Mekvabidze Ruizan

Professor of Management Technology

Social Science, Business and Law Department

(Gori State Teaching University)

**THE KNOWLEDGE TRIANGLE AS A MAIN EDUCATIONAL**

**ASPECT OF FOR LEARNING OUTCOME**

**Introduction.**  The meaning of teaching and learning in education is changing continuously in line with changes in society. Higher Educational Institutions (HEIs) have to teach their students and teach them to assess what knowledge that will be needed to learn according to development in society. **This is probably critical aspect for the development of teaching and learning outcome**. It must extend the professional skills of students' and prepare them for the labor market as the fundamentally political and economic force of globalisation that impacts on higher education from point of view of market competition **[4]**. Therefore, some important elements from the university teaching and learning and research and practice, in addition, are now in a new form. It means, that the integrated educational program with the principles, practices, research and teaching assumes for sustainability at the local, regional, national and international level will be established and strengthened. Today, at the same time, according to the Bologna Process the orientation of studies in Europe tends to reach substantial improvement of a new generation learners and offers opportunities for idea development including research and the HEIs need to stay competitive and transform students’ abilities, skills, experience into knowledge. The educational components can be combined with other modules to create sustainable learning environment, which help to make teaching and learning more efficient and effective for decision making **what we have to teach and how we have to teach** [2]. **By Cristencen is suggested startegies four concepts for using in class** [1] **:**

1. Professor-student psrtnership in which both share are the responsibility of the learning process;
2. Learning community where group of discussion have to become a „learning community“ which shared values and common goals;
3. Professor-student alliance when peofessor–student relationship must be transformed in order to give the students the opportunity to take control on material;
4. The professor must develop a „dual ability“ for managing the debate process.

The analysis of important statistical data according to the real situation by students’vision is interesting, also [11]:

**1. Purposes of higher education by student’s vision:** 97% of students believed it was important to provide students with the knowledge and skills they needed to be employable, 91% agreed that the enhancement of personal development was (very or rather) important and 87% of respondents considered that the education of people to play an active role in society was an important aim of higher education;

**2. Post-graduation plans by student’s vision:**Three-quarters of students working towards a first cycle (Bachelor) degree said they wanted to continue their studies -either to a second cycle (Masters programme) or to find work and resume their studies later on a part-time basis (75%).

Literature review shows a direct causal relationship between high performance teaching and student achievement. This approach examines the integration teaching and learning components and determining how they best work together to learning outcome. Into this direction, research methods have four major using: describing social reality; testing hypotheses about theory; forecasting of future activity and decision making. These factors stimulate an interest in a scientific approach to decision making. Educational system have to be responsible to learning outcome to meet growing demand for higher skills levels that focuses on educational reforms. In fact, **it means more strong and stable partnership of teaching-learning processes with the new approaches and methodologies** [12].

Current thinking about student’s learning outcome of the 21st century is based on involving of the research elements more intensively and to integrate them in the educational process. The academics’ must begin to study collaboration in strong settings because student has to master both basic and applied skills and focus them to problem solving and **decision making**. The thinking includes [8,10]:

**a/** consideration and provision an analysis of the current teaching-learning-research (T-L-R) conditions at HE universities;

**b/** suggestion a strategy and implementation main principals of learning outcome through integration teaching and learning, information technologies and research design;

**c/** Necessity to implement them in HE universities.

Today, we are far from the idea that we can create a real learning environment in HE schools as this is the problem with the number 1, but we can change some of characteristics in to the positive direction inside it for improving student’s learning outcome, by achieving to increase the main characteristics of knowledge based society on the basis of T-L-R [5,6,10]:

* Student’s motivation in education;
* Student’s competitiveness;
* Effectiveness of the global universities, open universities and distance education networks for transformation of education for providing new reforms.

The 21st century demands and seeks a new environment of HE activities through new educational reforms. Research led teaching and learning to initiatives to bring the T-L functions by disciplinary based research, as research is the issue facing professionals today and no doubt, that understanding of the research process integrated with T-L is essential characteristics of HE. It can be expressed as [3,7]:

* Benefits of students and staff;
* Knowledge development;
* Activities for sustainaibility Higher Education Environment (HEE).

In result, by the modern point of view, a creation of the HEE may be considered as a new teaching methodology and the T-L-R triangle will be as a research-based form of this methodology. This form involves students learn the research process, teaching process of learning outcome and knowledge construction in the subject by which knowledge would be achieved. As a triangle T-L-R creates a new studying environment and ocupies between theory and HEE issues, it has to answer on the questions that are connected with new HE activities design and constructions [12]. **This approach sets the new role of the HE and it becomes a new key player between teacher and student and this partnership generates an innovation approach which is suited to the needs of knowledge society and knowledge based economy.**

**1.1 Student's Role in the Production of Learning Outcome.** Higher education reform is a fact of life. Global economic restructuring and fast Information and Communication Technology (ICT) development are reforming all of HEIs. In this situation, sustainability HEE is a social reform movement that is seeking to change the way we learn and conduct our professional and civic lives. Therefore, it could and should be a driving force within higher education reform, but in order to establish such a role, it must extend the students’ professional skills and prepare them for labor market as well as our teachers, also. For promoting student achievement, supporting and building a solid organizational structure at Universities have to solve the main tasks according to keep principles for creation educational frameworks, materials, processes and learning environments that enable effective learning experiences for responsible competitive labor market [9]. Accordingly with this issue, student’s engagement has enjoyed considerable attention in the literature since the mid of 1990s. Following on, from ‘the student experience’ and ‘teaching’ before it, ‘student engagement’ has become the latest focus of attention among those aiming to enhance learning and teaching in higher education. It is not difficult to understand why: by the literature has established correlations between student involvement in a subset of ‘educationally purposive activities’, and positive outcomes of student success and development, including academic achievement and social engagement [1,4].

**Problem statement.** Within these above context we needto evaluatethe scheme of the concept of teaching and learning for learning outcome by the main indicators for students competences formation in the university according to the competitive market requirements:

* To seek for opportunities to engage students as possible in dialogue to reinforce their connectedness and intention about the purpose and meaning of their activities for learning outcome through teaching and research;
* To encourage students to coordinate their actions with the academics;
* To attempt to research the better understanding of the relationship and communication between teachers and students.

**Research methodology.** We determine collaborative approaches for the shaping of learning outcomes through teaching, learning and research. The research was provided in Gori State Teaching University and tested in the Vilnius Gediminas Technical University. In the framework of research was included:

• Preparing two questionnaires for teachers and for students separately with varius number of questions for students for teachers, separatelly.Score for each question =10 Among them are the questions on:

a/ Motivation of the teachers to be as a producer of the student’s learning outcome;

b/The reasons why students can interested to participate in the study programme and want to create his/her learning outcome;

• Calculating the sample size needed to estimate the indicators of the process;

• Collecting data by questionnaires according to the sample size;

**•** Data processing;

* Findings, analysis and Discussion;
* New design approaches.

**Methodological Approach:**

1. Study curricula and technical aspects of design with requirements for learning for new learning environment;
2. Research building issues;
3. Students’ involvement in assessment.

**Research framework.** Based on the theories reviewed from the literature and modified to suit the study for the university level, the research framework designed for the triangle (T-L-R) for creation learning outcome are presented by the table1 below.

|  |
| --- |
| **Table1. Consideration of the concepts for formation of learning outcome by the main indicators according to the competitive market requirements** |
| **Learning interact with teaching** |
| **Student-focused teaching** as the most effective for student’s learning process |
| **Research into teaching** as an effective strategy and way of benefit of student learning for learning outcome |
| **Student’s learning outcome** as a result through teaching, transfer process and research |
| **Research into teaching as a transfer process for learning outcome** |
| **Learning outcome through teaching, seminars, workshops, conferences and project-based work** |
| **Learning outcome should flow from teaching to research** |
| **Critical thinking on teaching reform** through research as stimulator students’ to provide them for learning and learning outcome |

Sample size was calculated by using the Taro Yamane formula (A case of finite population): n= N/[1+N(e)\*2]

Where: n - sample size; N - population size; e - the acceptable sampling error.

The response options into second stage are: Strongly agree (SA), Agree (A), Neutral (N), Disagree (DA), Strongly Disagree (SD).The tests were carried out at the 0.05 level of significance. The reliability of items in second section of the questionnaire was measured by Cronbach’s alpha. The results are given in the table2 below.

**Table2. Reliability analysis of the variables**

|  |  |  |  |
| --- | --- | --- | --- |
| # | Variables | Number of Items | Alpha |
| 1 | Teaching | 6 | 0.85 |
| 2 | Learning | 7 | 0.84 |
| 3 | Research | 9 | 0.70 |

**Findings.** Demographic information of respondents is given in the table 3.

**Table 3. Demographic information**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Classification | Number | % |
| Gender | F  M | 101  86 | 54.01  45.99 |
|  |  | 187 | 100 |
| HE qualification | BA (3rd and 4th year)  MA  PhD | 65  35  6 | 34.75  18.72  3.21 |
| Status | Teacher  Ass. Professor  Professor | 27  34  20 | 14.44  18.18  10.70 |
| Institution type | Public | 187 | 100 |
| Teaching experience | Above 20 years  15-20 years  11-15 years  5-10 years  Under 5 years | 12  18  19  15  17 | 14.81  22.22  23.46  18.52  20.99 |

An independent sample t-test was carried out on the data. The mean values of learning outcome behavior of academics and students are closely related. The results are given in the tables 4.

**Table 4. Group statistics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Type | N | Mean | Std. Deviation | Std. Error mean |
| Learning outcome | Academics | 81 | 4.94 | 0.8119 | 0.0591 |
| Students | 106 | 4.91 | 0.8367 | 0.0683 |

**Analysis of research results.** Analysis of indicators of learning outcome was used to explore the degree of consensus on the indicators of each variable (teaching, learning, research). Review of the statements of indicators related to the teaching of academics and students shows that in general most academics and students have a positive **Learning Outcome** and more:

* **Teaching interact with research – 65.64%**
* **Student-focused teaching as the most effective for students’learning process - 69,25%**
* **Research into teaching as an effective strategy and an effective way for Learning outcome -73.54%**
* **Research into teaching as a transfer process for learning outcome – 68.78%**
* **Learning outcome may be provided through teaching, seminars, workshops, conferences and project-based work - 80.15%**
* **Learning outcome with respect to teaching- research –learning link - 69.11%**
* **Learning outcome is formed from teaching to research – 66.07%**
* **Student’s learning outcome as a result through teaching, transfer process and research – 75.05%**
* **Critical thinking on teaching is formed through research as student’s stimulator to provide them for learning and learning outcome -72,21%**

According to the indicators and the questions by questionnaires to teachers and students we have the results in the tables 5,6,7:

Table 5. Academics and students according to learning outcome through teaching analysis by the teaching indicators (N=187)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Indicators | Frequency,% | | | | |
| SA | A | N | DA | SD |
| **TEACHING**  **Towards Learning**  **outcome** | Effective strategy for learning outcome: research into teaching | 70 | 55 | 44 | 12 | 6 |
| Research into teaching as a learning outcome process | 71 | 68 | 46 | 2 | 0 |
| Teaching through seminars, workshops, conferences and project-based work is a basis of learning outcome | 63 | 75 | 49 | 0 | 0 |
| Learning outcome is a link of research and teaching | 59 | 78 | 45 | 4 | 1 |
| Teaching interact with learning and research | 79 | 72 | 35 | 1 | 0 |
| Learning outcome should flow from teaching to research | 64 | 78 | 44 | 1 | 0 |

Table 6. Academics and students according to learning outcome through learnind process analysis by learning indicators (N=187)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Indicators | Frequency,% | | | | |
| SA | A | N | DA | SD |
| **LEARNING**  **Towards Learning**  **outcome** | Critical thinking stimulate students’ to provide them for learning and learning outcome | 70 | 83 | 28 | 4 | 3 |
| Student-focused teaching is suggested by many pedagogical researchers as the most effective for student’s learning process | 78 | 67 | 37 | 5 | 0 |
| Learning outcome for learners may be provided through teaching, seminars, workshops, conferences and project-based work | 81 | 78 | 26 | 2 | 0 |
| The learning outcome is a link with respect to research- teaching –learning | 69 | 68 | 46 | 2 | 2 |
| learning interact with teaching and research | 77 | 65 | 45 | 0 | 0 |
| Research improve quality of university teaching and learning | 57 | 81 | 46 | 2 | 1 |

Table 7. Academics and students according to learning outcome through learning process analysis by learning indicators (N=187)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable | Indicators | Frequency,% | | | | |
| SA | A | N | DA | SD |
| **RESEARCH**  **Towards Learning**  **outcome** | Research into teaching is an effective strategy for learning outcome | 67 | 63 | 39 | 11 | 7 |
| Research into teaching as a learning outcome transfer process | 85 | 60 | 39 | 7 | 0 |
| A movement of learning outcome may be provided through teaching, seminars, workshops, conferences and project-based work | 79 | 76 | 25 | 4 | 3 |
| learning outcome views with respect to research and teaching link | 61 | 78 | 45 | 3 | 0 |
| Research interact with teaching | 68 | 71 | 39 | 8 | 1 |
| All academics have to be good researchers | 35 | 67 | 80 | 3 | 2 |
| Research improve quality of university teaching and learning and learning outcome | 61 | 82 | 36 | 5 | 3 |
| Research into teaching should not be a separate process | 31 | 69 | 59 | 19 | 9 |
| Research as a generator of learning outcome | 65 | 81 | 33 | 6 | 2 |

**Discussion and new design approaches.** These components take part in the learning outcome management process. It means that modern educational reforms have to promote increasing of a basis learning outcome because it must be linked with the market requirements. These approaches can be concidered as the indicators below:

1. Student-centered approach (pedagogy, curricula and related matters);
2. Teaching, learning and research should drive curricula design

Today, the labour market sets high demands on the kind of skills that graduates need to possess. Not every skill can easily be developed in HE. There are two main issues underlying the decision whether a skill should be developed in HE:

**a/General academic skills and professional expertise that should be the main focus or goal of HE;**

**b/Strategic/ Innovative/creative skills.**

The main reason is that HE is not the most effective developer of these skills since it should be acquired through practice. The world is changing and the graduates have to develop ideas to meet those changes.

**References**

[1. Alina Michaela Dima. Handbook of Research on Trends in European Higher Education Convergence. Information Science Reference. ISBN: 978-1-4666-6001-4. An Imprint of IGI Global.](https://www.amazon.com/Handbook-Research-European-Education-Convergence/dp/146665998X/ref=sr_1_1?s=books&ie=UTF8&qid=1474870675&sr=1-1&keywords=Handbook+of+Research+on+Trends+in+European+Higher+Education+Convergence)  2014. P. 328

2. Amy Scott Metcalfe, Tara Fenwick. Knowledge for whose society? Knowledge production, higher education, and federal policy in Canada. High Education 57:209–225 DOI 10.1007/s10734-008-9142-4 (Published online: Springer Science+Business Media B.V. 2008)

3. Astin,A.W. Student Involvement: A Developmental Theory for Higher Education. Journal of College Student Development. 1999, vol. 40, #5, P. 518-529 .

4. Gerard van de Watering, David Gijbets, Filip Dochy, Janine van der Rijt. Student’s assessment preferences, perceptions of assessment and their relationship to study results. *Journal Higher Education*. 2008. P. 645-658. DOI 10.1007/s107.34-008-9116-6.

5.Markwell, D. The Challenge of Student Engagement . Keynote address at the Teaching and Learning Forum. University of Western Australia, 30–31 January, 2007. <http://www.catlyst.catl.uwa.edu.au/__data/page/174588/Page_6-15_from_CATLyst.pdf>

6. Martin Oliver, Natasha Whiteman. Engaging with the research methods curriculum. Journal *Reflecting Education*, UCL Institute of Education. ISSN 1746-9082. Vol. 4, No. 1, 2008. P. 63-71

7. Mary McCormick, Angela R. Bielefeldt, Christopher W. Swan, Kurtis G. Paterson. "Assessing students’ motivation to engage in sustainable engineering", International Journal of Sustainability in Higher Education,ISSN:1467-6370. Vol. 16, issue 2, 2015 P. 136 - 154. <http://dx.doi.org/10.1108/IJSHE-06-2013-0054>

8. Mekvabidze R. Thinking about learning environment of the 21th century. 5th international conference on education and new learning technologies. Conference Proceeding. ISBN: 978-84-616-3822-2. Barcelona,1-3 July, 2013. P. 4972-4980

9. Mekvabidze R., Duruli Ts. In the Frame of the Educational Reforms in Georgia: In pursuit of Sustainable Learning Environment. International Conference “ The Future of Education”(Abstract). 16-17 June, 2011. Florence, Italy. <http://www.pixel-online.net/edu_future/acceptedabstracts.php> „Innovative Teaching and Learning Methodologies“.

10. Mekvabidze R. Teaching Tomorrow-Today: Knowledge as an integration of Teaching-Learning-Research.10th International Silk Road Conference on EU Association Agreement: Perspectives and Challenges. Proccedings. ISSN: 1512-2548. UDK: 378.4(479.22)(063). 2015. P. 71-79.

11. <http://ec.europa.eu/education/higher-education/doc/studies/barometersum_en.pdf>

## 12. <http://ec.europa.eu/education/policy/strategic-framework_en>

Mekvabidze Ruizan.The knowledge triangle as a main educational aspect for learning outcome. **Annotation**

## The paper describes development the main aspects of knowledge triangle (Teaching-Learning-Research) and approach categories to learning outcome at the higher education institutions and follows student's engagement for learning outcome, explores theoretical and practical initiatives, seeks to draw attention to the student as a consumer in the model of higher education, develops understanding of statement of the learning outcomes on the experimental basis at Gori State Teaching University.

## Key words: Teaching, learning, research, learning outcome, decision making

Mekvabidze Ruizan.The knowledge triangle as a main educational aspect for learning outcome.  **Abstract**

According to the Bologna process the orientation of studies in Europe tends to reach substantial improvement of a new generation learners and offers opportunities for idea development including research. Teaching as a main category of education and the tea-cher as a central figure for creation student’s knowledge through learning outcome have to develop research aspects with decision making in itself.The paper attempts to answer the questions:

* What are the aspects and indicators of learning outcome?
* Is the student motivated for learning outcome in the frame of new educational reforms?
* How can develop relationship between the teacher and student as they are the main players in formation of learning outcome?

## Key words: Learning outcome, teaching, learning, research, educational reforms, market requirements.