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"Research and Research in Practice" Teaching within Higher Education: Graduates, Employers, and Higher Education Face-to-Face to the Competitive Job Market Requirements

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Abstract. The Higher Education (HE) sector needs to reinvent itself accordingly to meet tomorrow's demand of competitive labor market requirements with modern skills and knowledge. It means it is necessary to examine various approaches required to the changes in the education process, and the job markets, that promote students' knowledge improvement to understand and respond to job markets' requirements. The HE sector must be concerned with fostering modern modes of teaching triangle (T-L-R) in the context of the modern job market requirements. The research is based on an analysis of "Research and Research in Practice" through academics, graduates, and MA students' visions and attempts to choose the main aspects that are affecting to develop of creativity and logical thinking of students in accordance with the modern labor markets and to find new educational trends by subject area of specialism with the statements/indicators. The research considers an approach to find modern higher educational trends by subject area with the statements/indicators of today's competitive job market requirements. The higher education sector needs to respond to the fast development of Information Technology (IT) and the modern job markets. Study shows visible results that the needed professional skills creation is required to adapt and transform the teaching of research by the subject's area of specialism that will form graduates' practical, logical, analytical skills and creativity. The central aspect of this approach is to be formulated as follows: responding to the modern competitive job market requirements and developing integration of competencies of "Research and Research in Practice" for the expected professional level. Research methodology considers the following steps: preparing an online questionnaire with statements/indicators for the three categories of respondents (academics, graduates, MA students), using the Likert Scale, and data processing with STATA. According to the research results, the problems and their solving for graduates' employment according to the modern job market requirements are visible that the needed

professional skills creation is the transformation of the teaching of research into the teaching "Research and Research in Practice" by the subjects area of specialism..

Keywords: Research and research in practice components; modern higher educational trends; formation specialists for the job market; integration of research components.

1. Introduction

The 21st century as the new era of the industrial age, demands and seeks a new education environment with new approaches and outcomes. The labor market demands workers with high-level technical and professional skills and qualifications associated with higher education (Mekvabidze, 2015). The problems cannot be solved without studying program transformation, as the program provides growing knowledge and professional skills (Mekvabidze, 2016). Research and research in practice include the development of the needed skills and professional experience. It can be considered an essential aspect of logical thinking formation for the job market. Graduates with a lack of job market requirements are unlikely to be considered with expectations of employment status. The research on the interrelation between higher education and employment is always in focus as "... new graduates rarely have the exact skills employers require…" (Manual Salas-Velasco, 2021). But what are the aspects of graduates' professional skills creation through teaching research and research in practice by disciplines of specialism?

For Universities, their relationship with the labor market is an important aspect. Still, the excessive number of graduates and modern job market requirements are serious reasons for the high unemployment of graduates. If graduates' employability is considered with lifelong learning, such an approach cannot form graduates' skills for the job market through higher education. A relation of the research on the chosen field of study on finding employment for university graduates is analyzed by Stojanová and Blašková (2014). In an increasingly competitive job market, students need to develop their range of personal and professional skills, such as communication, logical thinking, creativity, and practical skills. Higher education institutions have to be able to motivate students by studying research to achieve their future career options (Donnelly and Gamsu, 2019). The analysis of the transformation of education indicated some defects, and its aspects are mostly in two directions: curricula and syllabi design, which merge research components through ICT. It is impossible to assess the efficiency with which the education system has considered graduates as job seekers. Furthermore, this problem cannot be viewed without the content of research and research in practice teaching in HEIs, and the influence of research components by subjects' area on graduates (Mekvabidze, 2018).

2. Situation Analysis

The global factors affecting the demand for graduates in the job market Economic globalization has led to the creation of global labor markets for university graduates (Brown et al., 2012). The fourth industrial revolution is a range of new technologies; we can identify stages in their application to the labor market as we stand on the brink of a technological revolution that is arisen in the transformation process (Mekvabidze et al., 2019). The necessity of reforms in higher education considers technological

innovation for research. It increases the expected professional level of university graduates because Unified Information Space (UIS) can engage students in critical thinking and problem-solving in the labor market. Technological innovation has been gained in industrial production and training (Besson, 2015).

The Fourth Industrial Revolution would lead to a general increase in demand for educated labor. How does this affect the labor market? It has significantly affected the demand for high-skilled labor (Autor et al., 2017; Bloom et al., 2018; Song et al., 2019). This approach to understanding graduates helps to explain the low productivity in the workforce where graduates are not in jobs by specialism (Lauder et al., 2018). Technological innovation has been gained in industrial production and training, and the Fourth Industrial Revolution would lead to a general increase in demand for educated labor. The next step of technological impact on the labor market is the introduction of AI, which has led to a new form of "surveillance capitalism" (Zuboff, 2019).

Higher education to face-to-face the labor market requirements. The discussion about breaking the boundaries between education and the labor market is an essential problem for seriously thinking about their offer and seeing mismatch issues in the labor market. In this case, a question may be formulated: What is the relationship between research indicators studying and practice, or how can graduates be engaged in the study program that considers graduates' employment problem-solving? (Mekvabidze, 2020). For graduates, the jobs that historically they have expected mean that they will earn limited returns on their university education.

3. Problems and Statements

From a realistic point of view, in the frame of modern reforms, substantial changes have to provide the knowledge formation process. As the main components of education - Teaching -Learning - research -Research in Practice - have to be considered in the context of an integration process of developing new knowledge that might be realized by viewing the statements below according to the coordination between Higher Education and the job market requirements:

- An analysis of the knowledge formation and its direction to the right track to the requirements of the competitive job market.
- Student's outcome with its skills as needed attributes for student's carrier in prospect.

Based on these formulations, statements of the problem are acceptable to consider as follows:

1. The weak link between higher education and the modern job market requirements in the fast development of ICT (Information and Communication Technology) have to be more flexible and demandable for the transformation of education.

2. Higher Education Institutions offer students academic programs and pay less

attention to the inclusion of "Research and Research in Practice" components by subject area disciplines and the demands of the competitive job market.

4. Research Framework

In this case, modern educational reform has to help students with active engagement not only in the teaching-learning process but also in providing students' creativity and practical skills of research and research in-practice knowledge that are the main requirements of competitive job markets. It is a fact that the educational process requires changes in the conditions of rapid development of information technologies for which the indicators required by the competitive labor market should be analyzed and their implementation in the learning process. In the frame of the research, we need to draw:

The visions of academics, graduates, and MA students and what components they need to realize to be prospective participants in the competitive job markets.

The approaches of academics, graduates, and MA students how maybe transform the study program for research skills development.

Research objective. We consider, analyze, and discuss the relationship between the structure of education and the labor market requirements in accordance with their relationship with the components of "Research and Research in Practice" through the main subject area of the countries - Poland and Georgia. Instead of three aspects, our approach focuses on four elements of the sustainability of the education system "Teaching- Learning- Research-Research in Practice" to create practical knowledge by future graduates as seekers for the job market. The main attention is paid to the usage of "The Research and Research in Practice "component by studying the subject's area of specialism. *The main objective is to reveal the interrelationship between "Research and Research in Practice "teaching concerning the modern job market requirements as the main factor for developing the critical and logical skills and creativity analysis needed for the workplace.*

The tasks of the research:

1. Integration possibilities of students in "Research and Research in Practice "to develop the student's logical and critical thinking following the requirements of the competitive job market.

2. Comparative analysis of the respondents – academics, graduates, and MA students of Georgia and Poland in the context of the formation of graduates' critical thinking, creative analysis, and practical vision that helps to address socio-economic challenges by the competitive market requirements that can drive the employment and poverty reduction and social development, because the real challenges remain and some are becoming more acute.

3. Analysis of the potential of HEIs as a major issue within the relationship between Higher Education Institutions and the competitive job market requirements.

5. Research Methodology

The research methodology that matches the realization of the objectives considers the activities as follows:

1. Preparing the questionnaires with the statements/indicators as variables for academics, graduates, and MA students at the Public Universities of Georgia and Poland were spread through the internet.

2. The surveys from academics, graduates, and MA students of the Public Universities of Georgia and Poland were collected.

3. Data processing was provided for analysis and revealing the approaches of academics, graduates, and MA students accordingly to the introduction for teaching "Research and Research in Practice "by studying subjects area that is the active instruments for developing the needed skills (creativity, analyzing, logical thinking) for the competitive job market requirements. Program software STATA was used for data processing.

4. An assessment of the reliability of the questionnaire statements/indicators was measured using Cronbach's alpha.

5. Likert scale is used with 5 parameters (Strongly agree (SA), Agree (A), Neutral (N (Do not know)), Disagree (DA), Strongly Disagree (SD)).

The questionnaire survey was carried out as an online questionnaire. The total amount of respondents is 1784. By category, the respondents are as follows: 341 academics, 768 graduates, and 675 MA students.

6. Research Results

The tables below presented the results of data processing: Reliability of statements/indicators; the visions of academics, graduates, and MA students on the interrelations of the knowledge of 'Research and Research in Practice' by subject area according to the competitive job market requirements with estimates and comments

The reliability of indicators/statements in sections of the questionnaire was measured by how closely related a set of items/indicators are as a group by the internal consistency using Cranach's alpha which is considered a measure of scale reliability. As the average inter-item correlation increases, Cranach's alpha increases (holding the number of items constant). The variables with their statements/indicators of the questionnaires and results of Cranach's alpha are given in Table 1.

Table1: Reliability analysis of respondents' vision on the interrelation of their education degree by subject area according to the job market requirements in prospect

Name of variables	Variable	Number of Statements/indicators/	Cronbach's alpha
Q1	Academics' vision	10	0.8657
Q2	Graduates' vision	10	0.8657
Q3	MA students' vision	9	0.7643

Table 2: Academics' vision: Interrelation of the graduate's knowledge of 'Research and Research in Practice' by subject area according to the competitive job market requirements

Variable	Indicators/Items	Frequency				
		SA	A	N	DA	SD
Research, research in practice, and the competitive market requirements.	Transfer of research and model-building knowledge to learners may be provided through the teaching of research and research in practice	125	149	38	15	14
	Research for Model-building teaching is effective for student outcome	95	157	44	29	16
	Implementation of research teaching by the disciplines helps a student to increase critical thinking	79	170	38	44	10
	An effective strategy for knowledge formation is model-building research in teaching-learning	131	141	40	18	11
	Research in teaching is considered a transfer of practical skills	191	95	31	17	7
	Research knowledge is a basis for all students and for all graduates have to be the perspective job seekers	163	94	21	22	6
	Quality research teaching improves students' competitiveness for the job market	201	97	31	8	4
	ICT and help the student to promote practical thinking and professional skill	138	126	34	31	12
	Becoming a creative thinker is understanding your practical potential within the learning outcome and the job market	140	95	45	38	23
	The link between Higher Education and the labor market is considered global according *to the labor market requirements*	140	95	45	38	23

Table 3: A mean estimation of the academics' vision by the Likert scale in general and by the positive answers

Name	Mean	Std. Err.	[95% Conf. Interval]
SA	141.3	12.22479	113.6456 168.9544
A	122.9	9.287327	101.8906 143.9094
N	38.2	1.68523	34.38774 42.01226
DA	26	3.72976	34.38774 42.01226
SD	12.6	2.077392	7.900614 17.29939
$\overline{SA+A}$	259.2	7.669275	241.8509 276.5491
$\%(\overline{SA+A})$	76.05	2.272092	70.91017 81.18983

Comparing Table 2 and the Table 3 shows that academics, by their positive answers, 76.05% supported considering the integration of "Research and Research in Practice "in the teaching process accordingly to the modern job requirements.

Table 4: Graduates' vision: Interrelation of the graduate's knowledge of 'Research and Research in Practice' by subject area according to the competitive job market requirements

Name of the variable	Indicators	Frequency				
		SA	A	N	DA	SD
Research, research in practice, and the competitive job market requirements.	Transfer of research and model-building knowledge to learners may be provided through the teaching of research and research in practice	270	390	75	21	12
	Research for Model-building teaching is effective for student outcome	272	359	101	26	10
	Implementation of research teaching by the disciplines helps a student to increase critical thinking	320	390	48	7	8
	An effective strategy for knowledge formation is model-building research in teaching-learning	288	399	80	22	9
	Research in teaching is considered as a transfer of practical skills	331	345	75	22	5
	Research knowledge is a basis for all students and for all graduates have to be the perspective job seekers	303	370	89	9	7
	Quality research teaching improves students' competitiveness for the job market	399	279	81	9	0
	ICT and help the student to promote practical thinking and professional skill	341	295	99	19	14
	Becoming a creative thinker is understanding your practical potential within the learning outcome and the job market	324	295	108	12	9

	The link between Higher Education and the labor market is considered global according *to the labor market requirements*	395	341	21	7	4

Table 5: A mean estimation of the graduates' vision by the Likert scale in general and by the positive answers

Name	Mean	Std. Err.	[95% Conf. Interval]	
SA	324.3	14.28912	291.9758	356.6242
A	346.3	13.80101	315.08	377.52
N	77.7	8.279895	58.96958	96.43042
DA	15.4	2.305549	58.96958	96.430
SD	7.8	1.280625	4.903025	10.69697
$\overline{SA+A}$	660.6	17.52725	620.9506	700.2494
$\%(\overline{SA+A})$	86.05	2.302912	80.84045	91.25955

Comparing Tables 4 and 5 shows that graduates by their positive answers 86.05% supported considering integration of "Research and Research in Practice "in the teaching process accordingly to the modern job requirements.

Table 6: MA student's vision: Interrelation of the graduate's knowledge of 'Research and Research in Practice' by subject area according to the competitive job market requirements

Name of the variable	**Statement/ Indicator/Item**	**Frequency and %**				
		SA	**A**	**N**	**DA**	**SD**
Research, research in practice, and the competitive job market requirements.	Student needs higher qualifications, the capabilities, and skills associated with possession to obtain a job within a competitive job market	370	196	10	0	0
	All academics have to be good researchers	401	205	9	0	0
	The demand for high-skilled work means that it would be available to all those who had the resources of good education with research practice	212	285	136	26	16
	Today, technology has changed the content of the jobs, and employers simply using the possession of a graduate degree is a signal that an individual can possess the necessary capabilities and research skills	349	255	68	2	0
	Obtain research practice in the teaching process is a knowledge transfer for the job market	420	201	41	8	5
	Research and research in practice interact with the teaching of modeling, optimization, and job market requirements	375	296	4	0	0

	Research skills development has to begin from the bachelor's level	450	201	24	0	0
	Quality teaching of research is a benefit for students and graduates in the job market	390	254	28	2	1
	Research in practice is a basis for graduates to be the perspective participants for (in) competitive job markets	320	290	63	2	0

Table 7: A mean estimation of the MA students' vision by the Likert scale in general and by the positive answers

Name	Mean	Std. Err.	[95% Conf. Interval]
SA	365.2222	22.96905	312.2555 418.1889
A	242.5556	14.05654	210.1411 274.97
N	42.55556	13.95838	10.36747 74.74364
DA	4.444444	2.824059	-2.067847 10.95674
SD	2.444444	1.78038	-1.661119 6.550008
$\overline{SA+A}$	609.7	21.09031	561.9904 657.4096
%($\overline{SA+A}$)	79.388	2.745913	73.17631 85.59969

Comparing Tables 6 and 7 shows that MA students' by their positive answers, 79.388% supported considering the integration of 'Research and Research in Practice' in the teaching process accordingly to the modern job requirements. They have more careful approaches to their answers. They know that graduates' are face-to-face with the employer, and their behavior is a lesson for them, and they have to consider their steps in the experience as job seekers.

7. Conclusions

The job market requirements are the crucial components for the studying programs by the subject area. It is very sensitive for graduates who are face-to-face vs. employers and are involved as job seekers in the competitive job market. For them, the first place is improving the relationship between higher education and labor market requirements. The outcome of the research is the needed enhancing capacity of the approach of HEIs to increase research teaching according to the need for the competitive job market requirements.

The following are recommended outcomes of the research:

1. Working out the studying course of 'Research and Research in Practice' and its integration into the knowledge triangle for improving students' logical and practical skills and creativity.

2. Enhancement of sustainable ties between the universities and industry for more

effective collaboration with potential employers and graduates for increasing graduates' competitiveness in the job market.

3. Generation of an understanding between teachers and students for increasing student-centered teaching, on the one hand, and between academics and employers for understanding the need requirements of the job markets, on the other hand.

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