Abstract

This paper is dedicated to the University-Enterprise cooperation at the technological faculties of the Georgian Regional Universities. According to international experience, this cooperation, at various levels, involves Enterprise involvement in planning and development of higher education programs. The authorized universities participating in this study have created the mechanisms to update and modernize curriculum (with the participation of the Enterprise), as well as various structural units (whose activities are directly or indirectly related to the Enterprise). The Study researches the ways the Enterprise is involved in the modernization of the academic program, in reality. The research also focused on the analysis of other components of cooperation: joint seminars, forums, joint research, commercialization of pests, publication of joint articles and the implementation of the third mission by the Georgian Regional University.

Keywords: University, Enterprise, cooperation, curricula modernization.

1 INTRODUCTION

University – Enterprise cooperation became very significant in Europe in the second half of the twentieth century that had various preconditions ahead. On the one hand, since 1975 higher education in Europe has become more accessible; also, due to various economic, political or social reasons, the number of applicants and students increased meaningfully by the end of the century and it almost doubled in 1975-1995. It forced European Universities to redefine their role in society. On the other hand, the State funding was no longer sufficient for HEIs and it was necessary to seek for alternative ways of financing that obliged HEIs to search for new partners (European Communities, 2007). Meanwhile, the Bay-Dole act was adopted in the USA. It was a Patent and Trademark Law Amendments that was the base of economic rise in the USA; Universities were allowed to register the patents, give the licences based on their researches and participate in the public financed projects. This law permitted professors to become the shareholders in the daughter companies (the enterprises that uses business ideas or technologies developed in the research projects). The EU education policy considers the University as a centre of higher education solely responsible for the realization of knowledge economy and a special public mission (European Communities, 2007). It is highly outlined in the 21-st century that an economic development of the country depends on knowledge and its application, therefore, it might paraphrased that it depends on education.

In order to meet these challenges, European HEIs evolved from the knowledge producing institution to the universities actively cooperating with regional enterprises, having had relevant links and drawn the relevant research contracts the activities of which are financed from public and private sectors (Urayaa, E. 2010). Etzkowitz and Leydesdorff proposed the tripe Helix model as the theory of University – Enterprise – State cooperation. According its thesis, university is an organization that can play stronger role in introduction of innovations, especially in the increasing knowledge based society (Etzkowitz, Leydesdorff, 2000). This model is based on Levontin’s triple helix model (Levontin; 2000) that he applied in the biological context ( genus, organism, environment). The basis for the idea of the triple Helix of Etzkowitz is the metaphorical mathematical task of the relative descriptions of three bodies, which have no common solution but can be solved for a particular condition. It is convenient for innovative development with regard to non-linear, poly-optional and statistically defined processes (Etzkowitz, Leydesdorff, 2000). The third party in the university – enterprise cooperation includes the third side – the State (at local, regional National level) that affected the triple helix theory (Etzkowitz, H. and Leydesdorff, L. 1997). According to Dzisah and Etzkowitz, the concept of development has

changed from centralization to the form of cooperation and collaboration (Dzisah, J. & Etzkowitz, H., 2008).

Clark gave this cooperation the form of a triangle, which coordinates various stakeholders at different organizational structures of the country; however, in each case, each side of the triangle serves as the best representation of one form and at less representation of the remaining two forms, while the composition of the triangle as a whole serves to reflect the merging of these three elements (Clark, 2001). The requisites of entrepreneur’s university are described by Clark as well. According to them, the entrepreneurial university should have a significant degree of independence from the industry and the state, but also high quality of interaction with these institutional spheres. The first requisition is that the university has some control over its strategic direction. The second requisition is to be closely interacting with its other fields not to be isolated university in the ivory tower. The university has a strategic vision of development and partnership (Clark, B. 1999).

Despite the large range of models, Cooke (2005) criticizes the model as he thinks it is a macro-economic model and is based on institutional agreements without consideration of the realities of the region, the relationship between people and business development. Evans (Evans, 2010) argues that the distinction between the university, the company and the state has been weakening this network. But today, the university often faces the activities of the free market, thinks about strategic short-term marketing policies and tools, developing competitive advantages, hiring qualified personnel and others and is forced to adapt to global capitalist thinking (Slaughter Sh., Rhoades, G. 2004). In general, the university-entrepreneurial cooperation can be formal and / or informal (Ortiz, 2012). Non-formal cooperation is characterized by small and medium-sized enterprises whose interest is rapid, mobile access to economic and relevant information and is open to cooperation with the university. According to Croissant and Smith-Doer (Croissant and Smith-Doer 2008) University-Business Cooperation comprises mainly of three aspects: a) communication between Science and Economics - Science product is actively used for economic growth; b) Interconnected relationships between universities and enterprises - they work closely with each other in many directions and c) interpersonal relationships between professors (scientific persons) and company employees - personal contacts. According to Belderbos, the company cooperates with horizontal competitors, vertically suppliers and institutional universities and research institutions (Belderbos, R., Carree, M., Diederen, B., Lokshin, B., Veugelers, R., 2004).

In 2005, Georgia officially joined the Bologna process and aimed at integrating the national educational system into the European education system by reforming the former. To achieve this goal, the university education fundamentally changed the approaches; New educational programs were developed: Approaches based on the interests of the state, student, labour market and the public were introduced. Also, authorization of higher education institutions and accreditation of educational programs was regulated at the level of legislation in the country that gives an efficient way to benchmarking of the self-esteem and quality of the universities with international standards. Moreover, competitive environment on the educational market forces universities to find ways to get closer to international educational space. However, despite the reforms and investments, there are still many issues to be solved, and the challenge of cooperation between education and the labour market is amongst them.

Despite continuous reforms in the education system, there is a low-product labour market in Georgia that is a result of the so-called knowledge devaluation (vertical inconsistency), mismatch between the type of work demanded on the modern labour market and the professions that young people get today at higher education institutions (Amashukeli, 2017). The international and local studies highlight absence of communication between education and enterprises in the post-soviet countries. In many cases, educational institutions don’t realize new, third mission of the university - to become a leader of knowledge-based economy and the society, which has the role of the foremost performer in the modern world. On the other hand, neither enterprise organizations and the state itself consider higher educational institutions as a favourable and profitable partner.

Considering the research topic, an attention was paid to the description of the cooperation practice between technological faculties of the regional universities of Georgia and enterprises. It should be mentioned that the authorized universities participating in the research have created the curricula revision mechanisms (with the participation of enterprise) in line with new standards of authorization and accreditation as well as various structural units (whose activities are directly or indirectly related to enterprises). In this thesis the real involvement of the enterprise representatives (employer, entrepreneur, partner) in the modernization of the academic program is studied. The research also focused on the analysis of other components of University – Enterprise cooperation: joint seminars,
forums, joint research, commercialization of research outcomes, publication of joint articles and the implementation of the third mission of the university by the Georgian Regional Universities.

There are several studies on University-Enterprise cooperation implemented in Georgia (Darchia I, Andguladze N, Bregvdzde T, Amashukeli N, Javakhishvili N). They mainly single out few aspects of cooperation. These aspects are: the impact of higher education on the formation of workforce, the strategic development of higher education and science in Georgia, the possibilities of research commercialization in Georgia, the role of universities in the development of the region etc. The facets of this topic are reflected in different researches carried out by the International Institute of Policy, Planning and Management of Education, in the steps taken by the Government of Georgia, documents, regulations and strategies issued by the Ministry of Education and Science of Georgia. The strategy 2017-2021 states that despite many reforms, educational programs mismatch the employment market needs. The challenge is to develop programs and research so that the graduates are equipped with the competencies necessary for the market, and the research to be relevant to the demand of the market and the state through which the university would perform its third mission - to serve the public and promote the region's economic development.

To study how university – enterprise cooperation is implemented at Georgian Regional Universities, our research was carried at two State Regional universities: BSU (Batumi Shota Rustaveli State University) and ATSU (Kutaisi Akaki Tsereteli State University). Technological faculties of BSU run 9 directions, 5 out of them are engineering directions and 4 – agrarian ones. Moreover, the faculty of physics, mathematics and International sciences also run the higher educational programs in technological direction. There are two technological faculties at ATSU: the engineering technological faculty comprising three departments: design and technology department, Food Product department and department of Chemical and Environmental Technologies; the second is engineering technical faculty that comprises department of construction and transport, department for energetics and telecommunications and department of mechanics and mechanical engineering.

2 METHODOLOGY

Technological faculties of two regional universities - Batumi Shota Rustaveli State university (RSU) and Kutaisi Akaki Tsereteli State University (ATSU) were selected as well as the representatives of from the enterprises named as the closet partners by the technological faculties. These two universities were singled out for the following criteria: both institutions are the state universities; they are located in the regions and the technological directions are implemented in those universities. In order to select a particular respondent, a purposive type of non-probability sampling was applied. The Qualitative research – in-depth interviews (a semi structured interview) with administration of the regional universities (5 people), with the representatives of the regional government (3 people), with academics from the technological faculties (24 people), the representatives of the business world (10), scientific workers of the research institutions (4 people), technological faculty graduates (10 people). The conclusions and recommendations of the research were presented to the focus group that was staffed with 6 people; out of them 2 were academics, one of them is a former accreditation expert and the other is acting faculty quality assurance service; 2 members represent enterprises and the last are the former graduates.

The following circumstances were considered during the interviews:

a) The goals and objectives of the survey were determined;

b) The categories of interviewed persons were determined (relevant academic persons, representatives of administration as well as the representatives of enterprises were selected);

c) The survey was developed and tested;

d) The method to select the interviewees and the number of the interviewees was identified;

e) People to be interviewed were selected and interviews were held;

f) The findings and recommendation of the thesis were presented to a focus group that was staffed with the representatives of academic staff, enterprise and graduates.
2.1 Focus Group

For the verification of the outcomes of the research as well as the recommendations, a focus group research was conducted. We recruited the focus group participants and selected the moderator. The event lasted 1.5 hrs. We analyzed the recorded material and prepared the report.

3 RESULTS

- The memorandum represents the University’s attempt to work on the market but this necessary condition seems to become a compulsory one in most cases. The aim of the memorandum is to regulate student’s employment and practice process. However, the University looks to treat the enterprise as a consumer because it considers the business world as a resource to meet the accreditation standard. The University's attitude towards the enterprise is based on self-survive.

- Cooperation with the employer is mandatory stipulated by the internal documentation that are based on the accreditation standard. In the exceptional cases, cooperation with enterprises is mandatory as a result of international dimension.

- In practice, the mandatory of cooperation is considered as meeting the minimum standards that is expressed in seeking job opportunities and practice base for students; However, international dimensions set not minimum standard, but ideal mechanisms.

- Forms (frequency, composition, format) of cooperation is stipulated by the main requirements. Administration sets the cooperation format in the framework of undertaken responsibilities; however, this process is not sustainable and cyclic.

- Graduates are considered to be the university’s own resource. However, there isn’t any clear mechanism (permanent cooperation, incentives schemes) to cooperate with them. This system is stipulated only by the formal liabilities (accreditation requirements).

- The research has revealed that the most efficient, but informal mechanism of cooperation is the relationship based on personal contacts/interests.

- The research has found a number of attempts to implement other models of cooperation that have failed due to the lack of proper mechanism of cooperation.

- At the faculties participating in the research, neither joint project, nor master's/didctoral thesis or article exists.

- In accordance with the accreditation standard, the program leader is responsible for the cooperation with Enterprise. Both sides state that mainly the University initiates the university – Enterprise cooperation and there is not a person at the faculty level responsible for this cooperation.

- University and Enterprise mainly approach each other with proposal of students’ practice, internship or job opportunities. In particular cases, the Enterprise has addressed the university with some specific proposals that that ended either unsuccessfully or with partially successful results.

- The research has revealed that the theory covers the material that is detached from reality and is mostly not adaptable to practice. The main problem of the programs is less cooperation of the programs with practice. Majority of the respondents indicate the need to get the theory closer to practice by maintaining a general direction, but teaching what is demanded from the practice. Some academics think that it is possible to teach theory that the graduate may not use in practice at all. Some of them have pointed out that the theory and practice must be distinguished; They think that the theory makers should have nothing to do with those who implement practice.

- The accreditation standards of the National Centre for Educational Quality Enhancement of Georgia shall be met in the process of program development. The research has revealed that there is no proper connection between the theory and practical implementation in relation to the large portion of the courses. The university tries to adjust the existing syllabi in line with the accreditation standards; however, there are several issues regarding to it. On the one hand, the university adjusts the syllabi too frequently and on the other hand, it does not have an effective policy regarding the causes of the problem. In particular to the academic staff, the main
instrument is a competition and in the process of meeting the completion selection requirements, academic staff hardly uses qualification enhancement or other opportunities to improve its program despite the wide opportunities the university offers. Or this opportunities are used, but it is almost not reflected on the learning curricula.

- It turned out that there is rarely effective mechanism for engaging Enterprise in curricula development/modernization; Some academics think that using their own practice is the way to get the theory and practice closer and to modernize the program this way. Other academic staff believe that they see the market requirements and theoretical and practical part is the result of their work.

- The need for university and Enterprise doesn’t depend on organizational, functional or formal factors. Different opinions arise in the equal conditions (given that some staff is responsible for student practice, other is the author of grant projects, and some others work only on private orders or have an interest in career development). Appropriately, defining factor is a personal factor.

- The research has revealed that there is no proper mechanism to involve the Enterprise in curricula development/modernisation process; Existing meeting are surficial. Some academics state that they use their own practice to improve curricula, others believe that they themselves see the market demands and develop program accordingly; therefore, no need to consider the market needs, as well as in mechanism.

- There is no structural unit / person at the level of faculty oriented to generate income, to find research projects, to take part and do the realization, as the potential for implementation is not studied yet.

- There is no joint project, master's or doctoral thesis or article on faculties participating in the study. The specifics of both fundamental and applied research is determined by the university. For this reason, research topics are determined by the particular professors who are evaluated by faculty-dissertation councils. Significance of the research topics fully depends on the private interest/vision of the professor; It can therefore be missed with market requirements. There are two main ways of determining research topics in Georgia: a) professor or a board of professors, b) Rustaveli Foundation. The main mechanism to assess the scientific researches is the quantitative indicator; citation index and publications in the high ratings journals have been added to it. Existing models and schemes of evaluation are aimed at meeting the competition requirements, including the number of Master / PhD students.

- The research has revealed that in the universities participating in this research, various free consultation services were opened as clinics, which was result of the international dimension. The survey has also revealed that university staff is primarily engaged in individual consultation to commercialize their own professional knowledge and experience, as achieving relevant agreements and financial transactions individually is easier than through the university procedures. The implementation of such activities within the University involves a lot of time, special competences, willingness of administrative personnel and other aspects, that the staff finds uninteresting to them.

- The reimbursable ordered expertise for the University is carried out in the framework of the relevant contract using the academic resource and material-technical base of the university. Such services only concern one area as only university staff has the relevant theoretical and practical competence.

- This research has found that both universities are currently working on research commercialization documentation. Also, research has found that there are various products of scientific research, including those developed through the grant program of Rustaveli Foundation and are subject to commercialization, but this has not been achieved. The research also revealed that there are products that are already patented and relevantly registered by other people.

- Despite the several private companies mentioned as partners, the research has revealed that the regional/central government and/or governmental units/bodies are the main partners of the technological faculties, especially at BSU as in Adjara, apart from the direct investments into university infrastructure or the research projects, the government finances higher education supporting programs as well as the students study programs abroad. At the same time, the state mainly defines what studies and researches can be performed at the university/research

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institutions. Its attitude to use the university potential is sceptical as it thinks that there is more knowledge at the consulting companies that are mainly involved in the big investment projects. The state officials who participated in the research assume that the government might not be able to see the need of the research topics. University-Government-Enterprise cooperation would be interesting for the government and the government as the biggest partner of the university would cooperate easier than the private companies. However, there is neither dialogue nor mechanism for it.

- The university administration expresses its wish to participate in the regional investment project and the administration questions the volume, quality and assignment of the studies assigned to different foreign consulting companies. The government as the university biggest partner doesn’t share information with the university regarding the significant research topics. Academic staff believes that their participation in the investments of this size is of vital importance considering the many positive factors, however, there is not any mechanism of receiving this information.

- The need to promote the university-Enterprise cooperation by the government was identified.

4 CONCLUSIONS

Based on the studied theoretical materials and analysis of the performed research, it is possible to draw the conclusions that clearly reflects existing reality of the University – Enterprise cooperation in Georgia.

1 According to the international dimension, the University-Enterprise cooperation is expressed in the university mission, vision and is mechanism of cooperation is given in details. Moreover, the university creates the structural units/supporting services and identifies people who are assigned to perform only activities of University-Enterprise cooperation. In addition, the Enterprise is involved in modernisation in curricula, joint activities like researches, projects are implemented. Also, significant MA and PhD topics are identified. And finally, university performs consulting, training, expert services and research commercialization.

2 Both universities having participated in the research realize the importance of university-enterprise cooperation institutionally and theoretically. The structural units, and the inner documentation relevant to the state law are adopted to some extent.

   o Strategy, policy, mission and vision of the university reflects the importance of the University-Enterprise cooperation.

   o The staff responsible only to implement the university-enterprise cooperation activities were not identified.

   o To ensure involvement of business into the process of curricula modernisation, both universities established curricula committee.

3 In order to harmonize learning programs with the labour market needs (to meet the accreditation standards), it became a necessary condition to conclude a memorandum. Therefore, the university-enterprise cooperation in the universities participating in the research is predominantly determined by the memorandum, which is standard for both BSU and ATSU and fully corresponds with the requirements of the University-Enterprise cooperation international experience.

   o As the research revealed, only the part of the memorandums that deals with finding the students practice base and job opportunities seems to fulfil. None of other liabilities undertaken by the memorandum (like joint research, program development, etc.) is implemented at any of this universities. It should be noted that ATSU tries to elaborate short-time training courses finely tuned to the needs of the Enterprise (technological direction). In order to attract additional financial sources and being in need of them, ATSU slightly better sees the need for this cooperation and tries to improve cooperation stepwise but there is no substantial progress.

   o For those faculties where student practice is compulsory in the curriculum, it represents the main priority of the university-enterprise cooperation. The results of the research revealed that none of the parties is content with the model of practice implemented in this format including the student. The different assessment of the practice was observed in the practice arranged through personal contacts. Within the existing model, the faculty administration is
responsible to ensure the implementation of the educational process. The ineffectiveness of the practical component is determined by the following factors:

- Advantage of formal requirements;
- Performing discipline;
- Insufficient response to the information received from existing university studies

One of the forms of University-Enterprise cooperation is cooperation with the employer, which is mandatory and is conditioned by internal documentation based on the accreditation standard. In special cases, cooperation with Enterprise is mandatory as a result of the international dimension. Studies have revealed that the university sees the employer from the point of view of consumer as it is considered to be the recourse to meet the accreditation standard. The research revealed that Business is the economically affected party in the existing model of cooperation. At the same time, it has been established that there is a slight, but an interest of the Enterprise towards the university (cheap labour force, future staff, patent, innovation, research expertise, etc), but there are no relevant mechanisms and strategies for realization. Despite the existing requirements and regulations, a clear mechanism of university-entrepreneurial cooperation is not applied because there is no circulation strategy - and that's why the relationships are a bit chaotic, at first glance.

4 The research has found that graduate is the most trusted partner of the University in the field of Enterprise. Even though the university works with him as its resource, there is no mechanism for working with this resource (scheme of encouragement, constant communication). The system is conditioned only by informal liabilities. The research revealed that the most effective but informal mechanism is the relationship based on the personal relationships / interests.

5 There is no joint project, joint master's or doctoral thesis or article with the enterprise at the technological faculties participating in this research study. The research also found that there were few attempts to implement other models of cooperation, which failed due to the lack of a mechanism for cooperation.

6 The study has found that modernization of curriculum is understood differently by the different academics. Some part of it seems necessary to improve it, other considers it important to modernize it and the rest is for formal changes. This last group of academics believes it is not possible to cooperate with the enterprise due to lack of academic competences of the latter.

7 On the other hand, the Enterprise considers it useless to cooperate with the academics as they believe that the university programs never reflect real needs of theirs. It has also been revealed that individuals being on positions or having their own practice hardly focus on co-operation, modernization of programs and other processes (having considered their own competences enough to cope with such challenges). The Curriculum Committee should represent the mechanism of co-operation with entrepreneurial sphere, with regard to the upgrading of the program; however, the research revealed that the unit is at the stage of development. His activities are rather formal.

8 One of the benefits of University-Business close cooperation for the university is to conduct MA or PhD research on significant topics that might have been proposed by the Enterprise. The research has found that the current model of teaching and research (the quality and research thesis selection and assessment system, competition system) and the absence of an appropriate mechanism to get the relevant info from the practice hinder the research of the significant topics. That's why neither Enterprise nor government nor sees the practical value of the researches conducted. In this context, we also studied the significance of the research topics of the research institutions at the technological faculty. The research has found that University – The research institutes – Government cooperation is ineffective and this inefficiency is stipulated by the less flexibility (actuality, cooperation mechanism) of the parties and poor communication. The efficiency of the University is related to the commercialization of its resource (scientific potential). The low rate of commercialization of the scientific potential of the university is reflected in the significance of the applied research and practical part of the learning programs.

9 According to the international experience of the university and entrepreneurial cooperation, the modern university represents the leading centre for society to share experience and professional knowledge. The research found that the university can commercialize professional
consultation only in case of exclusive product requiring special equipment. Other consulting services are only individually implemented.

As for the research commercialization, neither academic staff, nor administration and the scientific workers have clear vision or strategy towards commercialization of the research results. The existing practice is individual; however, the university did not participate in the creation or maintenance of it. The main hindering factor to the commercialization process is the lack of knowledge/competences necessary for this process and lack of knowledge about the legislation required for the process and legislation itself. Also, there is not relevant inner documents at the university, neither is the relevant structure that would work on the research commercialization.

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