Designing Economic Socialization System in the Educational Process of Technological University

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Abstract
The relevance of this study is related to the fact that the necessity of compliance between the professional education system and progressive tendencies of world economy development demanded the formation of a new generation of economically socialized engineering and technical specialists, who own a sufficient level of economic competences, that will allow successful integration into the socio-economic environment.

The purpose of the paper is to create the scientific basis of content, structure clarifying, creating and implementation the pedagogical conditions of students’ economic socialization, considered as a process and the result of individual inclusion into the system of socio-economic relations in the society.

The leading method of studying this problem is the project method, allowing to design a system of economic socialization of students on the basis of the relationship between the essential characteristics of the process of economic socialization, identified by socializing potential of the educational environment in technological university and transformative actions for realizing this potential to achieve the goals and objectives of the students’ economic socialization.

In the paper it is determined that the pedagogical activity on the designing of economic socialization system includes the following stages: the first (preliminary) stage involves planning of educational activities for the realization the target component of underway project (diagnosis, promotion of ideas, identification of goals and objectives of economic socialization, expected outcomes and the criteria for their evaluation), and, ultimately, development of the project. The second stage of the design is the project realization phase including the content, activity and...
technological components of the educational process. Third (reflective) stage includes analytical, corrective and remodeling aspects of pedagogical activity.

The data from this paper have practical value in designing of economic socialization systems for future engineers, prove the causal dynamic nature of searching and the improvement of the educational process and offer opportunities to apply our approach to design educational systems in technological universities.

**Keywords:** economic socialization, student youth, pedagogical designing, pedagogical conditions.

1. **Introduction**

The education system, no doubt, plays a crucial role in socialization and enculturation of society members. During this process there is a transfer of moral values and norms from one generation to another, the formation of youth’s prescriptions, values and stable socio-cultural standards with the aim of their integration into the social system of society. In the context of solving educational problems, the goal of students’ economic socialization is the successful integration of future professionals with high professional level, competitiveness and mobility, possessing a sufficient level of economic competence, formed in the process of education in high school, into a dynamically developing socio-economic environment (Amirov, Shaidullina, 2014).

The concept of "economic socialization" was included into the scientific approach relatively recently. It was first used in the neo-marxist analysis of socialization in the works of S. Cammings and D. Taebel, 1978, B. Stasey, 1982 and was considered as process of social experience assimilation in the economic sphere by individual. Interest to the problems of economic socialization of different age groups among the Russian scientists appeared in the late 90s of the XX century (Boyarintseva, 1994; Šemya, 1998).

The end of the twentieth century is characterized by the fact that the economic socialization of the Russian youth was realized in conditions of economic and value transformation of public foundations: there was a “throw-in” of the new, primarily market, values, to which young people was mostly not ready and perceived them as the desire of economic subjects to optimize their own benefit and the pursuit of particularistic self-interest, ignoring the moral regulation of economic activity. Therefore, from a certain moment some aspects of person socialization are in focus of pedagogical science. In this regard, a problem of scientific substantiation and construction of special educational system focused on solving problems of youth’s economic socialization, including students, studying in technological universities, become relevant in pedagogical science and practice. New economic conditions, increased social demands on the education system, pose the problem of finding such pedagogical conditions that promote increase in efficiency of the process of students’ economic socialization.

2. **Materials and Methods**

During the research the following methods were used: theoretical (analysis of philosophical, economic, sociological, psychological, pedagogical and methodological literature on the topic of research); empirical and diagnostic (study of pedagogical experience, questionnaires methods (polling, tests), analysis of the results of training and practical work of students, pedagogical experiment, statistical methods of experiment data processing, analysis and synthesis of experimental data).

Experimental research was conducted in Branch of Ufa State Petroleum Technological University in the City of Oktyabrsky (342 students); Almetyevsk State Oil Institute of the Republic of Tatarstan (30 students), Branch of Ufa State Aviation Technical University in the City of Tuimazy (25 students). Experiment was carried out in 2011–2014 period.

3. **Discussion**

In the field of economic socialization problems some experience was already accumulated. Investigation of economic socialization in the context of economic psychology are based on: the study of the economic consciousness, its formation and development (Deineka, 1999) and subject awareness of economic identity (Dittmar, 1997); creation and justification of the theoretical concepts of economic socialization (Boyarintseva, 1994; Zhuravlev, Drobysheva, 2011); definition of economic socialization stages (Drobysheva, 2011); identifying of macro and microsocial factors,
including regional, ethnic, socio-cultural factors, determining the process (Vinokurov, Karnyshev, 2007); subject-role approach to economic socialization (Vyatkin, 2010); study of individual and socio-psychological characteristics of the person as an "internal" factors of economic socialization (Vyatkin, 2010).

Surge of interest of Russian scientists to the problems of economic socialization of different age groups occurred in the late 90-s of the XX century in connection with the change of economic principles and the emergence of new factors that influenced the formation of the younger generation: implantation of market values, family institution crisis, excessive rational thinking, consumerism, popularizing ideas of freedom from society and social environment. According to modern researchers (Vyatkin, 2010; Drobysheva, 2011), change in socio-economic conditions as a consequence of the global economic crisis in 2008-2009 years again intensified study of economic socialization problems of forming personality by national experts (teachers, economists, sociologists, psychologists) and revealed difficulties that were defined earlier during the previous period of its scientific development: it is few and fragmented research of the economic socialization phenomenon, unformulated categorical apparatus which led to terminological differences in the author's definitions, the complexity of the economic socialization measurement in terms of its results and others.

It should be admitted that in the field of economic socialization problems the most developed issues at the moment are those related to the primary economic socialization of children and adolescents (Leiser, 1983; Furnharn, 1984; Lunt, Furnharn, 1996; Fenko, 2000; Grass, 2008). But few works are devoted to the economic socialization problem of students (Kavkaeva, 2010). Accordingly, those aspects of socialization were weakly developed in science. It is clear that in adolescence period young man faces special problems: the transition to adult independent living, the desire for financial independence, career choice, formation of value orientations, self-positioning in the labor market, etc. It determines not only importance, but also the specifics of economic socialization of young people, carried out in educational institutions. The features and capabilities of socializing potential of higher technical university are still unexplored. Theoretical and methodological approaches and pedagogical principles, ensuring the successful economic socialization, are covered superficially, as well as the specifics of substantial components of students' economic socialization. Pedagogical problem of the design process of students' economic socialization in technological universities requires further development. So organizational and pedagogical maintenance of this action in the higher education process needs further study.

In modern conditions education content at the university is intended to focus not only on the qualitative development of students' professional competencies and their acquisition of necessary professional and personal qualities, but also to the formation of economic competence of future specialists' with engineering profile through the optimization of economic disciplines content, use of innovative pedagogical technologies in teaching, students participation in a variety of activities (educational, industrial, scientific, extracurricular, self-government and so on), that are an integral part of the educational university environment.

Implementation of the system analysis in pedagogical design has allowed us to identify a set of problems related to the process of student's economic socialization: disclosure of the structure, characteristics and factors affecting this process, taking into account social, economic, historical and recent educational trends. Our approach to the definition of "economic socialization" take into account new factors, manifested in the socio-economic life in the first decade of the XXI century: structural changes in the labor market; acceleration of scientific and technological progress, affecting mainly workers, whose professional work related with equipment and technologies; the deepening of globalization and virtualization, and, therefore, the change in the goals and objectives of education; the transition to a competence model of specialists training as a requirement of modern innovative economy and others. Technological university graduate should possess a completely different set of qualifications, knowledge, skills and during his education in university he should also develop economically significant personality qualities demanded by all professions, such as mobility, autonomy, efficiency, enterprise, teamwork, ability to self-learning, communications and others, which will allow adaptation to new social working conditions, to technology evolution, to change of the content of professional activity.

This change in the key requirements for the economic training of technical specialists allowed us to formulate a refined definition of the term "economic socialization of technological university
students”, by which we mean the process of assimilation of socio-economic experience (knowledge, skills, values) by young people; the formation of a competent person capable not only to the efficient operation on the specialty, that is competitive in the labor market, but also possessing significant economic qualities and mobility, in order to optimize their inclusion into social and economic relations after graduation and their successful adaptation to production and economic conditions changing, as a result of scientific technical progress, and their integration into dynamic market environment.

We proposed the following structure of students’ economic socialization process, which includes the following components: cognitive, evaluative, activity, adaptation and communication, jointly revealing the basic content of the process. Cognitive component forms a system of knowledge, ideas and concepts of the methods of economic system functioning. This knowledge will influence the system of value orientations in the economic sphere, and the activity component gives the experience of economic knowledge and skills application in order to achieve economic goals. We consider communication in this system as communication of all components, mediating their relationships, and adaptive component performs one of the most important functions of youth socialization process.

Process of socialization is influenced by factors that differ in content, level and mechanism of action. With an increase of the role of the media and communications network as a virtual ways of socialization, we have determined that factors influencing the process of students’ economic socialization include: the socio-economic situation in the country, state youth policy, socio-cultural environment, scientific and technological progress, economic values and family priorities, educational environment of high school, and others.

4. Results

4.1. Content-technological basis of pedagogical design of students’ economic socialization system in technological university educational process

Pedagogical system designing of students’ economic socialization is an activity devoted to building the relationship between the essential features of economic socialization process, identified by socializing potential of educational environment in technological university, and transformative actions for realization of this potential to achieve the goals and objectives of students’ economic socialization. Pedagogical activities on the design of economic socialization (ES) system were carried out by us in stages (Figure 1).

At the first stage of pedagogical designing, we have formulated the goal of designing of economic socialization system and defined criteria and diagnostic indicators of economic socialization, which were tracked in subsequent stages. The main goal of economic training of graduates is an effective (successful) economic socialization of future specialists with engineering profile, allowing them to become an active participant in economic activity of society and company. The results of the economic socialization of technological university students were related to the economic literacy, maturity of personal economic qualities, economic competence, providing success of economic activity and being an indicator of successful socialization. At the first stage the economic socialization system was also designed, program of action of educational process subjects was built, educational-methodical documentation was prepared and, finally, the project itself was designed.
The educational process, during which the purposeful economic socialization of students was implemented, is considered as a process of development of the economic socialization system, basic structural units of which are: economic socialization in the process of economic disciplines studying (economic education); economic socialization in extracurricular activities (economic training); economic socialization outside the university educational environment (Figure 2).
Fig. 2. Structural units of student’s economic socialization system

Designing of economic socialization system at the first step involves identifying the resource potential of the university educational environment. We have expanded the boundaries of socializing opportunities of technological university education environment in the following directions: enhancing the use of information resources in the case-technologies; interdisciplinary integration of high school disciplines (reflection of the specific production problems into cases preparation by teachers of economic disciplines); teaching and research work of students on the basis of projects, created to develop research and business skills; including economic issues in the list of practical training tasks to expand the socializing potential of production practices; involvement of professional subjects of the market economy in economic, business, financial education of future engineers; building a model of cooperation and partnership relations in the system "teacher - student" during the students independent work to create author’s cases and other creative projects.

Emphasized socializing opportunities were the basis for the pedagogical design of the economic socialization system of future engineers and for implementation of pedagogical conditions that ensure the success of this process in educational environment of technological university. We defined the following conditions: the fullness of the economic content in the technical (engineering) education; use of practice-orienting potential of case-based technologies in the educational process; orientation of the educational process on the development of mobility as a condition of social, professional and personal self-realization of the future specialist.

The second stage is the implementation of the project with inclusion of content, activity and technological components of the educational process (the construction of the teacher’s work on the basis of selected principles, approaches, methods, models and education technologies, including stages, operations, actions and practical implementation arrangements).

The third (reflective) stage included analytical, corrective and remodeling aspects of pedagogical activity (comprehension of changes in the actions of project participants, summarizing, adjustments and others.).
4.2. Stages of experimental work

Experimental work on designing the system of economic socialization of technical university students involved the implementation of the following stages:

- definition of criteria and diagnostic indicators of economic socialization; identifying initial levels of the experimental and control groups of students, followed by monitoring of these parameters on the implementation phase of the project;
- implementation of the designed system of economic socialization in practice, verification of proposed pedagogical conditions; description of approbation results of theoretical model of system design of future engineers’ economic socialization.

4.2.1. The ascertaining stage

At ascertaining stage of our experiment we revealed baseline indicators that form the level of students’ economic socialization, which will be measured during the formative experiment (Table 1). To determine the level of economic socialization we have used the methods of diagnosis from the following authors: E. Rogov, T. Ehlers, O. Potemkin, A. Maklakov, S. Chermyanin, E. Fantalova, N. Fetiskin, M. Semenov, etc.; modified by us on the basis of the research problem; author’s questionnaires were also developed.

Table 1. Criteria and indicators of economic socialization efficiency

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Indicators</th>
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<tr>
<td>Cognitive</td>
<td>P-1. Economic literacy (level of comprehension of the theoretical basis of economic science)</td>
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<td>P-2. Maturity of economic thinking, which allows identifying and analysis of economic reality problems</td>
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<tr>
<td>Valuation</td>
<td>P-3. Economic orientation of the personality (the ideological aspect, values, interests)</td>
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<td>P-4. A positive attitude to assimilation of economic knowledge</td>
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<td>P-5. Orientation on application of economic knowledge and skills in practice</td>
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<tr>
<td>Activity</td>
<td>P-6. Inclusion of petroleum profile specialist into the sphere of economic interaction between society and industry</td>
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<td></td>
<td>P-7. The presence of economic skills that enable the educational, cognitive and planning activity in the implementation of case technologies</td>
</tr>
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<td></td>
<td>P-8. Economic behavior and adoption of economic roles in different spheres of life.</td>
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<td></td>
<td>P-9. The manifestation of communicative and organizational skills in a team environment</td>
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<tr>
<td>Adaptation</td>
<td>P-10. The presence of economically important qualities of the person: enterprise (orientation on achievements, business activity, organizational skills), mobility (activity, creativity, adaptability)</td>
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<td></td>
<td>P-11. Skills of self-solving their life problems</td>
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</table>

4.2.2. Formative stage

At the formative stage we developed and implemented scientific support and methodical maintenance of economic socialization process of technological university students, including electronic training complex on economic subjects, methodical manuals on preparation for seminar work, a set of economy case studies, tests for economic knowledge monitoring, a textbook on the application of case technology in a technological university (Shaidullina, 2013), as well as approbation of the forms and methods of economic education of students in extracurricular time. During the experimental work in accordance with a predetermined direction of pedagogical technology design and dedicated educational conditions we formed two groups of students (experimental and control groups with 30 people in each, studied according to their specialty "Oil and Gas & Oil field Development and Operation") to validate our hypothesis.
4.3. Implementation of educational conditions in the pedagogical design process of the economic socialization system of technological university students

We offered to increase the effectiveness of socializing potential of education in technical university environment through the organization of the educational conditions that ensure optimal inclusion of young people into economic activity and complicated system of socio-economic relations after graduation. For testing the first pedagogical condition – filling of the technical (engineering) education with economic content - we used the developing potential of pedagogical methods, instruments and organizational forms of education, providing filling of technical (engineering) education with economic content: tasks associated with specific industrial problems (case-technology); mainstreaming of interdisciplinary problematic content during lections; educational and research work of students on the basis of projects that require an integrated application of knowledge. For realizing the idea of interrelationship and interdependence of economic and professional socialization during the pedagogical experiment, socializing potential of industrial practices was involved. For the formation of the socio-economic competence students from the experimental group performed tasks that were included in the plan of industrial practice and subsequent report for third-year students.

The introduction of the second pedagogical condition (use of practice-orienting potential of case-based technologies in the educational process) in the course showed that application of case-based technologies during the study of economic theory has significant advantages, since it provides an opportunity for students to independently analyze the processes that often take place in the economy. In addition, this technology provides the involvement of students into the collective work for discussing the situation, taking into account opinions and estimations of other participants. It is necessary to overcome the thinking of narrow technical specialists, instilling social interaction skills through discussion, i.e. formation of communicative skills necessary for effective economic socialization. During the formative experiment we were able to discover new aspects of case-based technologies in the context of innovative technologies in engineer's training. Originality of our approach for conduction of experimental work on the economic socialization of students from oil and gas university was the fact that we have changed the role functions of subjects of the educational process, based on the principle of duality. At economics seminars we discussed the cases not only developed by a teacher, but also the author's cases of the students themselves.

In the process of implementation of the third pedagogical condition – orientation of the educational process on development of person mobility as a condition for social, professional and personal self-realization of the future expert – we selected and tested during the experiment course the most effective methods and forms of work with students, allowing to develop such personal qualities, as activity, creativity, willingness to change, adaptability and flexible orientation in dynamic economic environment, the desire of constant improvement of their education, skills and development of innovative technologies and techniques, i.e. mobility. Developing technologies include: discussion seminars, workshops, blitz games, trainings, project methods and others. Educational technologies corresponding to modern requirements were directed to the development of student abilities to independently cope with the urgent problems of life: taxes, personal budget, mortgages, insurance, pensions, savings, development of their own entrepreneurial skills and others. Experimental work on the organization of this pedagogical condition was built on the principle of “inviting learning”. Our students got acquainted with the basics of business organization at the meeting with the experts from the Oktyabrsky business incubator, where students were provided with information on how to register as an individual entrepreneur, how to register in the tax office and choose the best tax system. During the study of Economics course students were offered such topics for the organization of the project activity, as a solution of employment problems in the city, creating their own startup businesses and others. The concept of “inviting learning” was implemented during the formative experiment by organizing sessions with structures, which work directly in the financial markets: investment companies that have demonstrated practical skills on the stock exchange; banking institutions, acquainting students with the principles of operation of this economy sector.

4.4. Effectiveness evaluation of the experimental work on the designing of students’ economic socialization system
We tracked dynamics of level indicators, revealed at the first stage of economic socialization designing, in the experimental group compared with the control group (students, which economic socialization occurs in natural and partially controlled conditions of the educational process at the university). The results of the level diagnosis of students’ economic socialization demonstrated that our conducted experimental work had a positive impact on the process of personality formation of future engineers as a subject of economic activity and economic relations in the society.

Comparison of the control and experimental groups showed significant changes in economic socialization indicators in the experimental groups where our pedagogical conditions were complemented. So, by the end of the experimental work number of students who have a high level of economic socialization showed 30 % increase and number of students in the same group with a low level of economic socialization showed 26.6 % decline. In the control group these indices are lower – 6.7 % increase and 6.7 % decrease, respectively. Analysis of diagnostic results of the economic socialization level in control and experimental groups at the beginning and the end of the experimental work is presented in Table 2.

### Table 2. Level of students’ economic socialization at different stages of experimental work

<table>
<thead>
<tr>
<th>Groups</th>
<th>Economic socialization level</th>
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<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Number of students</td>
<td>%</td>
<td>Number of students</td>
<td>%</td>
<td>Number of students</td>
</tr>
<tr>
<td>Before experimental work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>10</td>
<td>33.3</td>
<td>17</td>
<td>56.7</td>
<td>3</td>
</tr>
<tr>
<td>Control</td>
<td>8</td>
<td>26.7</td>
<td>16</td>
<td>53.3</td>
<td>6</td>
</tr>
<tr>
<td>After experimental work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>2</td>
<td>6.7</td>
<td>16</td>
<td>53.3</td>
<td>12</td>
</tr>
<tr>
<td>Control</td>
<td>6</td>
<td>20.0</td>
<td>16</td>
<td>53.3</td>
<td>8</td>
</tr>
</tbody>
</table>

In order to estimate whether the experimental impact was a determinant factor of changes of the students’ economic socialization in the experimental group compared with the control group, we used the method used in mathematical statistics – ANOVA (Fisher criterion F). Fisher criterion counted prior to the experiment (F_emp = 0.04) showed that groups under investigation were initially relatively equivalent. The calculation of this criterion after the experiment (F_emp = 4.2) revealed that with 95 % probability (p≤0.05) the difference in the level of economic socialization between groups is more pronounced than random differences between the groups. Hence, we have shown that an experimental impact was the determining factor of changes in the economic socialization level. And we have shown that increase in the level of economic socialization is not random, using G sign criterion. To prove the importance of the changes (based on the occurrence frequency of economic socialization effect interesting to us) in experimental groups compared with the control we used Fisher criterion φ * (Fisher angle conversion).

### 5. Conclusion

It was found that designing of students’ economical socialization system is the kind of activity for building the relationship between the essential features of economical socialization process, identified by socializing potential of learning environment in technological university, and transforming actions for realizing this potential to achieve the goals and objectives of the students’ economic socialization. System design of economic socialization during the educational process involves such interaction of students and teachers, where the next goal is realized – effective (successful) economic socialization of future specialists of engineering profile. Special education system should be formed to achieve the educational objectives, which structurally consists of the following units: economic socialization in the process of economic disciplines studying (economic education); pedagogically-driven and controlled economic socialization (economic training); economic socialization outside the educational environment of high school. The success of the project depends on the implementation of identified pedagogical conditions.
Article submissions may be useful for teachers of economic disciplines in technological university in the context of the active use of inter-subject relations during economic disciplines teaching through the introduction of case-technology method into the educational process, practical work tasks to show the scope of application of economic knowledge and skills to future engineers; communion of students to the creative work on case studies, which will promote economic development of competencies; the use of various forms of educational technologies affecting the strategy of young people economic behavior and corresponding the realities of modern society.

The study shows the perspective for further studies of problems of students’ economic socialization caused by cardinal changes in global trends in economic and social development.

References


