented remotely, including the demonstration of production or other images related to the projects under consideration, in real time.

5 Conclusion

Thus, a new consumer segment is formed in postgraduate management education. Its typical representatives are the owners and managers of enterprises with higher technical or technological education.

One of the appropriate ways to meet their consumer needs for the formation and development of managerial competencies, is a project magistrature.

The pedagogical specificity of the project master's program can be summarized as follows. Students not only form the ability to develop and implement various projects based on the needs of the practice: most of these production projects are related to "cascade type" with an initially understandable project result, and are implemented technologically enough based on known methods. The project feature of the magistrature is that the training itself is built using Agile project approach on the basis of the general scientific method of ascending from the abstract to the concrete. Both the first and the second are aimed at formation of various project competencies in Master's students in the direction of managerial thinking development and as a consequence, grasping managerial technology.

References

1. Consulting service MiM-Essay. <https://www.mim-essay.com/> (2020)
2. J-T. Xiao, A-Q. Huang, X-L. Wang, *Exploration on the education for master of engineering management*. 2nd international conference on modern education and social science (MESS), Wuhan, Peoples R China, Apr 15-17 (2016)
3. Rynok MBA i bizness-obrazovaniya Rossii. (In Russian), RBC Moscow (2019)
4. T. Graf, *MIM ne mojet zamenit MBA, I naoborot* (In Russian). https://www.mba.su/articles/MIM_ne_mozhet_zamenit_MBA_i_naoborot (2019)
5. FGOS VO. Uroven vysshego obrazovaniya. Magistratura. Napravlenie 38.04.02. Management (In Russian), Prikaz #322 MOiN 30.03 (2015)
6. Graduate School of Management St.Petersburg University, <https://gsom.spbu.ru/en/> (2020)
7. Y. Miao, *Research on the status quo and development of engineering management discipline in china*. 4th international conference on education management and information technology (ICEMIT), Changchun, Peoples R China, Jul 07-08 (2018)
8. D. Hernandez Castillo, P. Matos Diaz, Economic training in mechanical engineers. aspects to consider in the design of an economic task system. Revista conrado, Apr-Jun (2018)

9. A. Van den Beemt, M. MacLeod, J. Van der Veen, et al., *Interdisciplinary engineering education: a review of vision, teaching, and support*. Journal of engineering education (2020)
10. P. Vesikivi, M. Lakkala, J. Holvikivi, et al., *Team teaching implementation in engineering education: teacher perceptions and experiences*. European journal of engineering education, **44/4** (2019)
11. P. Lappalainen, Predictors of effective leadership in industry - should engineering education focus on traditional intelligence, personality, or emotional intelligence? European journal of engineering education, **40/2** (2015)
12. R. Fandos, C. Juan, M. Es-trada Guillen, J. Sanchez Garcia, *Problem-based learning methodology as a strategy to improve transversal competences*. 2nd international conference on education and new learning technologies (EDULEARN), Barcelona, Spain, Jul 05-07 (2010)
13. M. Fu, *Research on the training of graduate students' practice and innovation ability in management science and engineering*. 8th international conference on social science and education research (SSER), Xian, Peoples R China, May 18-20 (2018)
14. F. Falcone, P. Sanchis, A. Lopez-Martin, *The role of university-industry liaisons to enhance engineering curricular development*. IEEE frontiers in education conference (FIE), Madrid, Spain, Oct 22-25 (2014)
15. C. Zea, A. Rodriguez, N. Bueno, *An innovation model in curriculum design for teaching engineering at Universidad eafit*. IEEE frontiers in education conference (FIE), Madrid, Spain, Oct 22-25 (2014)
16. R. Alfaro-Pozo, J. Bautista, Collaborative problem and project-based learning: the case of operations management in the master's degree in management engineering. 10th International conference on education and new learning technologies (EDULEARN), Palma, Spain, Jul 02-04 (2018)
17. T. Suni, M. Suni, *Expertise through knowledge exchange – university – industry cooperation in practice*. 4th international conference on education and new learning technologies (EDULEARN), Barcelona, Spain, Jul 02-04 (2012)
18. J. Ganzarain, L. Markuerkiaga, N. Errasti, Fostering entrepreneurial competence at phd level, through an experimental methodology comprising of a tangible business needs testing program (TBNTP). 11th international conference on technology, education and development (INTED), Valencia, Spain., Mar 06-08 (2017)
19. I. Mustata, I. Raluca, M. Juliacifre, *The potential of developing strategic thinking skills through strategic games with physical vs. electronic participation*. 15th international scientific conference on elearning and software for education (else) - new technologies and redesigning learning spaces, Bucharest, Romania, Apr 11-12 (2019)
20. J.A. Denholm, I.C. Stewart, *A simulation for planning and executing a project*. 10th European conference on games based learning, Univ W Scotland, Paisley, Scotland, Oct 06-07 (2016)
21. A. Dorofeev, G. Bukalova, *Teacher training for masters of engineering: didactic analysis*. 5th international forum on teacher education (IFTE), Kazan fed univ, Kazan, Russia, May 29-31 (2019)
22. A. Lozano, T. Garcia-Segura, L. Montalban-Domingo, et al., Assessment of knowledge acquisition of "good practices" in project management and its influence in the achievement of project success. 12th international technology, education and development conference (INTED), Valencia, Spain, Mar 05-07 (2018)

23. K. Shi, *Exploration and practice of university students' innovation and entrepreneurship training mode based on project management*. 8th international conference on management, education and information (MEICI), Shenyang, Peoples R China, Sep 21-23 (2018)
24. S. Apenko, S. Mamontov, *Marketingovoe obosnovanie napravleniy razvitiya proektno-orientirovannykh program vuza kak otrajenie tendency transformacii veducshih form organizacii deyatelnosti firm* (In Russian), Journal herald of Omsk university, Series «Economics», **2** (2014)
25. Y.V. Torkunova, *Optimization model of interactive forms of education for formation innovative and research competence*. Proceedings of 6th world conference on educational sciences, Grand hotel excelsior convention center, Valletta, Malta, Feb 06-09 (2014)
26. M. Omarova, *Pedagogicheskie uslovia formirovaniya proektnoy kpmtentnosti magistrantov pedagogicheskogo obrazovaniya* (In Russian). Diss.13.00.08, Mahachkala, Russia (2018)
27. V. Stepin, A. Elsukov, F. Goldberg, *Metody nauchnogo poznanija: Gumanitarnue techonologii* (In Russian). Analiticheskiy portal, <https://gtmarket.ru/concepts/6874#t3> (2019)
28. V. Behterev *Mind-management: Reshenie biznes-zadach s pomoschyu inteleect-kart* (In Russian), Moscow, Alpina-Publisher (2018)
29. F. Johansen, G. Andersson, T. Tonholm, et al., *Learning from problem-based projects in cross-disciplinary student teams*. 12th annual international conference of education, research and innovation (ICERI), Seville, Spain, Nov 11-13 (2019)
30. H. Wang, Z. Yang, Y. Cao, *Exploration and practice of collaborative teaching mode for software engineering course group*. 2nd international conference on education, economics and management research (ICEEMR), Singapore, Jun 09-10 (2018)
31. B. Cristina-Corina, *Independent-interdependent self-construal's and values' appreciation in competitive and cooperative conditions*. Cyprus international conference on educational research (CY-ICER), Middle e tech univ no cyprus campus, Cyprus, Feb 08-11 (2012)
32. V. Blinov, M. Dulinov, E. Esenina, et al., *Proekt didacticheskoy koncepcii cifrovogo professionalynogo obrazovaniya i obucheniya* (In Russian), Moscow, PERO (2019).