Project activity as a way for creative potential development of university students trained on Management bachelor-program

Nataliya Maksimova[a] *, Tomsk Polytechnic University, 30 Lenin Avenue, Tomsk, 634050, Russia.
Yuliya Zeremskaya[b] , Tomsk Polytechnic University, 30 Lenin Avenue, Tomsk, 634050, Russia.

Abstract

This paper deals with development problem of practice-oriented space of Tomsk Polytechnic University. The discipline model of "Creative project" for students trained on Management course is developed. The model is based on the increase of student's motivation to self-education, the use of project activity technologies and interactive teaching methods, and it is aimed at the formation of student's readiness for productive learning activity and it gives an impulse for effective interaction of theory and practice in the context of manager training. The format of students and lecture interaction in the learning process is modeled; pedagogical tools for qualitative educational process and for getting effective results are chosen. Lecturer's tasks in the implementation of developed model are defined. The need for constant searching new effective teaching means and methods, educational technologies are proved. Topics studied under discipline "Creative project" in the light of specific features of Management course are given. The results of this learning model implementation are projects, skills acquired during the self-education work and oral presentations. To get the results of the survey students are asked to fill in a questionnaire. Students' answers show that the educational process has been designed efficiently and students are satisfied with the learning process. The model for discipline "Creative project" can be used in teaching practice at universities.

Keywords: Creative project, independent student's work , motivation , interactive teaching technologies.

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* ADDRESS FOR CORRESPONDENCE: **Nataliya Maksimova**, Tomsk Polytechnic University, 30 Lenin street, Tomsk, 634050, Russia
E-mail address: nata8720@mail.ru / Tel.: +7-913-820-23-66

1. Introduction

The unity of theory and practice is a key element in the process when university students get knowledge and competences. The modern concept of engineering education includes the training of graduates who possess not only fundamental theoretical knowledge but also practical methods of engineering design, efficient communication methods, project and financial management, creative thinking teamwork skills. The National Research Tomsk Polytechnic University pays great attention to the development of practice-oriented space. In 2011 the University entered the "international club" of universities implementing the concept of CDIO (Conceive-Design-Implement-Operate (planning-designing-manufacturing- usage)). CDIO project creates the necessary environment for engineering education where technical knowledge and practical skills are taught and applied learnt theory to the practice. Therefore, there is a need for developing and implementing new models and teaching methods that promote effective interaction of theory and practice.

The Tomsk Polytechnic University offers not only technical degree programs but also special courses on Management and Economics. In the process of training technical students, a practice-oriented approach is used. Future graduates receive theoretical knowledge in the field of economics as well as learn how to control economic processes and projects, to develop business-plans, to calculate economic indicators, i.e. a mechanism of theory and practice interaction in a teaching process is necessary.

Due to CDIO concept, all curricula have "Creative project" course to strengthen the practice-oriented component of training in the Tomsk Polytechnic University. We have developed a model for implementing this course for students learnt a management degree program. This model is focused on strengthening students' self-education motivation, forming their readiness to productive educational activities through the usage of a project method as well as methods and pedagogical techniques of active learning.

2. The model of the implemented course

"Creative project" course is realized as an independent work of students. The key goals of this course are:

- To practice theoretical knowledge in practice and to mater the technologies of project activity..

- To develop skill for dealing with information..

- To develop communication skills and teamwork skills..

- To have a self-education motivation..

- To develop creative thinking.

First-year students studied on bachelor degree program "Management" have "Creative project" course from the second term. This course lasts three terms (108 academic hours) and is realized in the form of independent student's work. Self-dependence is the most important feature of a person's identity. It should be considered as necessary element of a learning process and educational process cannot be completed without it. Independent activities develop creativity. Course tasks are designed for an independent work and they make students be creative and encourage searching their own decisions. Thus, this course stimulates students to be independent and creative (Naydenova, 2011). "Creative project" course focuses not on the integration of actual knowledge but on knowledge usage and formation of new knowledge through self-education. The priority of self-education requires reorganization of the learning process, the development and implementation of appropriate teaching forms and methods, organization of student's independent work, new ways and methods of teaching, a new system of pedagogical influence on students are problems that should be solved by a lecturer in his professional activity. We have designed an effective model for student's independent work within

"Creative project" course (fig. 1). The lecturer's tasks are the following: a design, organization and implementation of the educational process in the form of independent work. The lecturer should set goals and motivate students for creative educational activities using interactive teaching technologies and control. Expected results of "Creative project" course are shown in Table 1.

The first stage – Introduction to creative project.

This stage includes acquaintance with all members of the project group, assessment of student's knowledge and motivation level, presentation of a work-plan due to the course. Acquaintance with a group and assessment of student's knowledge level are key elements for designing an optimal way of teaching taking into account personal students' characteristics. Acquaintance process should be done in a game format. Thanks to the game the input information about the students and their interests are got in friendly and relaxed atmosphere. Assessment of student's knowledge and motivation level can be carried out in the form of assessment interviews where the vision of the group is formed. It is also possible to use other methods such as tests, questionnaires, essays, etc. The lecturer chooses the most effective method for project assessment. Then students should be introduced to a work plan due to the course: interaction framework, topics for projects, tasks for self-study, monitoring activities/tests, presentation of results.

The second stage – Development of creative thinking.

Creativity is a driving force of humanity. Creativity generates new ideas, helps to refuse from traditional patterns of thinking; it is fluency and flexibility of thinking, originality and initiative. Creativity is conditioned by the development of students' creative activity in the learning process and the development of student's cognitive independence that are explained by students' activities aimed at self-development and self-realization (Spesivtseva, 2015). The development of students' creative abilities is a main task. Creativity depends on genius but there are ways of developing creativity. At this stage, the key lecturer's task is to motivate students to use creative approaches in learning activities. There are different ways of motivation:

- To hold a discussion about creativity.
- To understand students' opinions about project topics.
- To let students to make presentations of their creative activities.
- To present interesting facts about creative personalities.
- To run test (for example, "What are your creative abilities?").
- To formulate topics for creative projects to find information in books, papers and internet.

These methods are aimed at increasing interests to creativity, creative ideas and understanding creative abilities and future ways of their development.

The third stage – Project activity.

Among existing technologies and forms of training a problem-searching method, design and research method, group method are the most productive in the students' creative potential development (Maksimova, 2015). "Creative project" is a student's project activity. The goal of project activities is to create conditions for solving such problems as:

- Formation of students' interests for cognitive activity and practical skills of project activities.
- Development of skills for independent creative thinking and abilities to use them in practice.
- Acquisition of knowledge.
- Ability to work with information to formulate problems and make hypotheses.
- Mastery of communication skills.

Project activity as a learning activity is one of the best ways of combining modern information technologies, personal-oriented education and independent work (Naydenova, 2011).

At this stage, students should find and study information on a project. Students should study terminology in this sphere, formulate the notion of the project and project activity. They also should understand how to make a project plan, what stages there are in the project and what the project results are. At this stage, a lecturer should correctly formulate the tasks for self-study and then he should perform only a supporting role in forms of consultations (class hours and on-line hours).

During midterm assessment, it is necessary to have a classroom hour to sum up students' independent work in the format of communication to see what has learnt and what questions should be studied. In this classroom hour students should make a graphic design of project activity either in the form of a structural and logical scheme or in the form of a mind map followed by the presentation of the project results. Interactive communication stimulates students' educational activity.

The fourth stage – Practical problems setting.

A practical part of a creative project is a project development due to the project topic. According to project activity, all projects can be grouped in the following ways:

1. Institutional project is associated with enterprise reformation or creation and business event executions.

2. Economic project is associated with economic enterprise activities, business process.

3. Social project is associated with solving social problems.

4. Technical project is associated with the development of new products and new technologies.
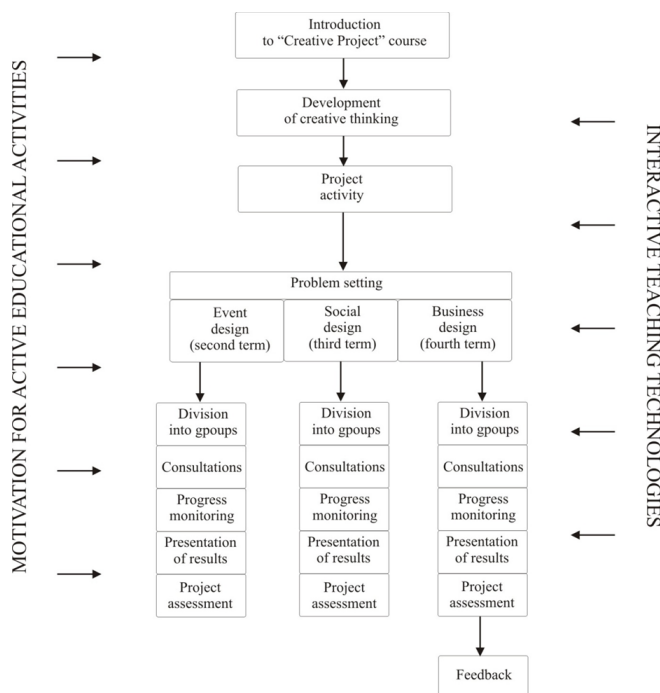
Figure 1. The model of "Creative Project" course implemented for students studied on bachelor degree program "Management".

Taking into account the specific character of the bachelor-degree program, students model institutional, economic and social projects. In the second term students learn main ideas of event design and model an event project, in the third term model a social project and in the fourth term they make a business engineering

Event–management is an event organization management of different types from entertainment events to business and scientific ones. Event – manager is a specialist who organizes different events, meetings. Students are given a task for self-study of terminology and main elements of event designing. At this stage the lecturer organize an informal meeting with experts working in the definite sphere. The experience of practitioners is valuable for an educational process. These meetings make students be closer to their future professions. Students' participation in a real meeting in the roles of organizers, volunteers, participants is also necessary. Tomsk Polytechnic University organizes annual informal events as well as formal ones. These are Olympiads, conferences, forums, creativity competitions etc. Participations in these events give a general idea about project activities in event-management area. Then teacher's task is to identify leaders in the group and to form teams around them. The task of each team is to model an event-project opportunities for its realization. Students may take the project where they participate as its basis and present a report on its implementation. They also may present a new project. At the end of the term a team should present its project.

Social project planning is an activity focused on social sphere development, effective social work organization and overcoming various social problems. This activity is also integrated in management. In the third term students should study the basic concepts, terminology and an object of social project planning independently. For a detailed study of social sphere, a student chooses an additional individual task from a task list given by a lecturer. A task list may include such task as typology of social projects, social forecasting, examples of social projects, the work of charities, social policy of the government etc. A meeting with experts is also organized for students.

Table 1. Learning outcomes of mastering "Social Project" course.

	To know	To be able	To have skills in
Event designing	- concepts, terminology and classification of modern design; - key stages of project development and implementation; - features of event-management and creative management; - examples of event-projects.	- to set goals and project scopes; - to plan your own activity and team activities; - to work with information and to analyze the obtained results.	- collecting, colligating and analyzing materials from different resources; - project creation and teamwork; - making presentations and public speaking; - presenting the results of study.
Social designing	- key features of social designing; - examples of social designing; - structure of existing charities.	- to identify and analyze social problems; - to analyze and structure information in the field of social designing; - to analyze the obtained results.	- collecting, colligating and analyzing materials from different resources; - social project creation and teamwork; - making presentations and public speaking; - presenting the results of study.
Business designing	- terminology in the field of business designing; - process and development stages of business a plan; - examples of business projects; - existing Project Management	- to classify types of business projects; - to formulate business ideas; - to define final goals of a business project; - to analyze and structure	- collecting, colligating and analyzing materials from different resources; - business project creation and teamwork; - making presentations and

Associations.	business designing information ; - to analyze the obtained results.	public speaking; - presenting the results of study.

Practical task for students in the third term is a participation in a social project. Students are offered projects implemented either in Tomsk Polytechnic University or a charity fund cooperated with Tomsk Polytechnic University. A team of students may also create their own independent project.

Business designing takes a great part in the management curriculum. Tasks for self-study are key features of business designing, the structure of marketing research and creation of business plans. After studying the theoretical material, student teams should create simple business project. For effective material acquisition meetings with senior students who do business are organized. They tell about their business experience and conduct an interactive business game. The lecturer can also organize a technical visit where students can learn about the production activity and business processes of the definite enterprise.

The creation of the projects is done due to the following plan:

1. Topic/problem selection.
2. Setting goals.
3. Writing a design schedule.
4. Information collection and analysis.
5. Teamwork.
6. Preparation of project presentations.
7. Project evaluation.

In this process a lecturer is only an assistant and consultant.

Thus, during these three terms students fulfill an individual and team tasks given by a lecturer. Individual tasks allow a lecturer to evaluate the results of each student, while teamwork allows evaluating students' cooperation. Students' team cooperation has a constructive and positive potential. Teamwork is effective in the following circumstances:

- Complicated tasks and problems should be solved;
- There is uncertainty and multiplicity of solutions;
- A high commitment is necessary;
- Results of teamwork are necessary;
- Different approaches are necessary (Ilin, 2011).

It can be concluded that "Creative project" course is aimed at developing teamwork skills. Every term students are divided into teams. Moreover, every term students work with different team members and this allows students to work in new conditions and new environment.

Assignment process, team building, project creation and results protection are under the lecturer's control. During the term appointments and consultations are organized to answer all students' questions to share opinions about the project with a lecturer and other students. Lecturers often use the internet to share opinion about the project material and to communicate with students. It helps to accomplish the tasks more effectively and quickly.

The final stage is a student's presentation of obtained results. The results are created project, a repot about the obtained results and project presentation. A report includes:

- Self-studied material due to the project topic.

- Project description and implementation stages.

- Conclusions on learnt material and fulfilled work.

Moreover, each team should present the project to other students. This activity develops public speaking skills. The presentation can be done both in the traditional form and in the forms chosen by students. These are an advertisement, a movie, a game with other students and a press conference. The fulfilled tasks are assessed with the help of a score ranking system that increases the assessment objectivity of student's academic achievements.

Student's motivation for an independent project activity plays a great part in this educational model. Motivation is an internal energy including man's life and work activities (Mormuzheva, 2013). The changes taking place in different spheres of individual activities lead to new requirements to the organization and quality of professional training. Nowadays university graduates should not only have special knowledge, skills and abilities, but also feel the need for achievements and progress and know that he will be in demand in labor markets. Therefore, a lecturer should make students be interested in knowledge accumulation, self-study and life-long learning. To achieve these goals students should have learning motivation. How should we improve students' motivation? The ways to increase motivation are:

1.   To explain students that the knowledge learned through higher education will be useful in the future.

2.   To show students the possibility of practical application of acquired knowledge.

3.   To be an assistant in the learning process and a role model for students.

These ways can form a common motivation for learning.

To create this model the following motives are used. They are:

- Cognitive (knowledge acquisition).

- Aesthetic (taking pleasure in a learning process).

- Communicative (expanding social circle).

- Practical (aiming for self-study).

A teaching process is a complex activity, thus it needs various motives for learning, but they create a system with a common goal expressed in improving training effectiveness. The lecturer should unlock students' potential and find the means that stimulate students to study. Every lecturer should have various teaching techniques to increase students' motivation.

Interactive educational technologies are also very important for motivating students to study. Interactive technologies involve the interaction of a lecturer and a student where the main lecturer's task is to create conditions for developing student's initiative, creativity and independent behavior (Eremina, 2014). In training process we use such technologies as a role-play, group work, project activity, informal meetings with experts, discussions. A lecturer should be able to use educational technologies for increasing students' interest and activity.

3. Feedback

Completing "Creative Project" course, a student's opinion poll was conducted in the form of a questionnaire. The key goal was to study students' views on the "Creative Project" course. Surveys for estimating the quality of education and teaching lecturer's level are often used in Tomsk Polytechnic University (Kryuchkov, 2015).

According to the survey, we can analyze students' opinions about "Creative Project" course and obtain the quality estimation of the lecturer's pedagogical activity.

The survey data is presented in pie charts. The first pie chart illustrates the quality of a lecturer's activity (ability to answer questions, to organize an educational process, to use different training techniques) (Fig. 2). The second pie chart shows if the students understand the connection of this course with their future profession (Fig. 3). The third pie chart illustrates the information if the students were interested in "Creative Project" course (Fig. 4). In addition, the fourth pie chart shows if this course is useful for the future students' professional activities (Fig. 5).
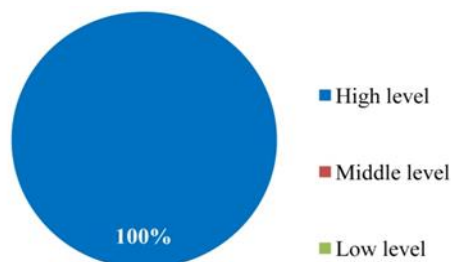
Figure 2. Assessment of teaching level on «Creative project» discipline
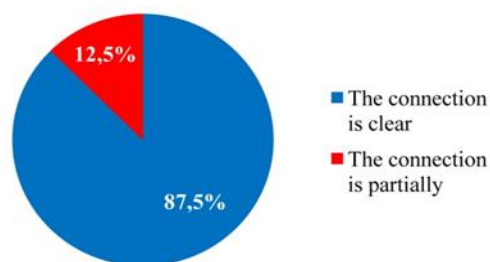
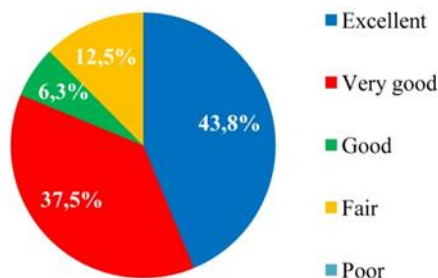**Figure 3. Discipline connection with future professions**

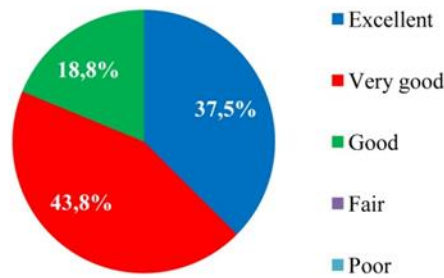**Figure 4. Discipline assessment due to criterion «Interesting»**

Figure 5. Discipline assessment due to criterion «Useful»

The information provided through these charts suggests that the learning process has been designed effectively. The tasks set have been solved; students are satisfied with the educational process. A designed model for implementing "Creative Project" course can be used in teaching practices.

4.Conclusion

The model of "Creative Project" course is designed and implemented in an educational process. This teaching experiment is very effective. Interactive technologies are implemented in the form of lecturers and students' interaction where students' activity is a key element and the lecturer' task is to create conditions for developing students' initiative, independence and creativity. In training process such technologies as business games, teamwork, project activity, informal meetings with experts and

discussions are used. Thus, the skillful manipulation of teacher's pedagogical technologies increases students' interest and creativity**.**

Acknowledgements

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