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A NEW APPROACH TO UNIVERSITY – ENTERPRISE COOPERATION MODEL: CASE OF GEORGIA

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Abstract. The graduate's employment remains the unsolved issue for the higher education graduates of Georgia. The links between higher educational institutions (HEIs) and labour market representatives are very weak. In the modern world, university–enterprise cooperation is an important instrument in promoting the graduates employability. The given paper analyses HEI's in Georgia (10 Institutions) and graduates from those. Hence, considering the research results and local environment, we elaborate new approach and design an innovative model of cooperation. The model aims to strengthen university-enterprise collaboration and stimulate graduates' employability.

The model is conventionally divided into four areas: learning process management; learning by experience; studying with science and studying with the development of entrepreneurial skills. The main goal of the model is to attract the interest of stakeholders in the labour market and increase their involvement in regard of students' employment. Hence, HEIs attract additional financial and human resources in the field of education. The model addresses the local challenges and creates strong bases for enterprise-university collaboration.

Keywords: higher education, regional labour market, university graduates labour force and employment, public-private enterprise, regions.
JEL code: R23, J21, I23, L32.

Introduction

Cooperation models between higher education and public/private sector stakeholders differ across the world. The famous models are known by researchers, as: The triple helix model of innovation (Saad & Zawdie, 2011), the model of entrepreneurial university, the model of regional innovation system, model of the "Second modality" university and etc (Maglakelidze, 2019; Samnishvili, 2017; Etzkowitz, & Leydesdorff, 1995). The models usually are based on the local need and challenges (Etzkowitz, 2010; Gelvao et al., 2019). Given the fact, the direct integration into the context of Georgia's higher education system is not relevant. Therefore, the given research makes the needs assessment between higher education graduates and labour market stakeholders. The aim of the research is to examine: (1) How the financial resources are spread between higher educational institutions; (2) Are the financial resources enough to maintain the main activities in regard to student/graduate employment; (3) What are the main challenges in terms of student/graduate employment and if the institution takes the relevant steps to address the problem; (4) Do they have particular study courses or other mechanisms to support graduates employment.

According to the research results, we design a new approach to the university-enterprise cooperation process model that will enhance HEIs to adapt local needs and change strategy/structure of study courses.

Research methodology

In the context of research, the interrelationship between higher education graduates and labour market representatives 2 (two) closely related quantitative and qualitative surveys were planned and carried out. Graduates of higher education institutions, (who have completed at least the first level of education, BA) and employers of higher education graduates from the labour market.

Surveys with employers were planned in the form of in-depth qualitative research interviews. However, given the pandemic situation in the world, a special questionnaire was developed that included open-ended

and closed-ended questions and respondents had the opportunity to express in-depth feedback on HEIs and employers. In some cases, in-depth interviews were conducted using the zoom platform.

The study includes a quantitative survey of graduates of universities and labour market stakeholders. Respondents who had completed at least the first educational level (bachelor) directly participated in the survey, and they had to be the graduates of the above-mentioned institutions. The selection of respondents was not carried out in advance, however, with the strong support of HEIs, the questionnaire was sent only to their graduates.

After the questionnaires were developed, the quality of the questionnaires was checked, and if any inconsistencies or technical errors were found, the questionnaires were edited. This approach helped us to identify any missing and/or incorrect information instantly. Questionnaires were then sent to each pilot group. Piloting was also carried out among graduates of various universities. After the piloting, the observed observations were understood and the questionnaires were distributed electronically to the target groups.

The research methodology was defined by a literature review (Tsuladze, 2020; Balnaves, 2001). Sources of various specifics, international and local literature on the employment of higher education graduates, practical studies of governmental and non-governmental organizations, reports were considered. Articles from internationally rated journals were retrieved and processed. The experience of leading scientists from different countries in relation to studies of similar specificity was analysed. Experience shows that due to the nature of the problem, complex and multifaceted research is needed. Considering the target audiences, therefore, we selected a quantitative and qualitative research method from the social research methods in order to distinguish the received and processed information with high reliability and relevance.

Research results and discussion

We sent a quantitative research questionnaire to the graduates of the higher education institutions participating in the present study. The main condition was that the respondent in the study had completed at least the first level of higher education (bachelor degree). Given these circumstances, the survey report presented is credible and relevant as the respondents already have some experience in terms of study and work or job search. The research includes the results of HEI graduates (undergraduate, graduate, doctoral) located in the regions of Georgia.

A total of 482 graduates participated in the study. Due to lack of information, 14 questionnaires were not considered valid. Accordingly, the total number obtained for analysis was 468 questionnaires.

We entered the data into a quantitative research analysis program - SPSS, prepared it for work and conducted the analysis.

The distribution of the demographic block of the respondents in the study is as follows: 27% of the respondents are men and 72% represent women. 65% of the respondents have completed a bachelor's degree program; 26.5% have a master's degree and 7.6% have a doctoral degree. 46.5% of the respondents are graduates of Economics and business education program; 21% come from the Humanities; 10% of social sciences; 8% of the Law and others.

Unfortunately, the STEM fields (science, technology, engineering, and math) were represented by a very small number of students at the region-based universities. Some of the main questions are described below.

Question: While studying at HEI, did you do an internship by your profession?

45.73% of respondents indicated that they had completed a professional internship. 35% of students indicated that they had a chance to do an internship, and 17% of graduates had completed an internship, which did not correspond to the profession.

Question: Evaluate your competencies as a result of higher education!

The number of variables in the question consists of 13 components and is based on a 5-point Likert scale, where 1 point means "very bad" and 5 points means "very good". The mean value was calculated for each component.

The results of the survey show that on a 5-point Likert scale, the mean (mean value) is distributed and varies in the range of "satisfactory" and "good" (3-4 points). As expected, respondents positively characterized the following components: Written communication skills (3.969); Theoretical training level (3.896); Analytical thinking (3.974); Decision-making ability (3.961); Ability to work in a stressful environment (3.948). The lowest mean value is assigned for knowledge of English (3.587) and knowledge of other foreign languages (3.273).

Most of the respondents do not give "good" (4 points) and "very good" (5 points) evaluations in any of the categories. On the other hand, it is alarming that English language competencies or other foreign language competencies are the least common among graduates. Given the fact that today most vacancies in Georgia require knowledge of one or two foreign languages, this factor may be one of the obstacles for the job seeker.

Table 1

Alumni satisfaction with the teaching process and infrastructure at the university

Teaching process / infrastructure factor	Minimum	Maximum	Mean
Curriculum compliance with the profession	1.0	5.0	3.723
Relevance of teaching literature and materials to the profession	1.0	5.0	3.616
The relevance of the practical part of the curriculum to the profession	1.0	5.0	3.290
Redistribution of theoretical and practical components in the program	1.0	5.0	3.370
Matching the qualifications of professors with the curriculum	1.0	5.0	3.931
Use of modern teaching methods by professors	1.0	5.0	3.543
Access to electronic materials	1.0	5.0	3.758
Availability / intensity of exchange programs	1.0	5.0	3.700
Involvement of invited teachers / field experts in the lecture process	1.0	5.0	3.468
Library	1.0	5.0	3.865
Compliance of material and technical base with the requirements of the field	1.0	5.0	3.600

Source: Results of the author's research

Question: To what extent did the education you received to meet the requirements necessary to perform your job today?

35% of respondents believe that the educational program meets the requirements of the labour market, 45% believe that the educational program partially meets the requirements of the labour market, and 11.9% believe that the educational program does not meet the requirements of the labour market. It should also be noted that educational programs currently undergo various levels of inspection, local quality services work on it, the program goes through a long accreditation process and the comments and recommendations issued by National Center for Educational Quality Enhancement are taken into account by the program coordinators. Consequently, the content of the curriculum and the non-compliance with the requirements of the labour market is an immense challenge.

Question: Have you received assistance from the career service at your university in terms of employment?

Most of the respondents (55.56%) did not receive any help from the Career Service, 14% of the respondents stated that the Career Service was opened only after they finished their studies, while 30% said that it was the Career Service that helped them find a job.

The culture of career services entered Georgian HEIs rather late. Results show career services work inactively and inefficiently in the direction of employment. It is suggested to plan effective and concrete steps in this regard to change the existing reality for future graduates.

Question: After graduation, how long did it take you to find a job?

Based on the cross-tabulation analysis, the most difficult problem for finding a job is for undergraduate students. 68.8% of undergraduate programs do not work by profession. A relatively better situation is evident in the graduates of the postgraduate education program (Master) - 61% of the respondents are professionally employed, while 38.7% - are not. If we look at the international experience, the master's program is considered as an opportunity to increase the specialization, therefore a large part of the students is professionally employed.

Regarding the doctoral educational program, most of the students choose the doctoral course based on their work experience. Respondents view the doctoral program as a promising opportunity for career advancement, therefore the job occupation determines the doctoral field and not the other way around.

Question: How do you think, what determines the career advancement in Georgia today?

32% of respondents believe that the precondition for career growth is professional experience, which will be developed by the candidate with time and education, although almost an equal number of respondents (30%) say that career growth is based on acquaintances, friends, and colleagues at the labour market.

One of the main goals of the research was to determine whether individuals' incomes increase in parallel with the years spent studying and, if so, what is the financial rate. Accordingly, we conducted a linear regression analysis that includes two variables: between the numbers of years spent on higher education and the monthly income of graduates.

It turns out that the average monthly income of the respondents surveyed by us is 933 GEL, and the average number of years spent on their studies is 4.61. That is the closest time to the bachelor's degree.

Table 2

Linear regression analysis outcome between the number of years spent on higher education and the monthly income of graduates

Descriptive Statistics			
Indicator	**Mean**	**Std. Deviation**	**N**
Income	933.524	427.1496	420
Years spent on higher education	4.61	.942	420

Source: Results of the author's research

Table 3

Pearson correlation test between income and number of years spent on higher education

Pearson Correlation	Income		1.000	.302
	Years spent on higher education		.302	1.000
Sig. (1-tailed)	Income		.	.000
	Years spent on higher education		.000	
N	Income		420	420
	Years spent on higher education		420	420
Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.302a	.091	.089	407.6943
a. Predictors: (Constant), Years spent on higher education				
b. Dependent variable: Income				
ANOVA				
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	6971691.286	1	6971691.286	41.944	.000b
Residual	69477713.476	418	166214.626		
Total	76449404.762	419			
a. Dependent variable: Income					
b. Predictors: (Constant), years spent on higher education					

Source: Results of the author's research

According to the correlation results, there is a weak correlation between years spent on higher education and income, and they do not have a strong correlation with each other (Pearson correlation .302). R2 = 9.1% explains the data obtained by us. The relationship between the two variables is statistically significant at the 5% significance level (Sig. 1-tailed <0.05).

Based on the coefficients, the income of individuals' increases slightly in parallel with the years spent on education. The range of salary increases varies from 95 GEL to 178 GEL and averages 136 GEL. Without higher education, an individual's income is set at 301 GEL on average.

Research results of employers

The main purpose of the research was to study the attitudes of organizations towards higher education institutions and their graduates (as a result).

As part of our research, semi-structured interviews with labour market representatives were planned. However, due to the pandemic situation in the world, we replaced face-to-face interviews with alternative methods. We conducted a quantitative survey questionnaire with respondents, and in some cases, we conducted interviews using *zoom* as needed.

Potential employers of higher education graduates at regional and central levels were identified as participants in the study. We obtained some information about them during the research of HEIs, and we were able to improve some of them by selecting active participants in the private sector. Different types of business companies were participated: education sector, trade, construction, hotel, restaurants, banks and financial institutes, transportation companies, communication, medical institutions, and others. We have got responses from 80 organizations.

Question: When selecting employees, are you interested in their higher educational level and academic achievement?

According to the respondents surveyed by us, 25% are interested in the applicant's academic performance and qualifications, 40% of the respondents are partially interested, and 35% are not interested in their past academic education. This means that for employers, an academic education diploma is not seen as a signal to employ graduates.

Question: As an employer, what criteria do you take into account when selecting new employees?

Representatives of companies, most of which were managers or heads of human resources, unanimously agree that they pay great attention to the evaluation of various criteria of candidates - knowledge of foreign languages (50%); a letter of recommendation (20%), and training and qualification upgrading courses (15%).

Question: How often do you apply to the University Career Service in your region to find new staff?

60% of our respondents rarely use this opportunity, and an equal number of respondents were divided into categories "often" - 20% and "never" - 20%. This analysis is very interesting, as this redistribution proves once again that HEIs and the private sector have a weak interaction of cooperation.

In the context of competency research, we have introduced competencies as a result of higher education learning that have also been assessed by HEIs and alumni.

It is very interesting to discuss these competencies from three different perspectives.

Table 4 provides information on alumni competencies that are assessed directly by alumni (pink column), from the perspective of HEIs (blue column) and employers (green column). The results show that HEIs overestimate students' competencies, followed by graduate self-assessment, and employers are more sceptical. From their perspective, the critical components are analytical thinking, English language skills, other foreign language skills, the ability to apply theoretical knowledge in practice, and time management.

Hence, 80% of employers surveyed indicate that applicants suffer from a lack of practical skills, at the same time there is a serious shortage of qualified staff in the job market, although it is not possible to balance it with graduates. Respondents agree (95%) that graduates need additional training immediately before starting a job. It is very common for the employer to provide graduates with both theoretical and practical training, as well as the development of technological skills, which means improving and refining computer programming knowledge, which is considered a basic element in the work process. For a business organization, the process is considered as time and financial costs. On the one hand, it increases the unforeseen costs of companies, on the other hand, it loses the incentive for them to seek job applicants among graduates.

Table 4

Graduates' competencies as a result of higher education (alumni; HEIs; employers)

	N (quantity)	Min.	Max.	Mean (Alumni)	Mean (HEI)	Mean (Employers)
Field knowledge	464	1.0	5.0	3.733	4.300	3.400
Level of theoretical training	460	1.0	5.0	3.896	4.400	3.940
Ability for written communication	458	1.0	5.0	3.969	3.970	3.974
Analytical thinking	458	1.0	5.0	3.974	4.200	3.230
Knowledge of English	460	1.0	5.0	3.587	3.700	2.990
Knowledge of other foreign languages	462	1.0	5.0	3.273	3.500	2.435
Knowledge of modern technologies	462	1.0	5.0	3.775	4.400	3.573
Ability to apply theoretical knowledge in practice	464	1.0	5.0	3.655	4.100	3.186
Preparation, planning, production	462	1.0	5.0	3.801	4.000	3.693
Decision-making skills	462	1.0	5.0	3.961	3.900	3.712
Ability to work in a stressful environment	458	1.0	5.0	3.948	4.200	4.000
Time management	458	1.0	5.0	3.873	4.100	3.461
Creative thinking	462	1.0	5.0	3.870	4.100	4.100

Source: Results of the author's research

Labour market stakeholders see the solution to the problem in the following:

- increase the involvement of specialists in the field in the teaching process (40%);
- increase the share of practical training in curricular (40%);
- support active involvement of employers in the curricular development process (20%).

Question: In the next 5 years, what do you think will be the main knowledge/skills/competencies that the graduates will need?

Respondents were able to select several answers from the listed criteria, the most common of which are:

- knowledge of the latest technologies;
- knowledge of foreign languages;
- knowledge of latest theoretical and practical materials;
- remote working skills etc.

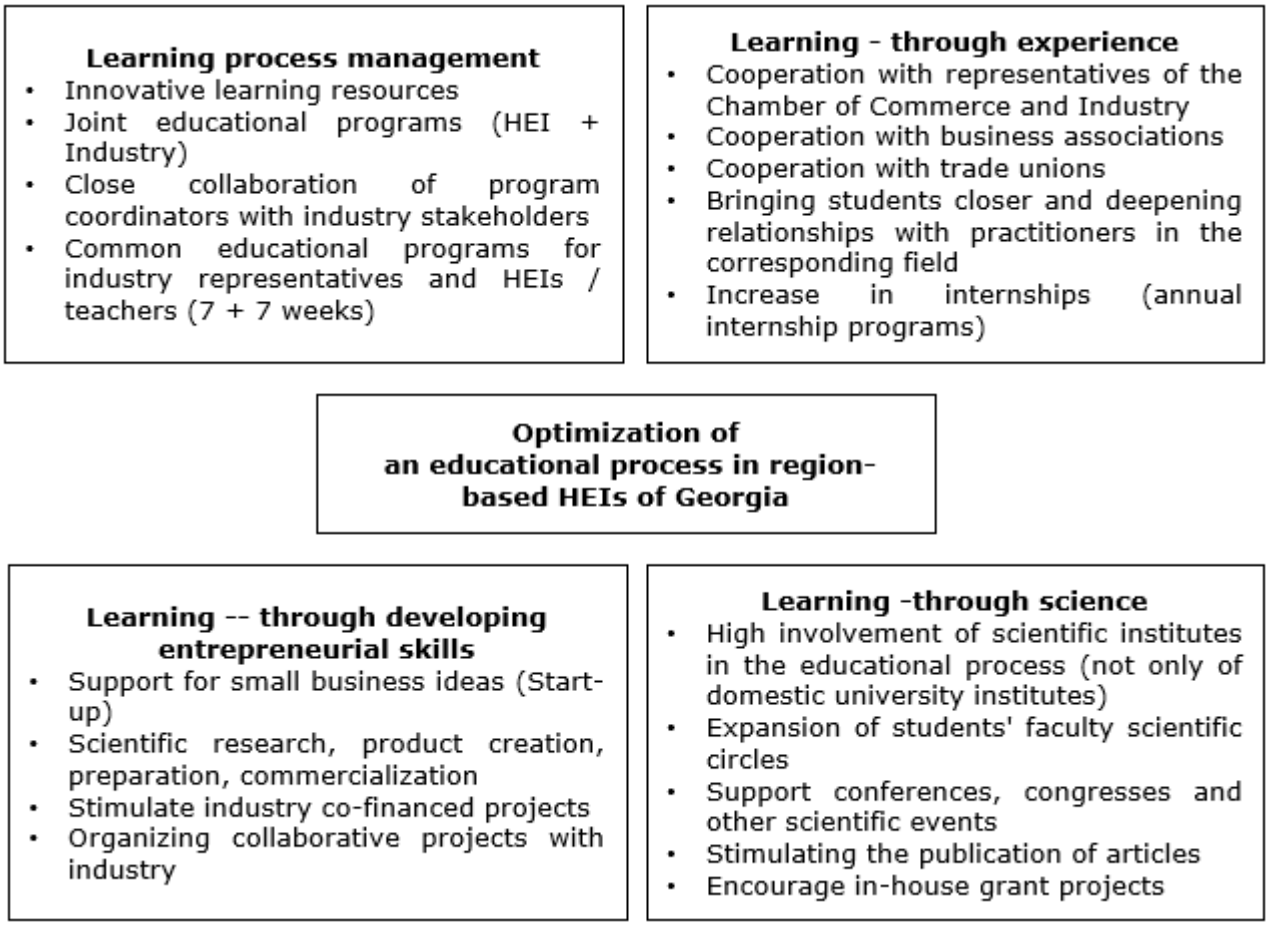
As expected, the pandemic situation in the world and in the country has left its impact. Employers today are more actively talking about the pros and cons of remote mode, though they explicitly point out that future applicants, along with other skills, will definitely need remote work skills.

Question: Is your organization's pay policy changing in parallel with the increase in the employee's educational level? (For example, he/she came to the organization with a bachelor's degree and in parallel with his/her work completed a further level - master's / doctoral).

85% of the respondent's state that the salary policy does not change according to their academic education in the organization and it is revised only if the employee changes his/her job position and/or is promoted.

The sad reality is that in Georgia, where higher education has great social importance, it is not "valued" in monetary income. The given research results have also proved it.

According to the research results, we have elaborated general framework of model, that can be considered as a successful collaboration between universities and industry. The components of the model can be adjusted according to the local needs. Justification of the components of model are described below.



Source: created by the authors

Fig. 1. **Model I: An optimization model of educational process and collaboration with labour market**

We will briefly justify each component of the model and explain its importance to the cooperation process. The model aims: to strengthen university-enterprise collaboration and stimulate graduates' employability; to encourage labour market stakeholders to increase their involvement during the students' educational process and to motivate their interest in attracting well trained and qualified higher education graduates.

The model is conventionally divided into four areas: Learning process management; Learning by experience; Studying with science and Studying with the development of entrepreneurial skills.

Accredited HEIs with educational process management have procedures for planning, developing, approving, developing and cancelling an educational program. At the same time, market research is done during the development of educational programs, on the basis of which the need for the program is determined. A working group specially set up to make the final decision conducts an employer survey to

determine the relevant competencies of the future specialist in the field. Employer surveys are conducted electronically or in hard copy. The obtained recommendations are discussed with the employers, academic and visiting staff, on the basis of which a list of competencies will be formed.

Unfortunately, this process does not mobilize innovative learning resources to develop a new educational program. In most cases, programs are built on an existing database. The rights of employers in the process of creating an educational program are weakly represented, as they are introduced only with intermediate recommendations, which are often not taken into account. It should be noted that they also have very little interest in educational programs. Moreover, the conducting a survey with questionnaire for them is often a duty but not an interest. Due to the mentioned criticism, in the presented model, we acknowledge the employers and their participation in the program development process. So, it is desirable to establish common interest educational programs, where the latest innovative-theoretical materials will be combined with professional experience and industry innovations.

The second area of the model is devoted to learning through experience. Most HEIs have memorandums of understanding with an impressive number of companies or agencies, including public sector representatives. Despite the inspiring number, HEIs work with only a small number of companies. In the context of graduate research (Tsiklashvili & Poladashvili, 2021), it has been revealed that internships are often missed in the field, are scanty with formal nature, and are not focused on developing students' practical skills.

To strengthen and promote the internship component, the model suggests a close cooperation with representatives of the Chamber of Commerce, business associations, trade unions, and other related organizations. With this approach, on the one hand, students will acquire practical knowledge and on the other hand, employers will discover new talents for their organizations.

The third area of the model focuses on scientific teaching, which involves the involvement of science and students in the educational process and their reconciliation. In the part of HEIs analysed by us (Tsiklashvili & Poladashvili, 2021), there are scientific activities that help students to plan and implement scientific research activities; however, there are very few indicators of involvement of scientific institutes in the educational processes, nor in the research. The exceptions are the natural sciences, where this issue is more or less integrated. There is a particular need for institutions to integrate into the field of social sciences, humanities, economics, and others.

We have to approach the problematic issues related to the article's publication. In this regard, the faculty budget is a challenging issue in almost all HEIs, which is reflected in its scarcity. Funding constraints lead to low involvement of the first and second-year students into co-authorship of high-impact journals. As a common practice, professors usually focus only on the faculty conferences.

According to the suggested model, the cooperation process should be supported for professors, scientific institutes, and for students to publish in high-impact journals. At the same time, the involvement of students in grant projects should become a necessary condition.

The fourth aspect of the model addresses the development of learning-entrepreneurship skills, which implies the integration of employment courses into all areas of higher education (not just the technical and economic fields). In addition, creating a kind of business incubator for mobilizing small grants for students seeking a sponsor within the HEI, will be highly appreciated.

Given that the model focuses on improving practical skills in this assessment and bringing the public/private sector closer together, there may be some limitations, risks, and threats to its implementation.

The limitation of the model is its innovation. It is necessary to introduce the model in practice, implement it in separate HEIs and objectively analyse the results obtained in dynamics. Model correction and adaptation to the local environment are expected. The model may be accompanied by financial risks, therefore full involvement of legal services in terms of cooperation with partner organizations etc. is strongly recommended.

Conclusion

We analysed the interrelationship between higher educational institutions and labour market stakeholders. The results show that there are very weak cooperation links. Therefore, the elaborated model suggests a new approach for Higher education and labour market representatives. Hence, the following recommendations for further activities have been drown by the authors:

1) strengthening of financial resources of HEIs represented in the regions of Georgia, rationalization of expenditures, and mobilization of equal financial resources in central and similar profile HEIs located in the regions;
2) initiation and implementation of entrepreneurship courses focused on employment and self-employment, to develop relevant competencies at the university (for students of all directions);
3) activation of mechanisms to facilitate the development of small grants, start-ups, and production skills;
4) supporting the compatibility with the labour market requirements of the higher education system, developing clear strategies;
5) creating new units in the structure of the university in the context of strengthening the relationship links between HEIs and labour market.

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