ERASMUS+ CBHE PROJECT # 585760-EPP-1-2017-1-AM-EPPKA2-CBHE-JP

"CHANGE IN CLASSROOM: PROMOTING INNOVATIVE TEACHING & LEARNING TO ENHANCE STUDENT LEARNING EXPERIENCE IN EASTERN PARTNERSHIP COUNTRIES", PRINTeL

GEORGIAN TECHNICAL UNIVERSITY (GTU)

NEEDS ANALYSIS REPORT

Results of the Surveys on Teaching Staff Development Needs Assessment and Student Learning Needs Assessment

TBILISI 2018

CONTENTS

Introduction

Within the framework of the EU ERASMUS + PRINTeL project, for the purpose of realization of Activity 1.2 need development of Need Analysis of the "PRINTeL" project two questionnaires - **1)"Teaching staff professional development needs assessment"** and **2) "Student learning needs assessment"** - were conducted at Georgian Technical University. The purposes of these questionnaires consisted in the collection of corresponding information concerning teaching and learning methods applied in GTU and their support with technological means, and in the exploration of teachers and learners' needs for innovative methods and technological means in the fields of application.

The aim of the online survey forms is to introduce innovative and technology enhanced learning and teaching methods at GTU, as well as state-of-art facilities and technological tools.

Each of the questionnaires included eight sections.

"Teaching staff professional development needs assessment"and **"Student learning needs assessment"** questionnaires consisted of the following sections:

Section	"Teaching staff professional development needs assessment" questionnaire	Section	Student learning needs assessment" questionnaire
1.	General information	1.	General information
2.	Teaching styles and pedagogical approaches used in class	2.	Teaching styles and approaches in class
3.	Learning styles and approaches	3.	Learning styles and approaches
4.	Assessment methods and approaches	4.	Assessment methods and approaches
5.	Use of technology, e-teaching & social media for teaching and support of learning	5.	Use of technology, e-learning & social media for supporting learning
6.	Facilities to support teaching	6.	Facilities to support student learning
7.	Teaching materials	7.	Learning materials
8.	Teachers' comments and recommendations	8.	Students' comments and recommendations

The questionnaires were created with the help of Google formsthat enabled the online conduction of the Polls. In April, 2018, the online questionnaires were delivered to GTU

teachers and students for the aim of obtaining their feedback. The reception of responses was ceased on the 31th of May, 2018. The results were worked out on during May, 2018.

The methodology of analyzing the data obtained from Sections 2-7 is described below:

The survey data were imported from the Google Form and interpreted in a format suitable for quantitative analysis. To compare the results of the survey with similar data from other universities, the data were presented in the reduced form, and these processing was carried out using the Microsoft Excel graphical toolkit.

In the table below, the weighting coefficients of the degree of relevance of the options selected are presented. For the «Currently Used» option the weighting coefficient is assumed to be 3.

Table of Interpretation of Survey Questions in Scores:

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1.	*High need or Highly effective*	*4*
2.	*Medium need or Partially effective*	*3*
3.	*Low need or Less effective*	*2*
4.	*No need or Not effective*	*0*
5.	*Currently Used*	*3*

The quantitative and qualitative analysis of the worked out data is represented in the present report. The questionnaires are attached to the present report.

Section 1. General Information

Taking into account the quantitative differences of the teaching staff and the students of the participating in the project universities, the minimum indicators of the respondents in both categories were established.

University	Minimum responses of the students	Minimum responses of the teaching staff
GTU	60	30

The online questionnaires have been sent to around 300 teachers and about 1500 students of GTU. 35teachers and 87 students completed online survey forms. 82.9 % of the participating teachers working on full-time and 17.1 - on part-time basis (Figure 1.1).

37.1% of the teachers who completed the questionnaire are lecturers, 25.7% - Assistant Professors, 22.9% - Associate Professors and 14.3% - Professors (Figure 1.2).

1.1. Are you a full time faculty member?
35 responses

- Yes
- No

17.1%

82.9%
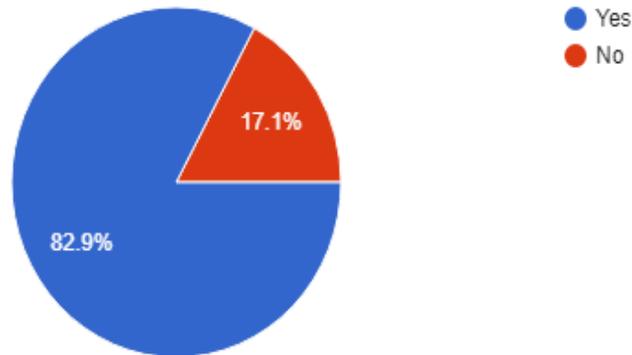
Figure 1.1.

1.2. What is your title at your university?

35 responses

Legend:
- ● Instructor
- ● Lecturer
- ● Assistant Professor
- ● Associate Professor
- ● Full Professor

Values: 22.9%, 14.3%, 25.7%, 37.1%
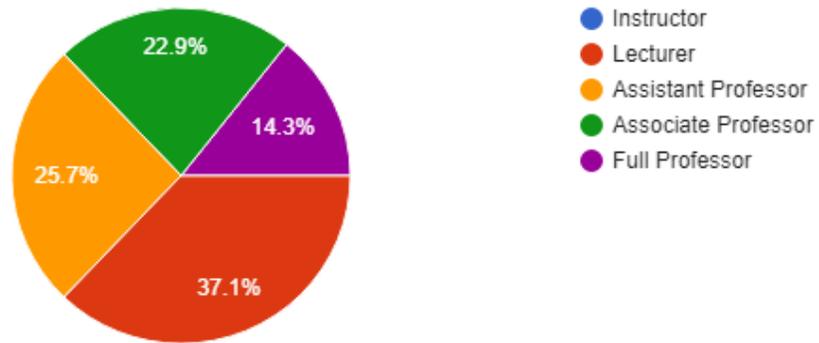
Figure 1.2.

1.3. Please select your age group from the following:

35 responses

Legend:
- ● 20-29
- ● 30-39
- ● 40-49
- ● 50-59
- ● Over 60

Values: 20%, 8.6%, 31.4%, 31.4%
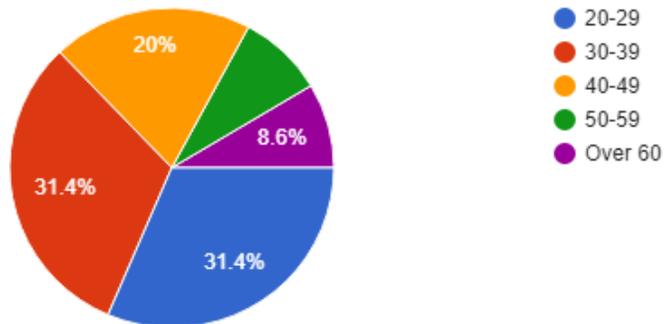
Figure 1.3.

1.4. Please state your gender:

35 responses
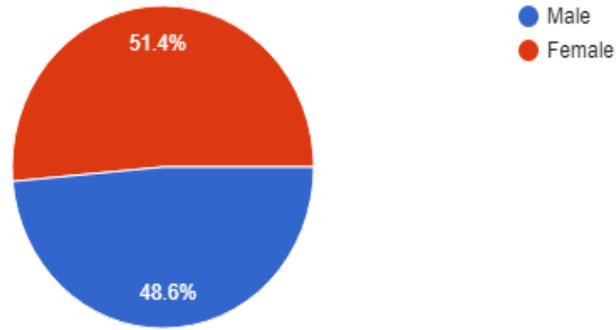
Figure 1.4.

The following is information about students:

1.2. Student educational level

87 responses
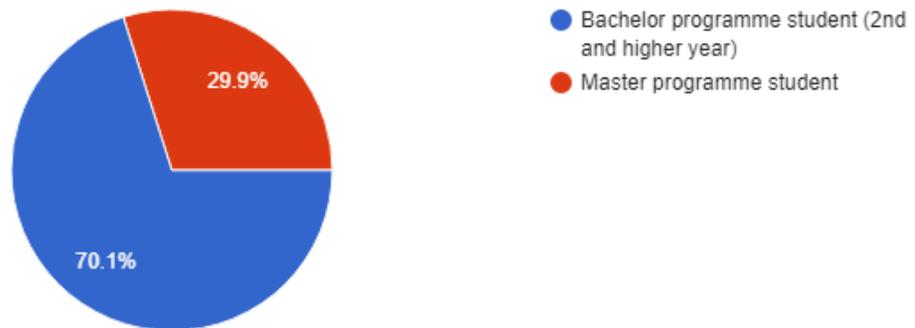
Figure 1.5.

Students Gender

1.3. Gender
87 responses
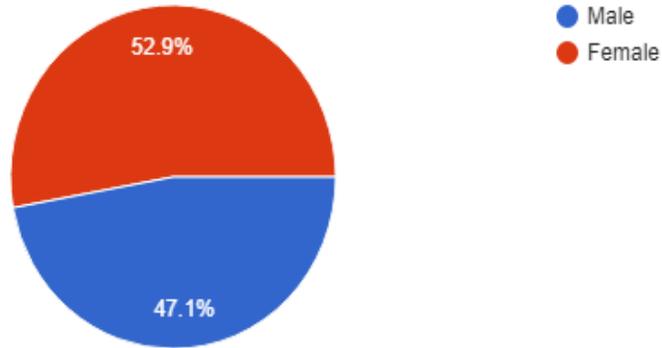
Section 2. Teaching Styles and Pedagogical Approaches

According to the survey results designed for teachers, such teaching styles and pedagogical approaches as "Traditional lecturing", "Seminars", "Laboratory Works", "Project Based earning", "Discussions/debates", "Experience Based Teaching" are the most popular at GTU at present (Figure 2.1).
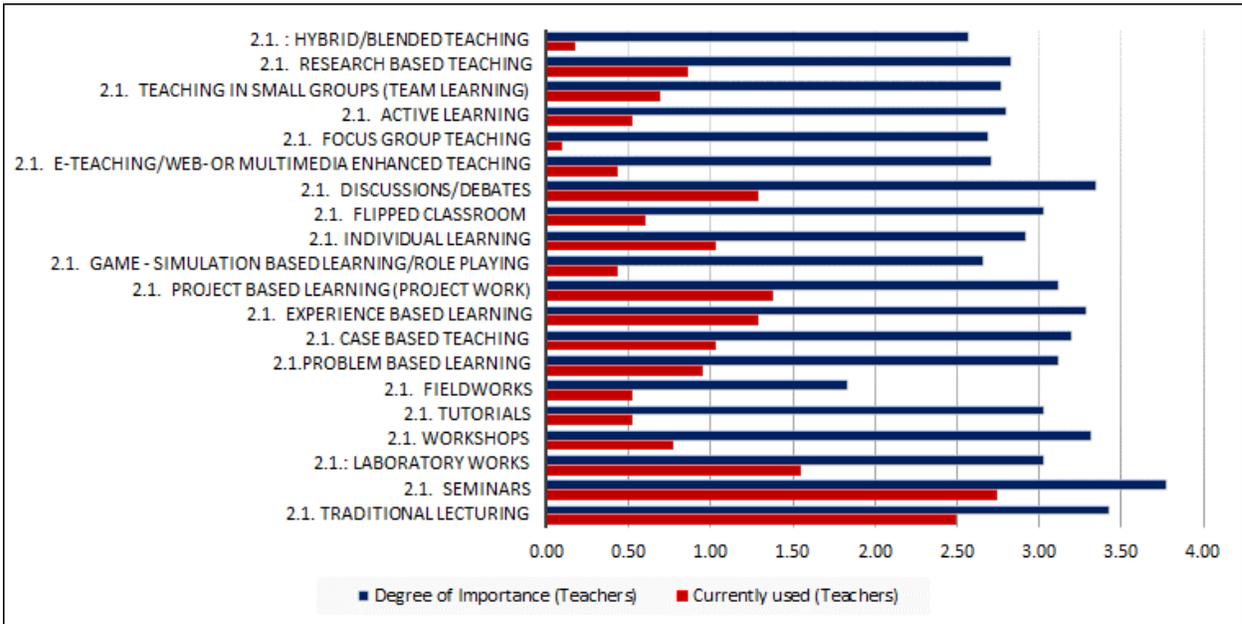

Figure 2.1.
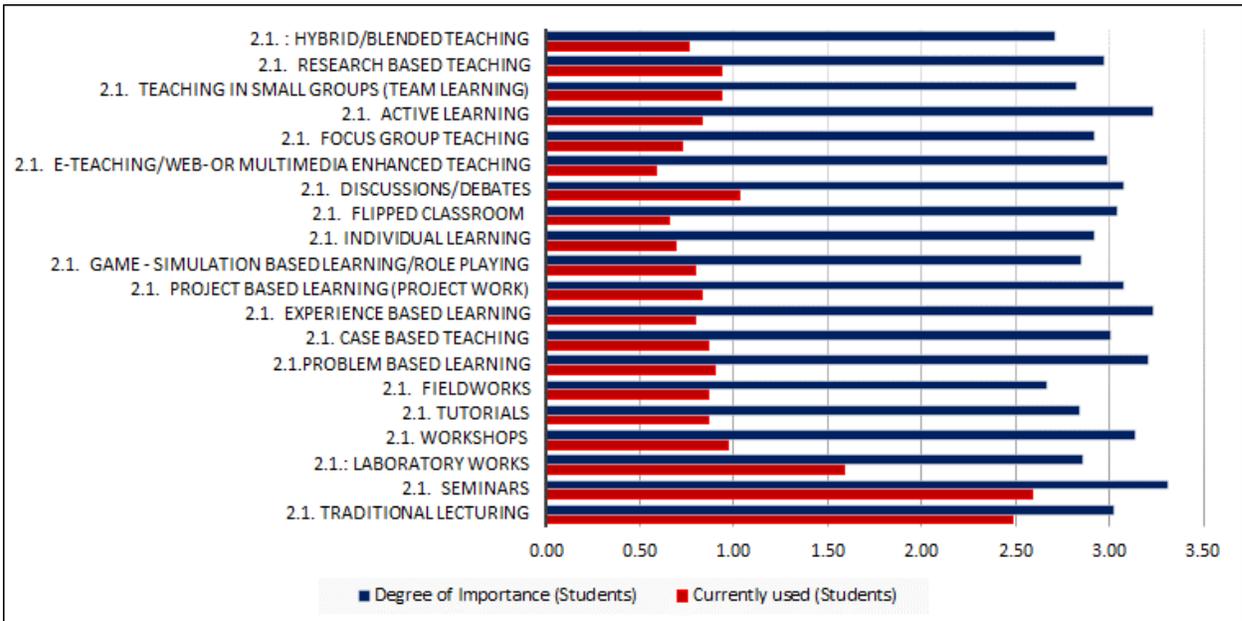
Figure 2.2.

Comparison of the data (in the modified units) according to the style of teaching, proceeding from the level of need, without taking into account the degree of their use, is presented on the radar chart, which is characterized by comparatively greater visibility of the displayed data and convenience of analysis. The diagram clearly tracks the coinciding peaks and troughs, reflecting a certain consensus among the teaching staff and the students on this point of the survey.
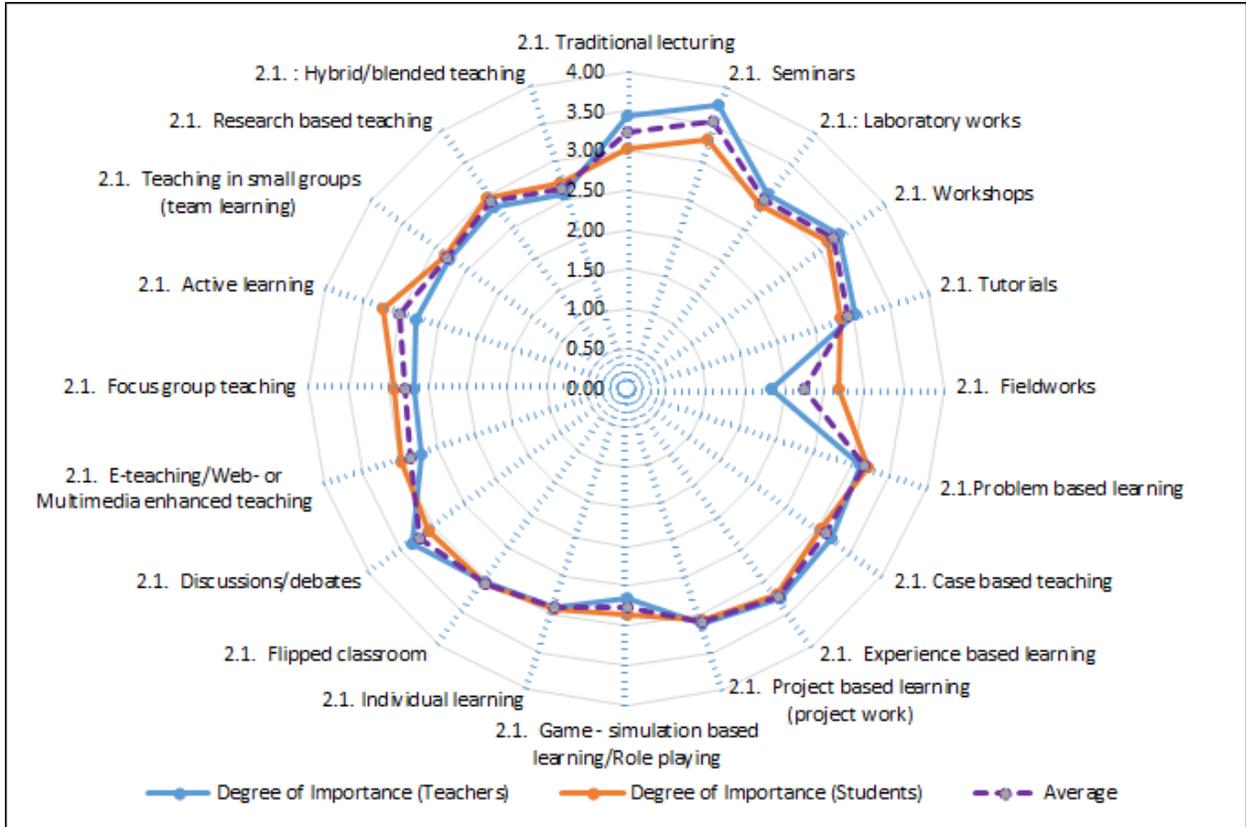

Figure 2.3.

The methods that are rated as more effective or demanded by the teaching staff and students as relative comparison is determined according to the method described above. The results are presented in diagrams 2.4 and 2.5.

Top 20 % (Teachers)

**Figure 2.4.**

Top 20 % (Students)
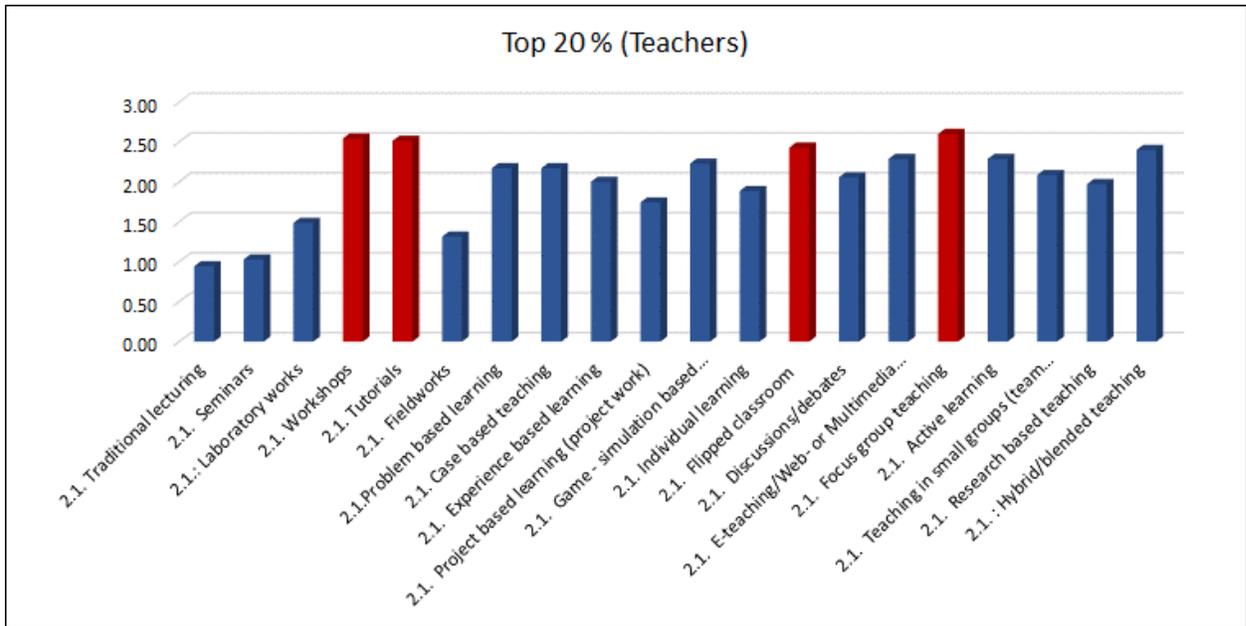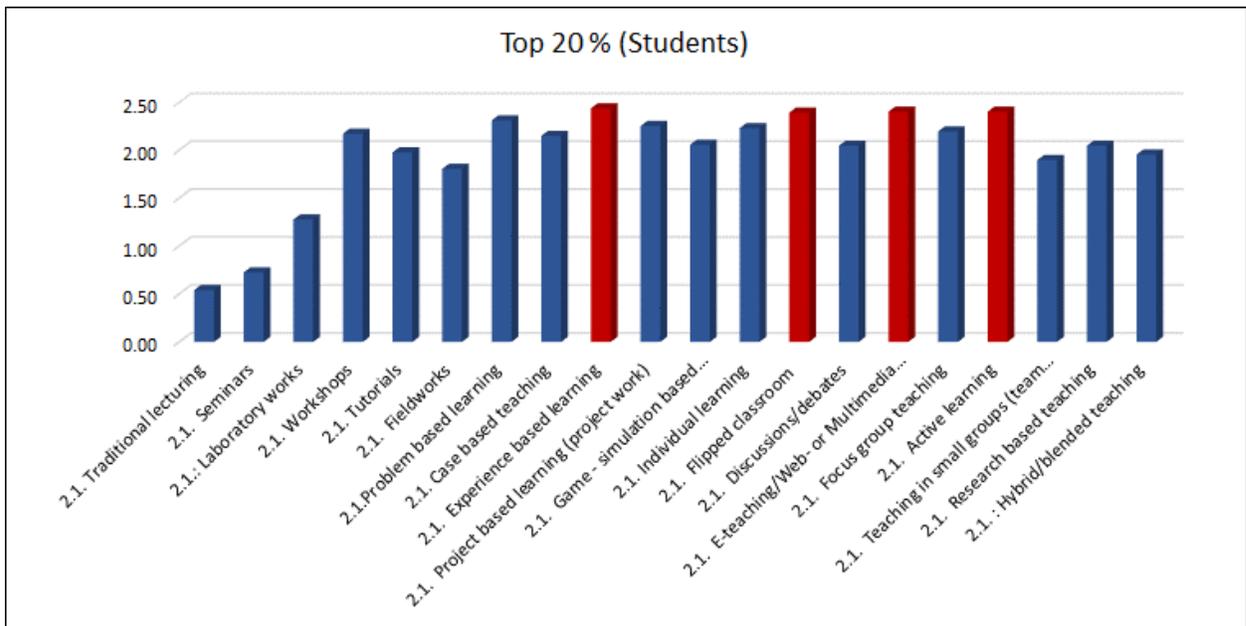
Figure 2.5.

Summing up the Section 2 the following "local conclusions" can be done. The most important areas for which it is desirable to gain training and which is desirable to use (to improve), the teaching staff consider "Workshops","Focus group teaching", "Flipped classroom", "Hybrid/blended teaching". Meanwhile, emphasizing the importance of the "Game simulation based", "Problem based learning method", students are extremely interested in studying

in"Experience based learning", "Flipped classroom", "Active Learning", "E-teaching / Web- or Multimedia enhanced","Teachingsmall groups / teams", undergoing "Individual training", "Workshops"and also learning with the use of "Focus group teaching".

Section 3: Learning Styles and Approaches

In this Section the answers of the teaching staff and students onthe proposed teaching styles currently used in the university are presented in diagrams 3.1 and 3.2. Both groups of respondents are recognized as the most used styles "Doing a project","Attending lectures and taking notes" and "Reading text book". The teaching staff adds to them "Reading an article on the web" and the students - "Receivingpersonal feedback from teachers". The last style of learning for the teaching staff did not reach the Top 20% but scored a lot of points.
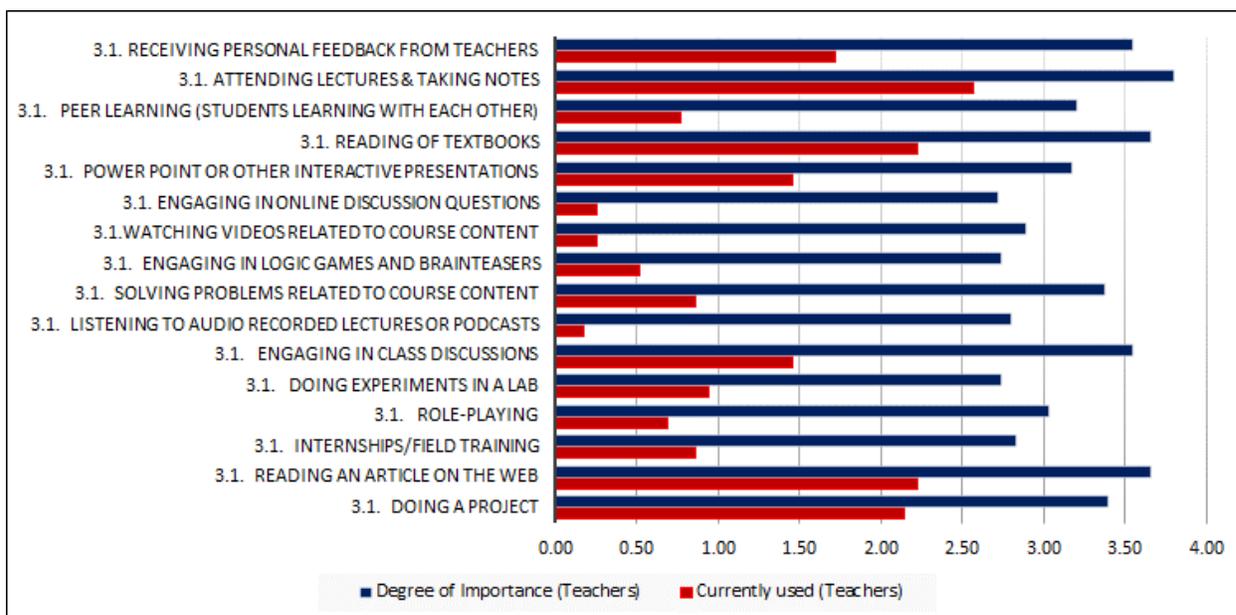

Figure 3.1.
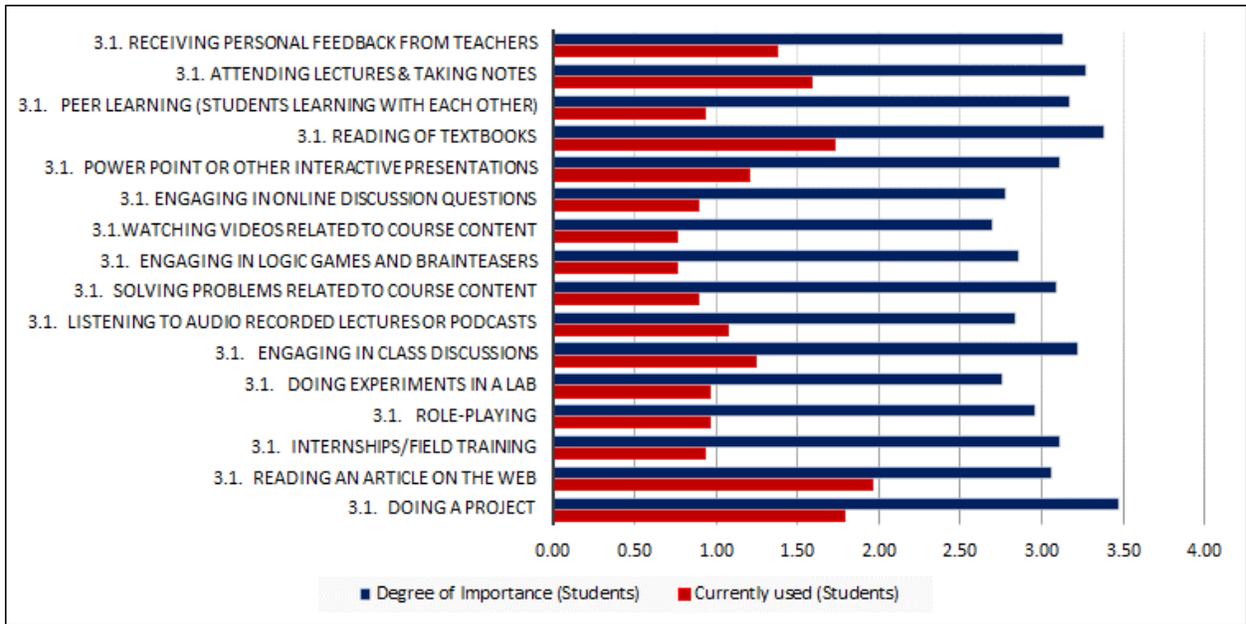
Figure 3.2.

The comparison of the learning styles / approaches of the teaching staff and students in terms of the rate is reflected on diagram 3.3 which, like the corresponding diagram of the previous Section, it is practically the same for both categories of survey responds.
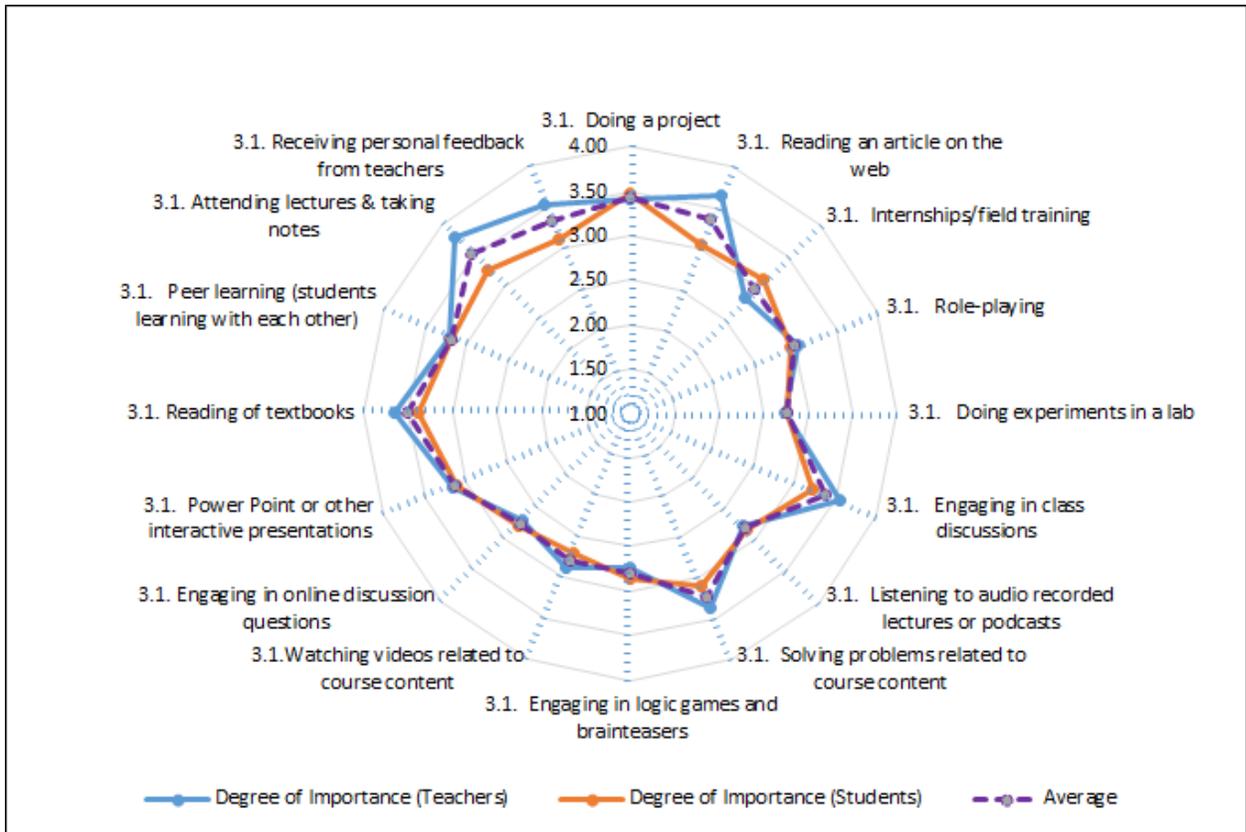
Figure 3.3.
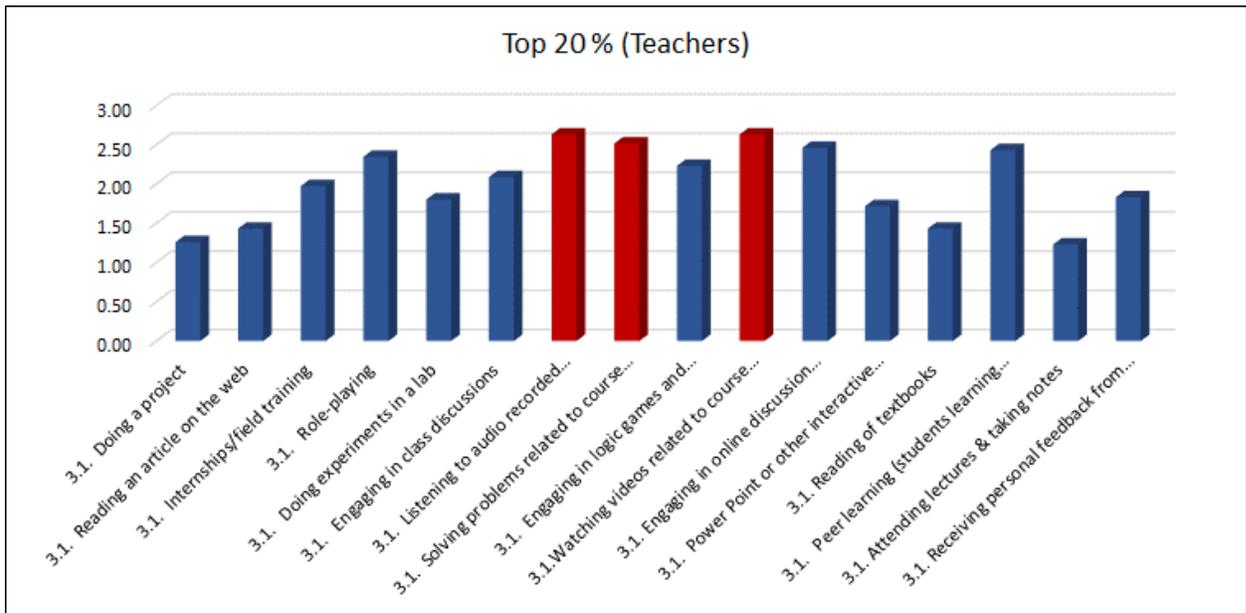

Figure 3.4.
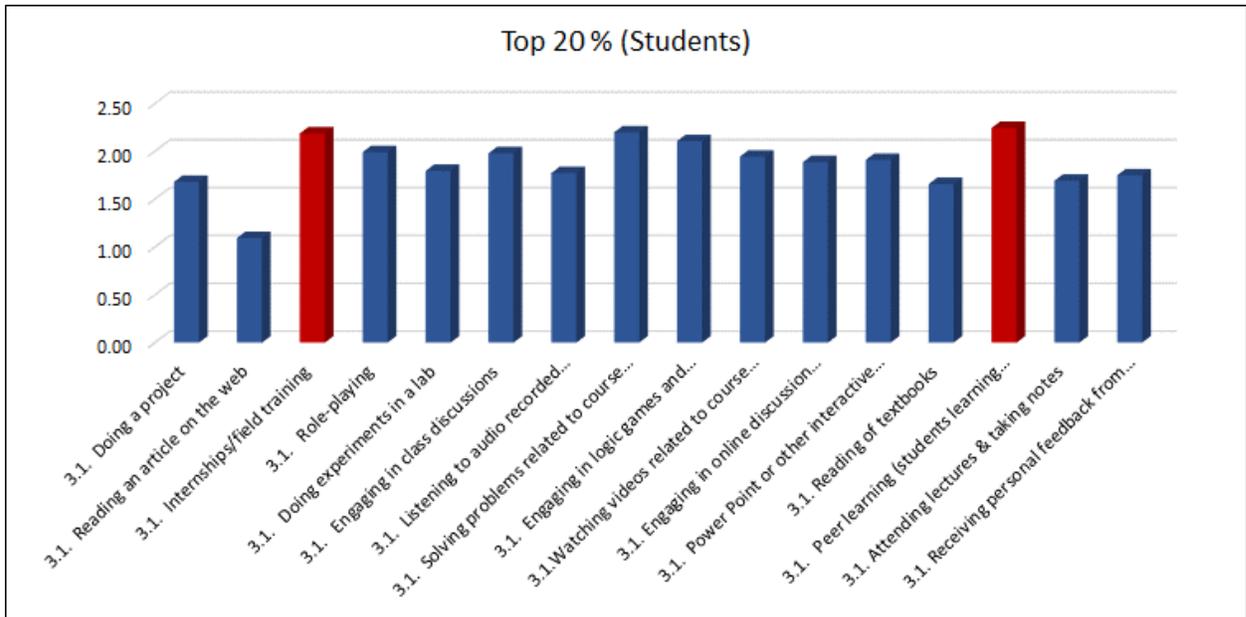
Figure 3.5.

As we can see on Figure 3.5 teachers and students' several opinions about the importance of the forms of learning coincide. However, the teachers and students' opinions relating to the estimation of the degree of importance of some separate learning forms differ, as for example, in "Listening to audio recorded"/"Solving problems related to course", "Watching videos related to course, Internships"/"field training andpeer learning (students learning)" (Figure 3.5).

Section 4: Assessment Methods and Approaches

The results of the processed answers of the teaching staff and students on this Section are presented on the diagrams 4.1 and 4.2. The structure of this Section's questions has been constructed in a little different way from the other Sections. In this case the survey was conducted in two positions for each "Assessment methods and approaches" (teaching staff and students).

Selecting the option "Have been experienced" means that this method is currently used by the respondent, and the choice "Would like to experience" means that in the future it may be used. Unmarked assessment methods and approaches statistically reduce the significance of this option which means to be taken into account when analyzing the data and making recommendations on the
relevance and effectiveness of their application.
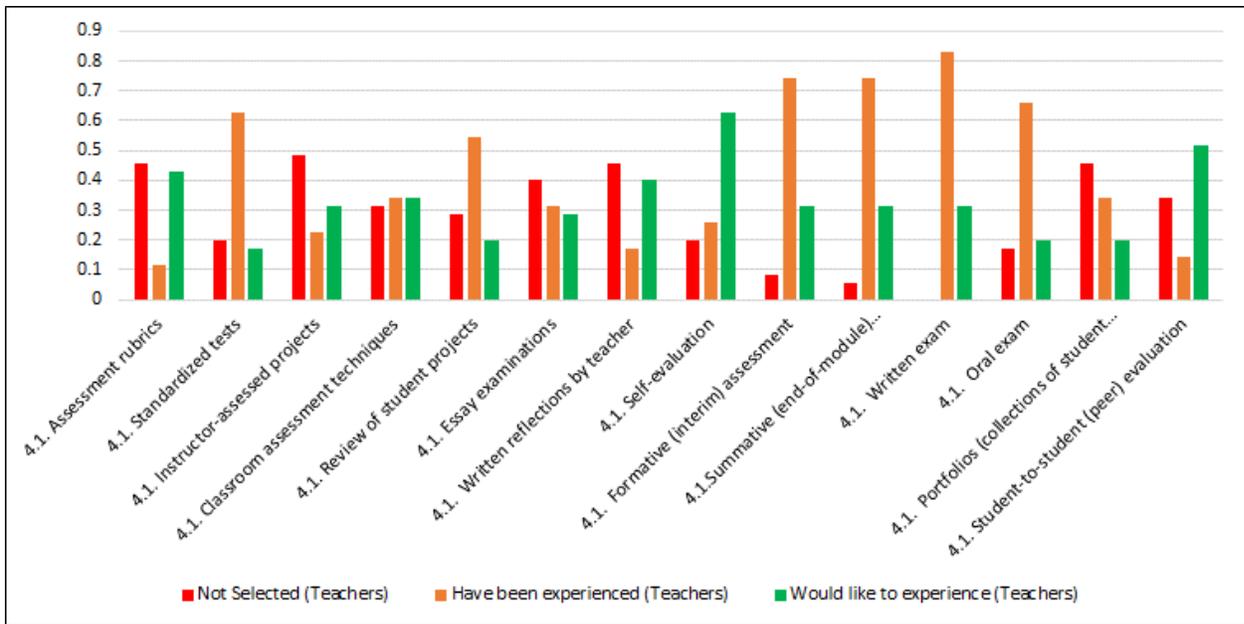

Figure 4.1.
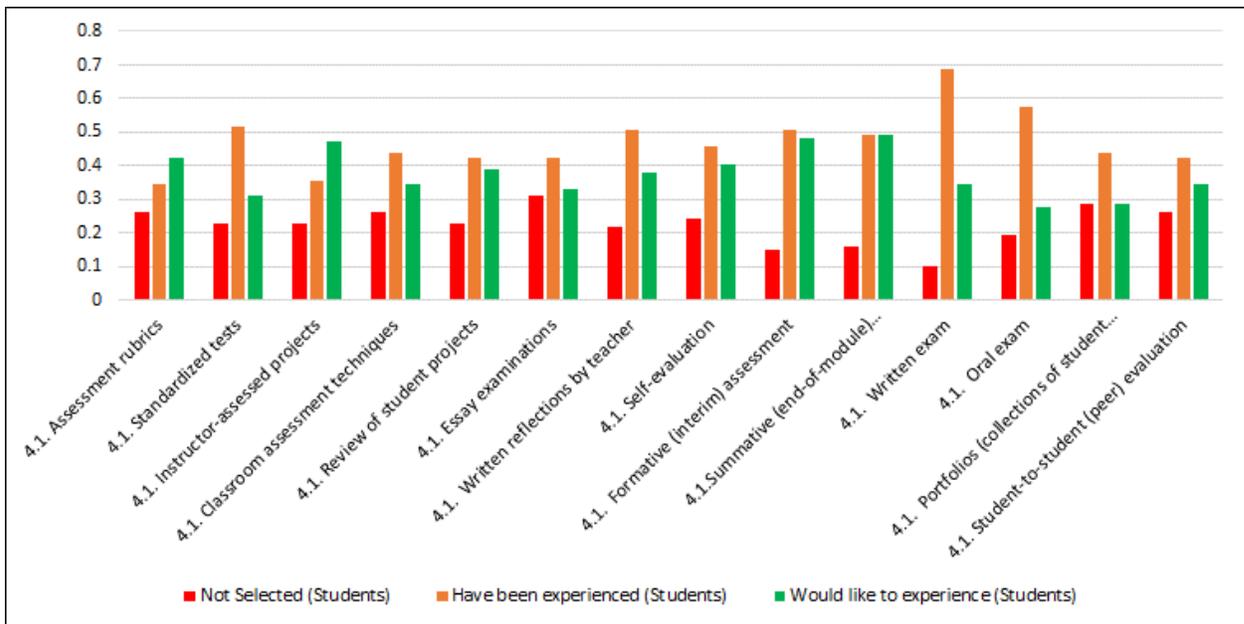
Figure 4.2.

To determine the methods and approaches, which are rated as more effective or demanded by the teaching staff and students, the following formula was used in which the components' values are expressed in modified units:

The results are presented on a radar-type diagram 4.3 and are given in the form of the Table 4.4 with values, marked from red (lower level of the scale) to green (upper level).
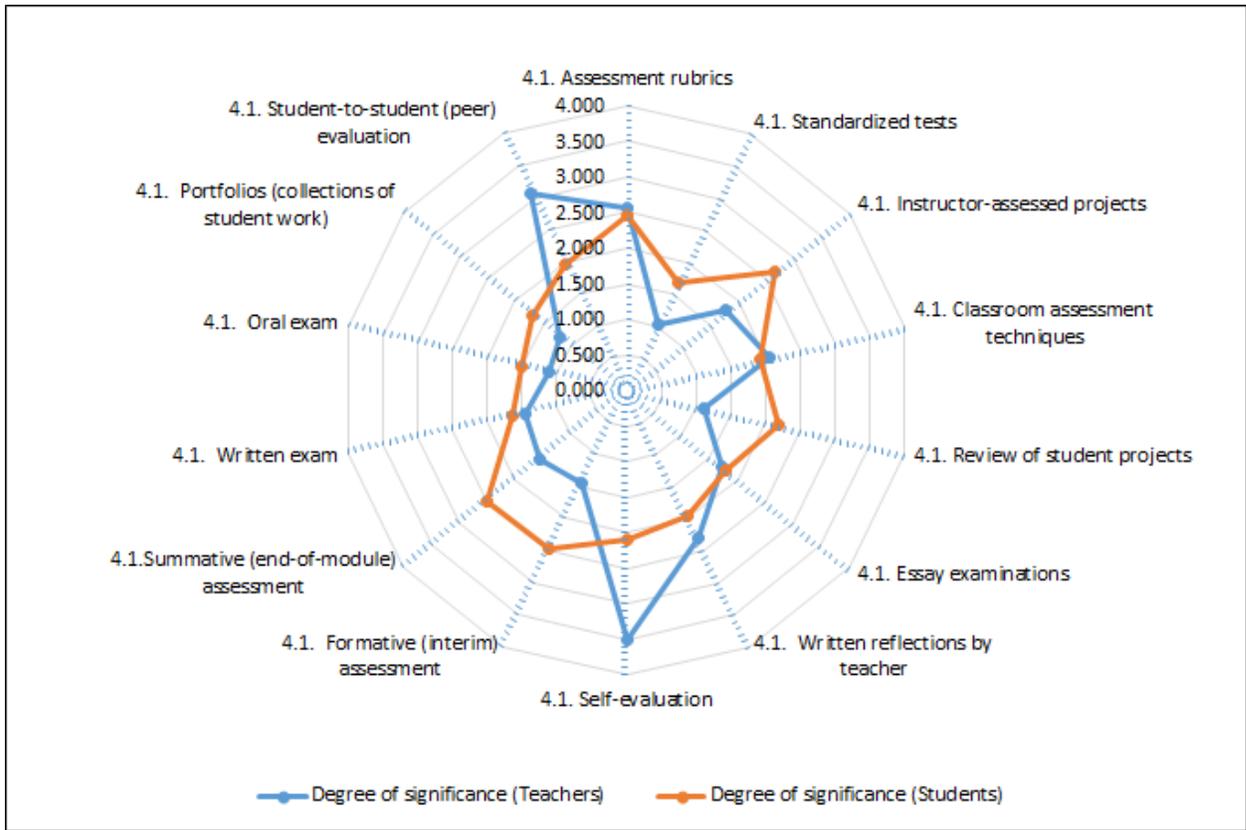
Figure 4.3.

To compare the calculated data of the "Degree of significance" option with the data built in Google Form and the previous two diagrams, a Bar type diagram 4.4 was also constructed.
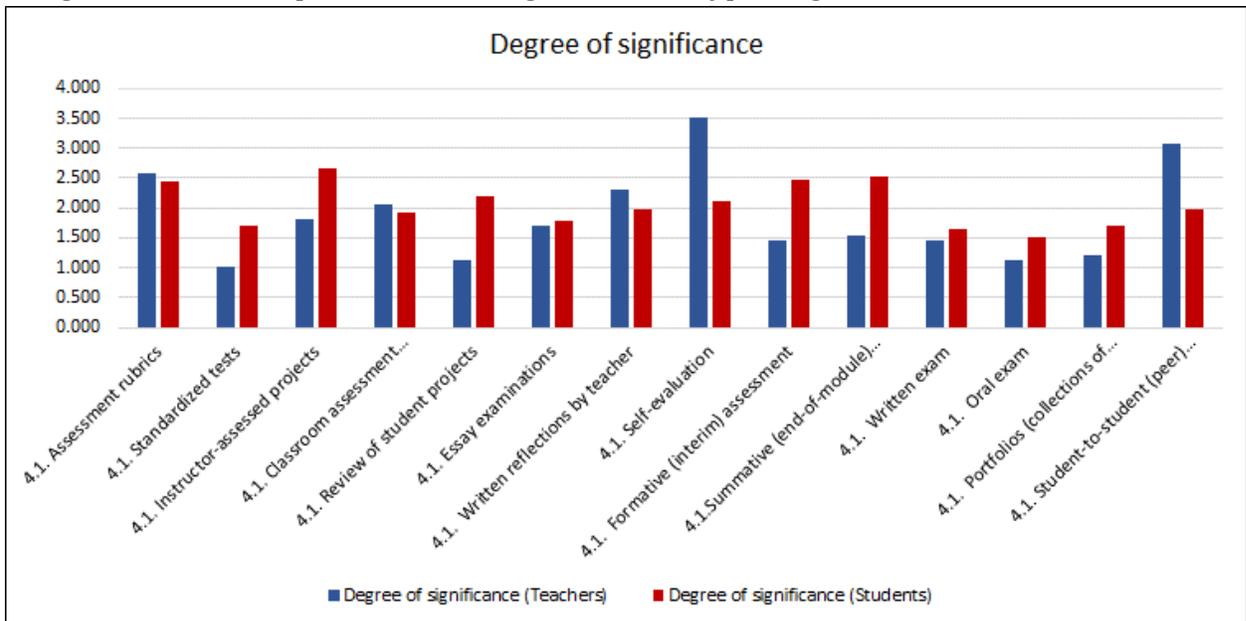

Figure 4.4.

The received results allow to unequivocally estimate the preferences of the teaching staff and students in favor of "Student-to-student (peer) evaluation" method and there is also a certain interest
in the "Self-evaluation" method. Degree of significant has "Self-evaluation", "Students-to-Students" similar in the choice of two groups of respondents are the teaching staff choice of "Assessment rubrics" and "Classroom assessment"options.

Section 5: Use of Technology, E-teaching/Learning and Social Media for Teaching and Support of Learning

The answers of the teaching staff and the students on the "Degree of relevance" and "Degree of technology use" options proposed in this Section are shown on diagrams 5.1 and 5.2.
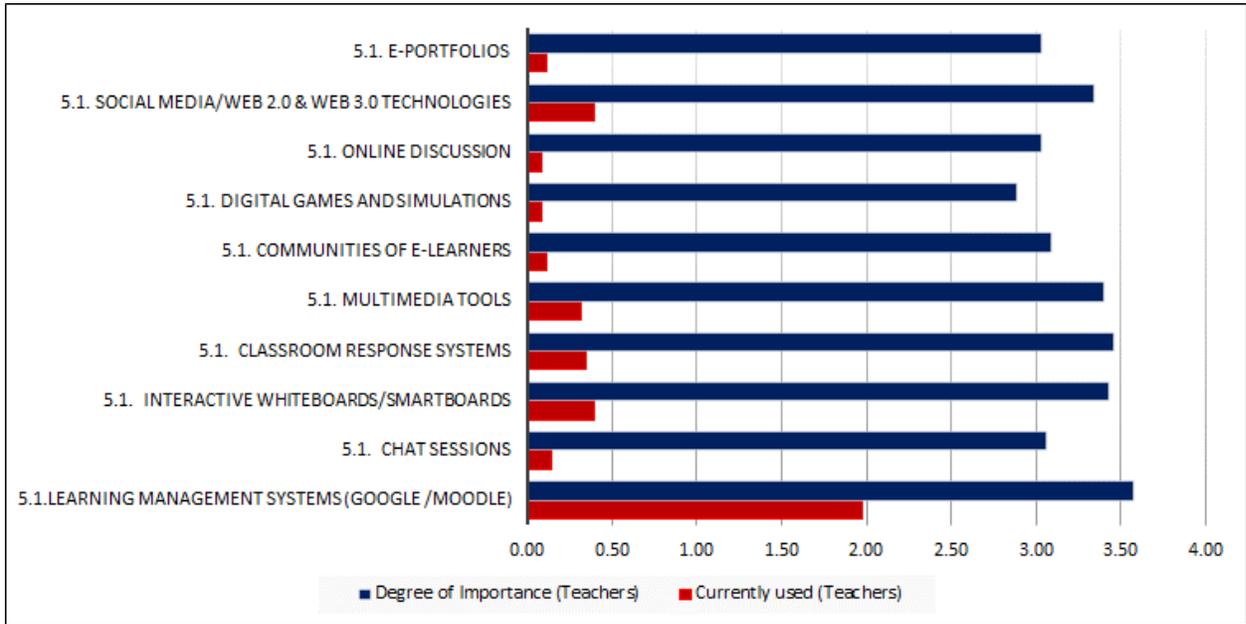

Figure 5.1.
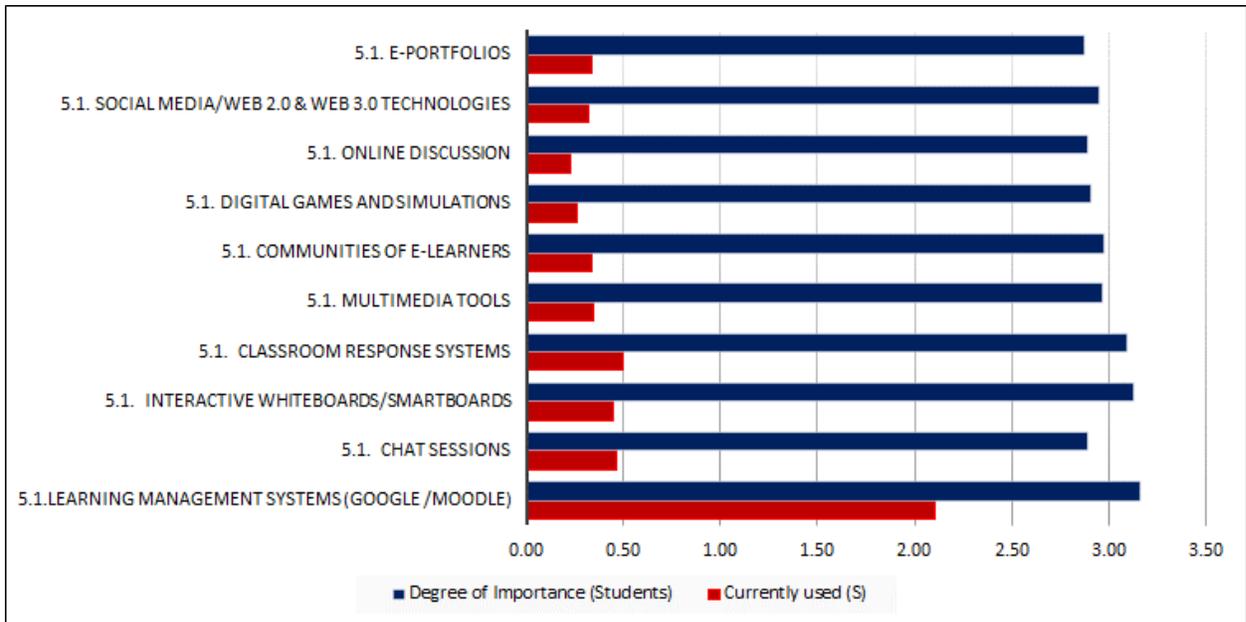
Figure 5.2.

The analysis of the data for the "Degree of importance" option is shown on the radar on Figure 5.3. The nature of the lines of the diagram indicates a practical coincidence of the respondents' opinions on the points of the survey.
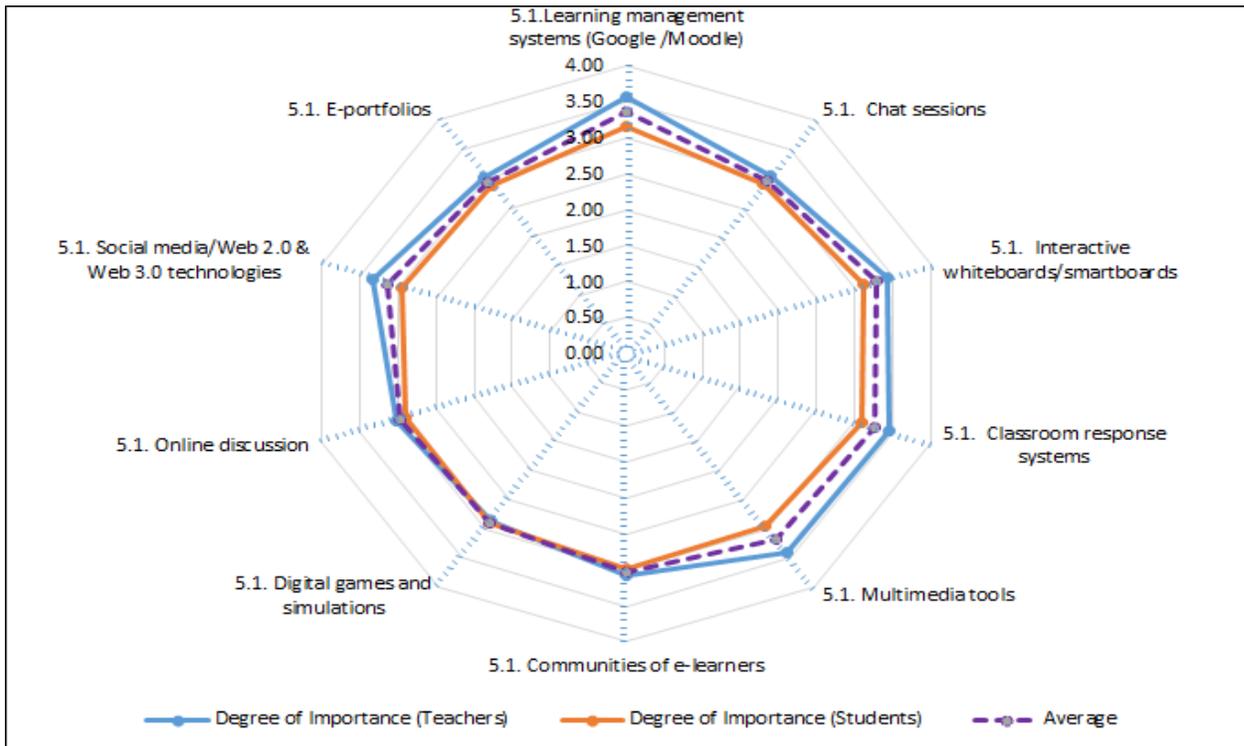

Figure 5.3.

The estimated indicators for the degree of demand for all indicators have very high (up to 20%), only the "Learning management systems" has less than 20 % allocation for both categories of respondents that are shown on diagrams 5.4 and 5.5.
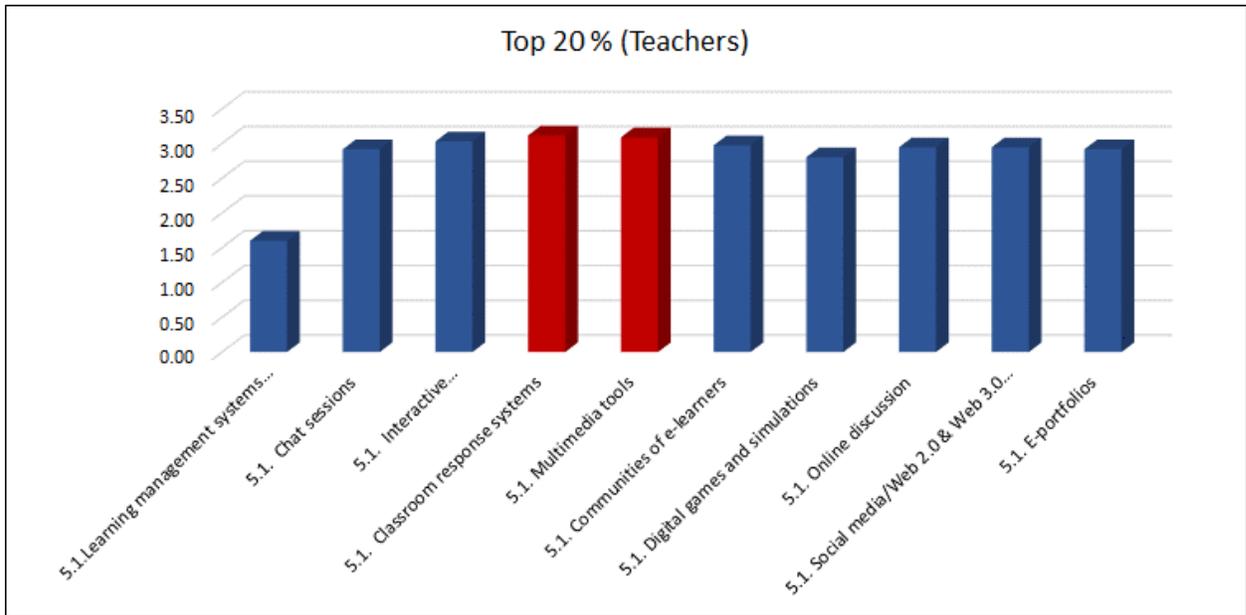
Figure 5.4.
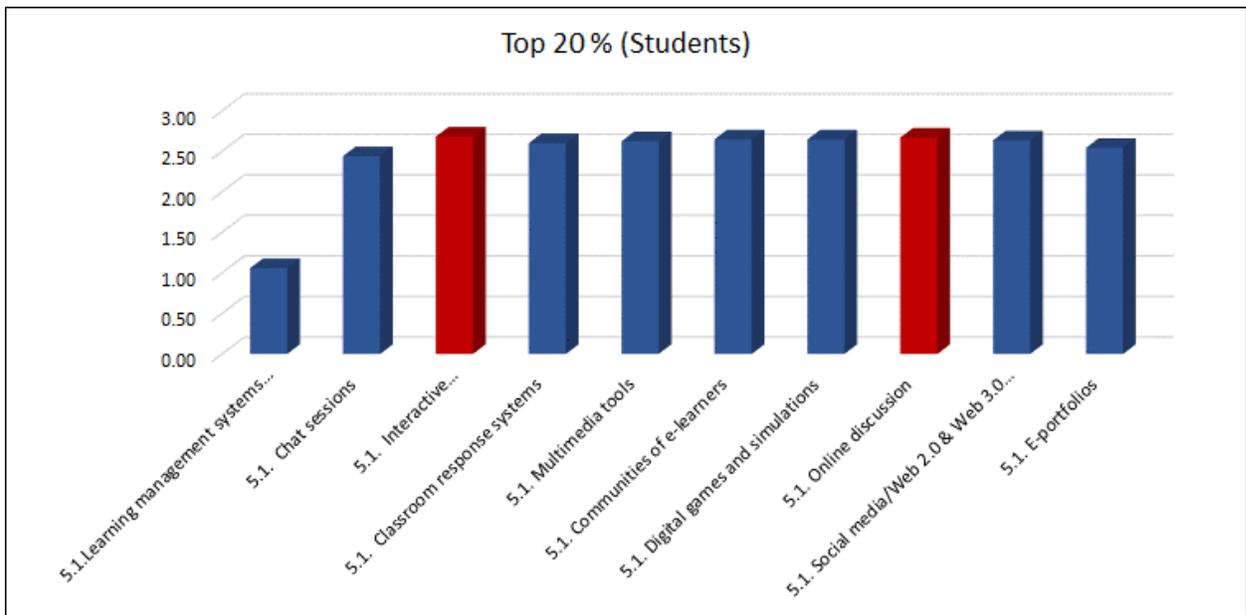
Figure 5.5.

The analysis of the data obtained under this Section indicates that the teaching staff and students emphasize the high degree of use of different methods, LMS in GTU and this somewhat differs from our initial (before the survey) expectations. That is why this technology have the maximum values of the "Degree of importance" indicator. We can come to the conclusion about the necessity and importance of retraining of the teaching staff on the LMS and other technology. Despite this, it seems very important to have a university-wideLMS.

Obviously, with similar results for other partner universities, there will be a need to use a specialized platform with the appropriate LMS and a certain need for retraining the entire teaching staff on its using.

Section 6: Facilities to Support Teaching and Learning

The survey results for GTU students and teaching staff of this Section are shown on Figures 6.1 and 6.2. Almost on all of the proposed options there is a certain interest of both focus groups. As for the degree of use, there is a lack of satisfaction of the respondents in modern equipment and high-speed internet access.
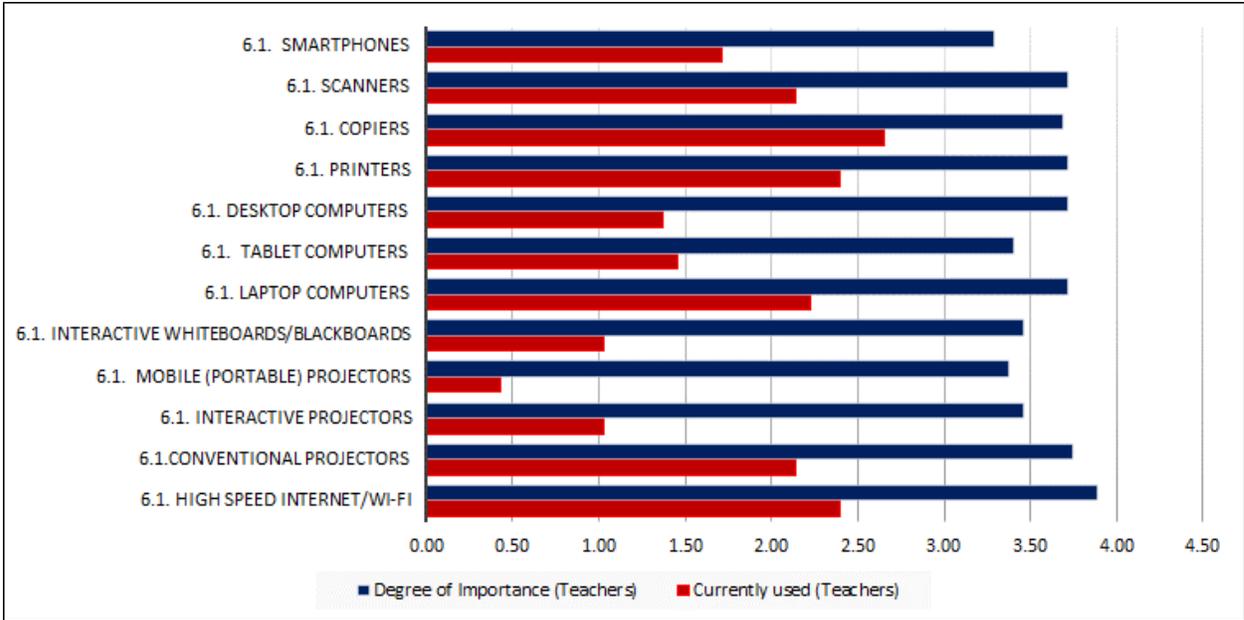

Figure 6.1.
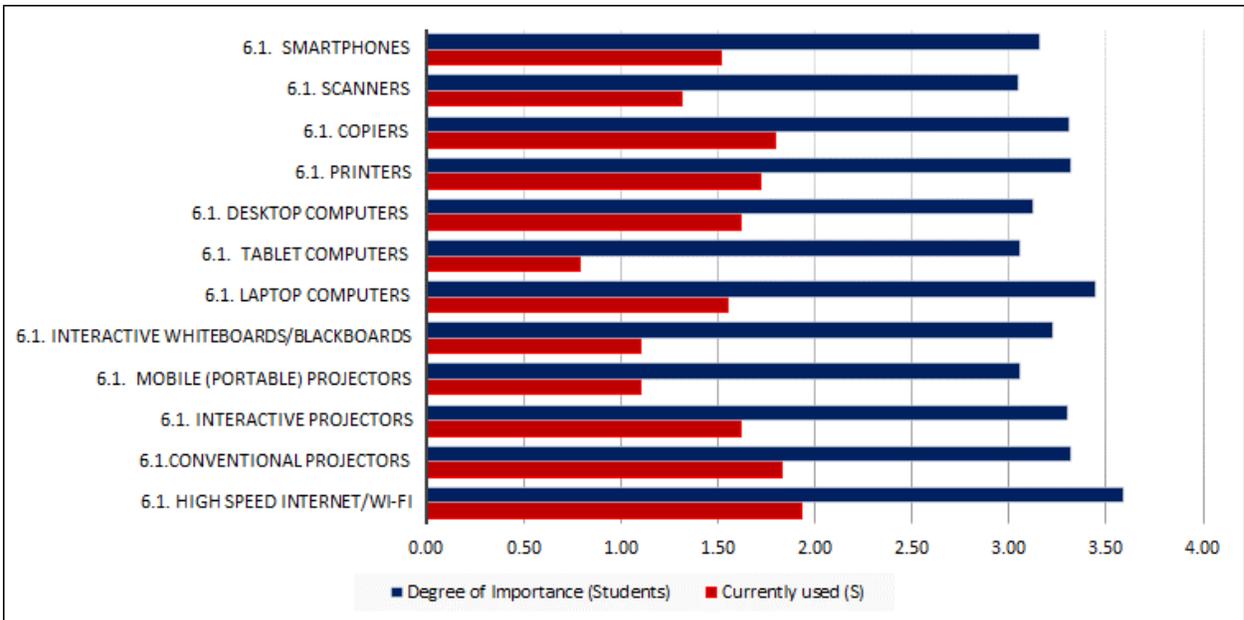
Figure 6.2.

The data for comparing the results by the degree of significance of technology in the modified units.
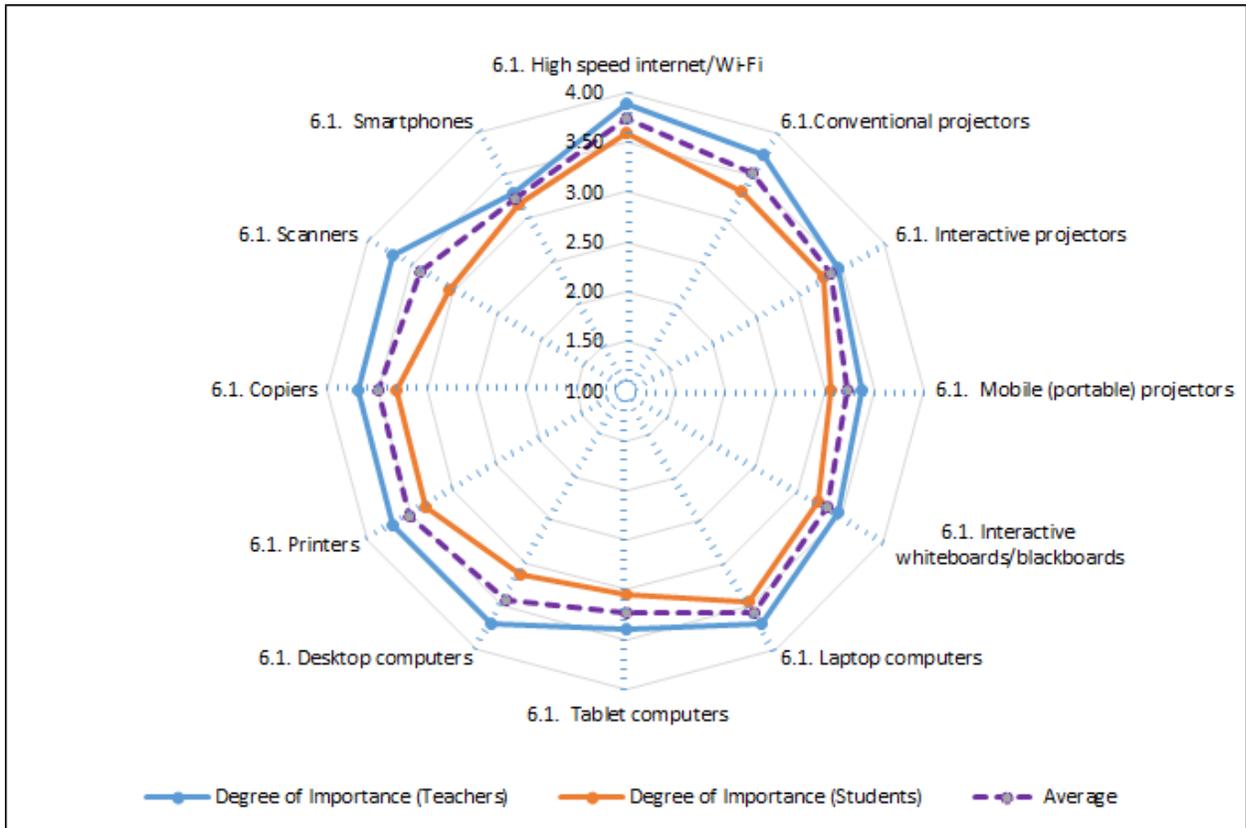

Figure 6.3.
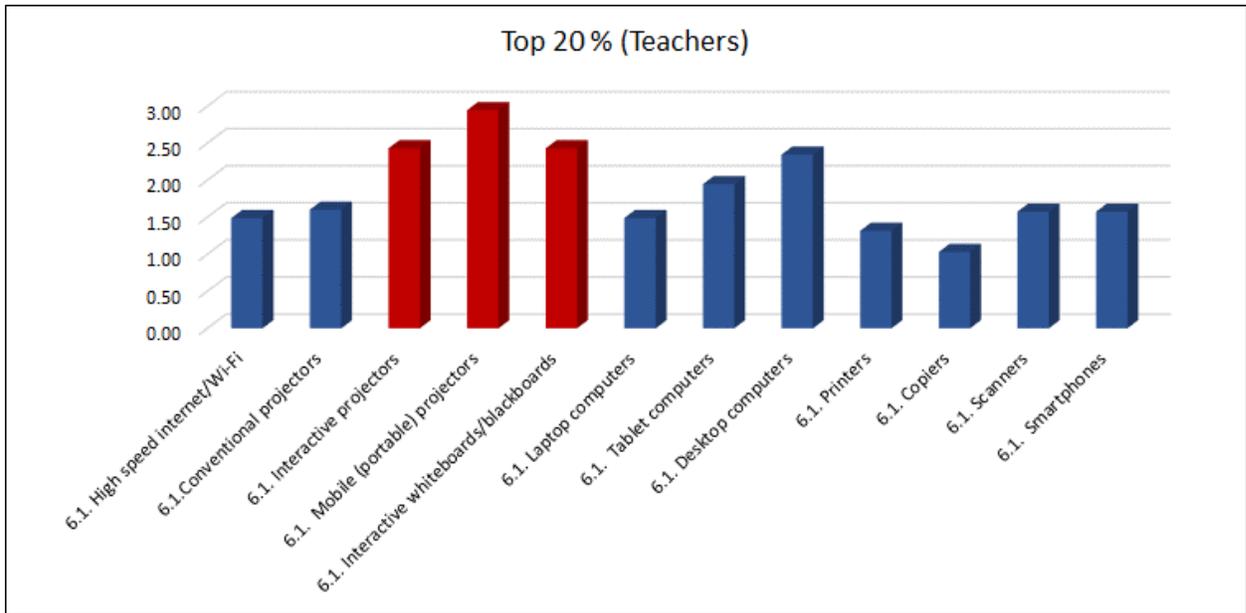
Figure 6.4.
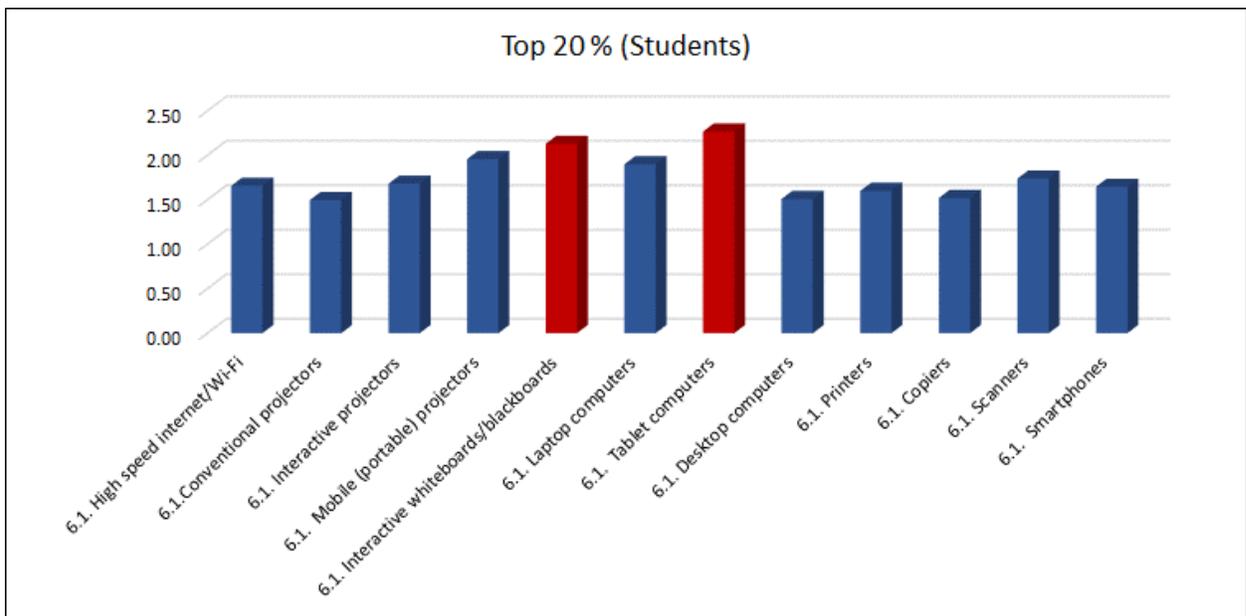
Figure 6.5.

The survey options on Section 6, as a whole, have revealed the interest of GTU teaching staff and students in using modern technical means of supporting teaching and learning. Based on the top 20% of the diagram, one can conclude about the teaching staff's dissatisfaction with the possibility of access to interactive projectors, mobile (portable) projectors and interactive whiteboard in the classrooms.

Students consider especially important the using interactive whiteboard and table computers despite of the fact that other options of this Section are recognized as important and demanded.

7. Teaching and Learning Materials

This Section analyzes the opinion of GTU teaching staff and students concerning the educational T&L materials needed necessary for quality and modern teaching and learning.
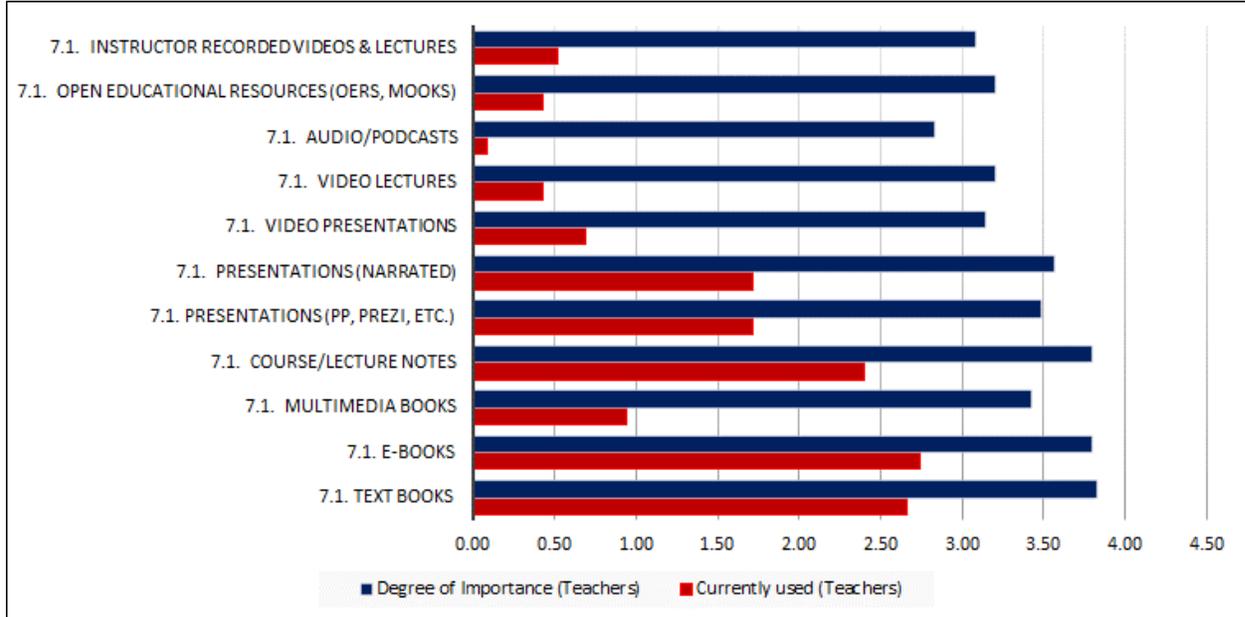

Figure 7.1.
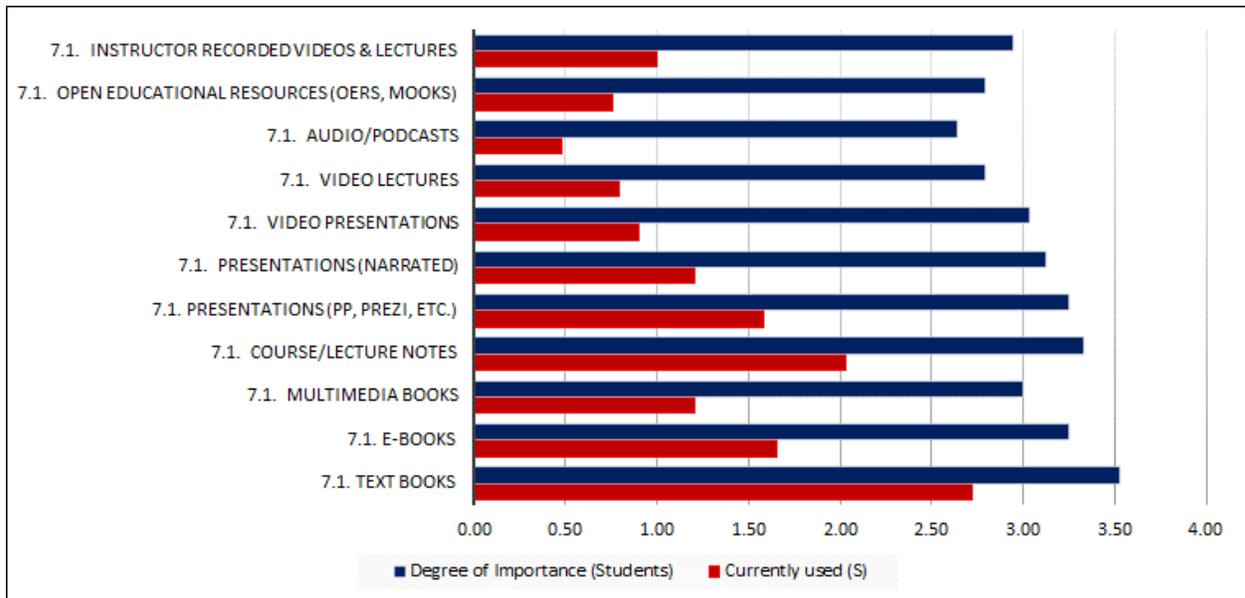
Figure 7.2.

The comparison of the results of the surveyed groups on teaching and learning materials reveals an extreme interest in the use of modern content, in particular in audio/video materials and presentations. A high degree of relevance of "E-books", "Course/Lecture note"

and "Text books" is compensated by the high indicators of their use while the high demand for the "Video presentations", "Video lectures", "Open educational resources (OERs, MOOCs)" and "Presentations (narrated)" options remains inadequately satisfied due to low indicators of their use. It is for this reason that"Video presentations", "Video lectures" and "Open educational resources (OERs, MOOCs)" technologies make up the Top 20% or as in the case of the "Presentations (narrated)" option, slightly fall short of this bar. And in this case, a survey of both groups of respondents shows a certain consensus of responses, which is reflected by almost identical forms of the curves in the radar Figure 7.3.
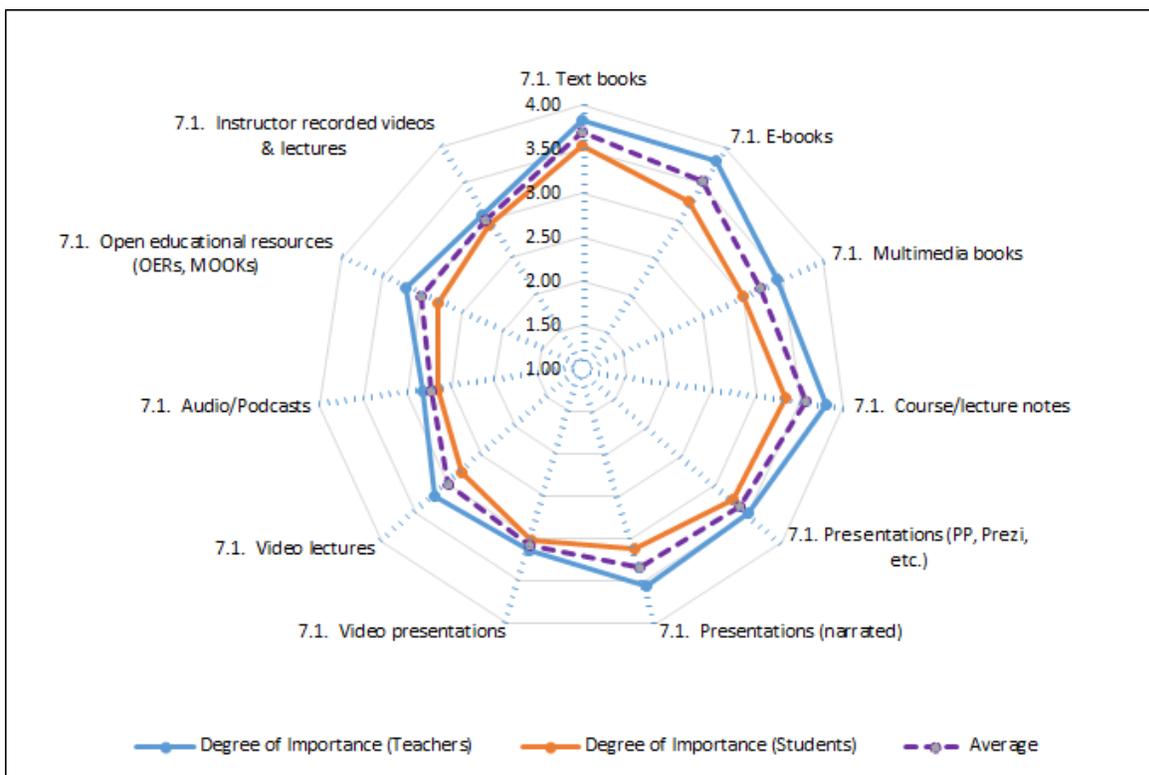

Figure 7.3.

Top of the most relevance options
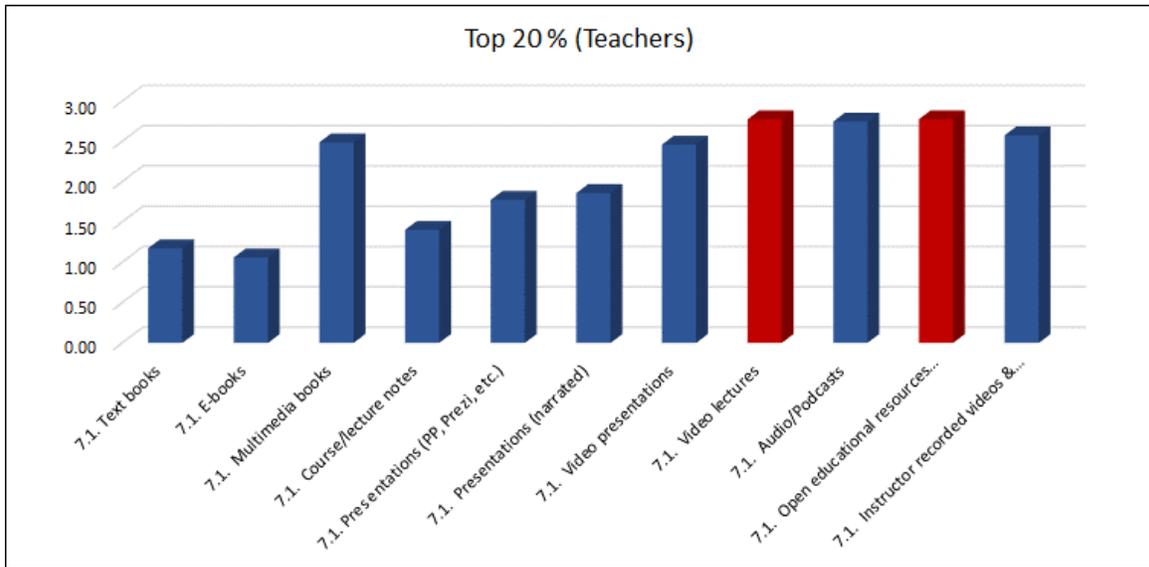
Figure 7.4.
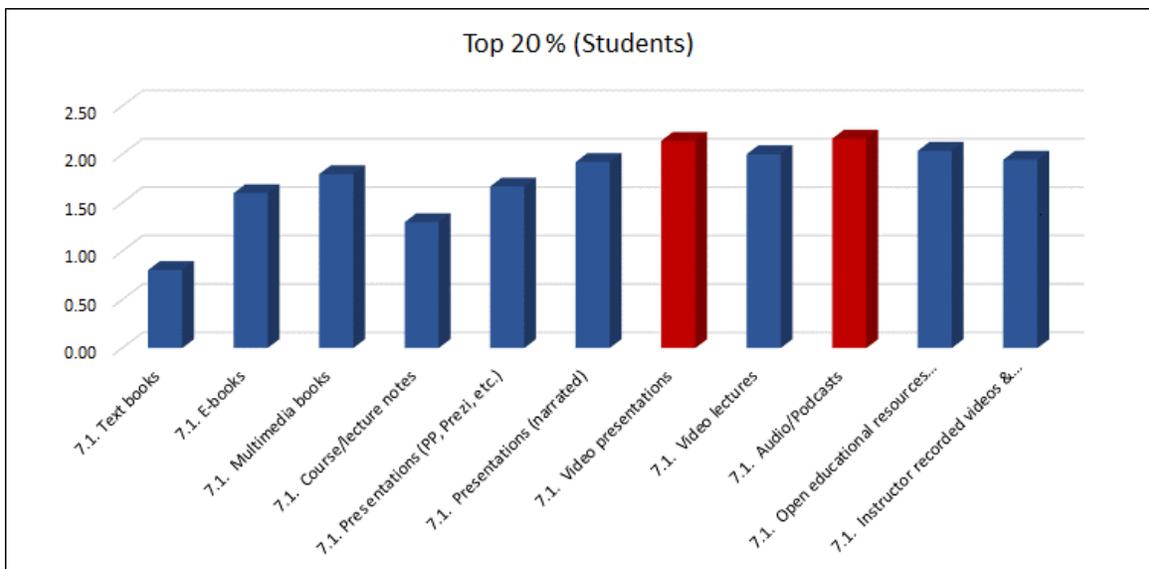
Figure 7.5.

In the top 20% of the most needed options, the teaching staff indicates "Video lectures", "Open education resources (OERs, MOOCs)", meanwhile the students marked "Video presentations" and "Audio Podcasts".

8. Additional Information Given by the Teaching Staff and Students

In the Section "What I still need to say", the students made the following records:

- The most important thing at GTU is that we need more practical parts means Lab work, research work, workshop,etc.
- Would be good to have some el. portals in GEO language.
- Etc.

Conclusions and Recommendations

Summing up the whole results of surveys among the teaching staff and students of GTU provided within the framework of the PRINTeL project's objectives allows to come to the following general conclusions (without dividing into subgroups with different levels of priorities, which will be done later, having the results of all Consortium member universities).

1. The innovative and technology-enhanced teaching and learning methods and approaches that are needed to be introduced atGTU are: "Experience based learning"; "Flipped classroom"; "Hybrid/blended teaching"; "Role-playing"; "Listening to audio recorded lectures or podcasts"; "Engaging in online discussion questions"; "E-teaching/Web- or Multimedia enhanced teaching"; "Individual learning"; "Teaching in small groups (team learning)"; "Engaging in logic games and brainteasers"; "Engaging in online discussion questions"; "Peer learning".

2. The technologies and facilities supporting teaching and learning necessary to be present at GTU are:
   - Interactive projectors;
   - Mobile (portable) projectors;
   - Interactive whiteboard in the classrooms.

3. The new forms of teaching and learning materials that are demanded for the needs of GTU are:
   - Video presentations;
   - Video lectures;
   - Open educational resources (OERs, MOOCs);
   - Audio Podcasts.

Based on the results of the surveys provided at GTU it can be mentioned that still there is a quite high percentage of traditional and even outdated tools, technologies and digital content used in teaching/learning processes. At the same time there is a clearly identified tendency of using modern, highly effective methods, tools and technologies introduced already into the educational processes. Unfortunately, they are not systematically and centralized used yet.

To come to final common conclusions on the existing needs and to develop common principles for achieving the main objectives of PRINTeL project, comparative analysis of the similarly processed results of the Consortium member universities' surveys is required.