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

BREST STATE TECHNICAL UNIVERSITY (BRSTU)

NEEDS ANALYSIS REPORT

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

BREST 2018

CONTENTS

Introduction

For the purpose of realization of Activity 1.2 need development of Need Analysis Report of the "PRINTeL" project two questionnaires – *"Teaching staff professional development needs assessment"* and *"Student learning needs assessment"* – were composed. The purposes of the questionnaires consisted in the collection of corresponding information concerning teaching and learning methods applied in BrSTU 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 in BrSTU, as well as state-of-art facilities and technological tools.

Each of the questionnaires included eight sections.

"Teaching staff professional development needs assessment" questionnaire consisted of the following sections:

- Section 1. General information,
- Section 2. Teaching styles and pedagogical approaches used in class,
- Section 3. Learning styles and approaches,
- Section 4. Assessment methods and approaches,
- Section 5. Use of technology, e-teaching & social media for teaching and support of learning,
- Section 6. Facilities to support teaching,
- Section 7. Teaching materials,
- Section 8. Teachers' comments and recommendations.

The sections included in "*Student learning needs assessment*" questionnaire were:

- Section 1. General information,
- Section 2. Teaching styles and approaches in class,
- Section 3. Learning styles and approaches,
- Section 4. Assessment methods and approaches,
- Section 5. Use of technology, e-learning & social media for supporting learning,
- Section 6. Facilities to support student learning,
- Section 7. Learning materials,

- Section 8. Students' comments and recommendations.

The questionnaires were created with the help of Google forms, that enabled the online conduction of the Polls. On the 26-27th of April, 2018, the online questionnaires were delivered to BrSTU teachers and students for the aim of obtaining their feedback. The reception of responses was ceased on the 29th of May, 2018. The results were worked out on the 29-31th of 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.

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:

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

Section 1. General Information

The online questionnaires were sent to around 360 teachers and about 3500 students of BrSTU. Taking into account the quantitative differences of the teaching staff and the students of the universities participating in the project, the minimum indicators of the respondents in both the categories were established in the following way:

University	Minimum responses of the students	Minimum responses of the teaching staff
YSU, ISU, BSU	80	40
NPUA, GTU, BrSTU	60	30
VSU, TeSaU, YKSUG	40	20

39 teachers and 126 students completed the online survey forms. The majority of respondents (92,3%) were full-time faculty members (Figure 1.1). Most of them were lecturers (41%), associate professors (28,2%) and assistant professors (23,1%) (Figure 1.2).
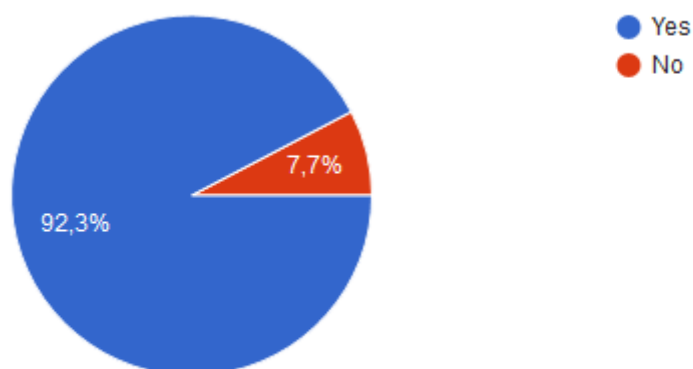

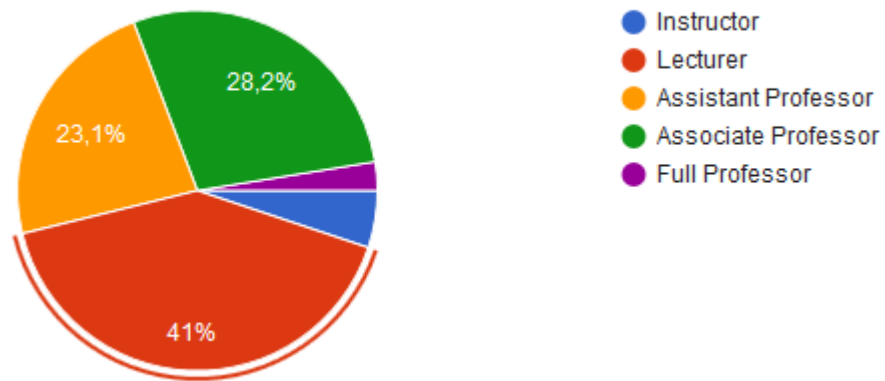**Figure 1.1 Are you a full time faculty member?**

Figure 1.2 What is your title at your university?

Most of the respondents were teachers belonging to 40-49 age group (51,3%). The 20,5% of the respondent teachers belongs to 30-39, 17,9% - to 50-59, 10,3% – to 20-29 age groups (Figure 1.3).
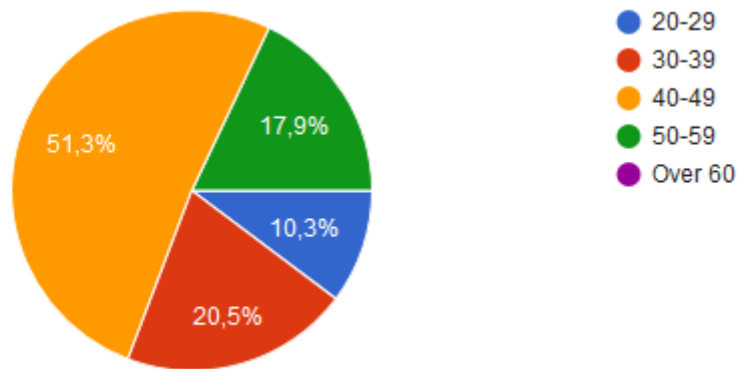

Figure 1.3 Please select your age group from the following

In the gender ratio there is inequality. Most of the respondents were females – 69,2%. Among the respondents, males accounted for about 30,8%. (Figure 1.4)
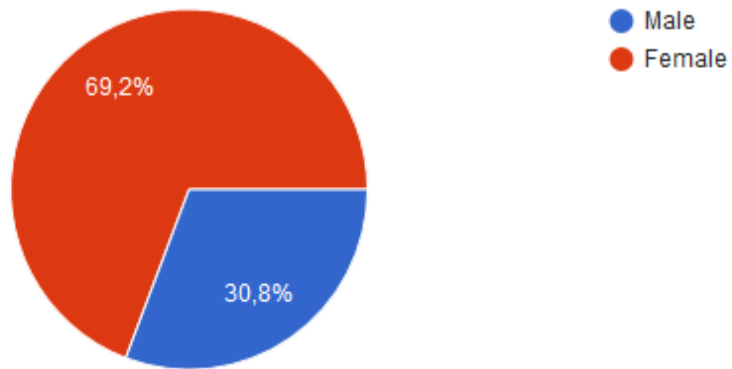
Figure 1.4 Please state your gender:

The following is the information about students. The ones who study for bachelor's degree comprised the majority of the respondent students – 76,2%. Master program students who completed the survey accounted for about 23,8% (Figure 1.5).
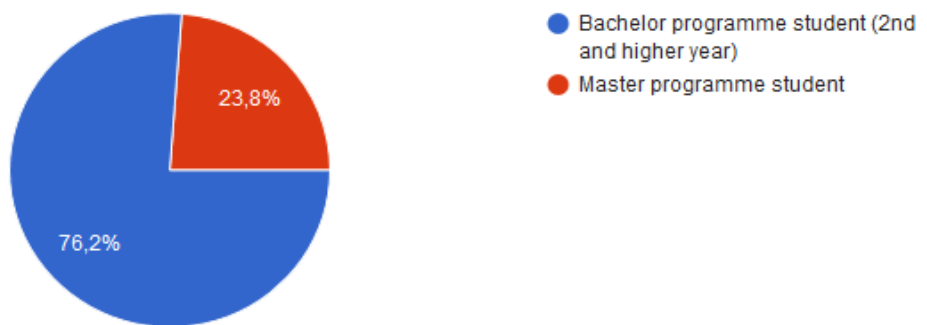

Figure 1.5 Student educational level

Among the respondent students there was observed a little gender inequality – women prevail (58,7%).
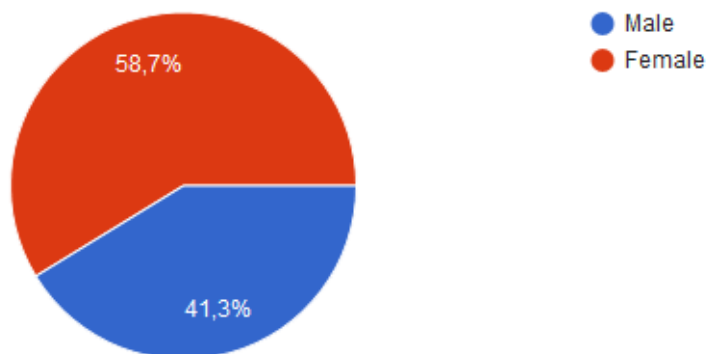

Figure 1.6 Gender of student completed survey

Section 2. Teaching styles and pedagogical approaches

The survey conducted in BrSTU showed that among teaching staff the most preferable teaching styles and approaches are:

1. Traditional lecturing.

2. Laboratory works

3. Seminars.

However, in teachers' opinion the most important teaching methods are "Project based learning (project work)", "Research based teaching" and "Experience based teaching" (Figure 2.1).
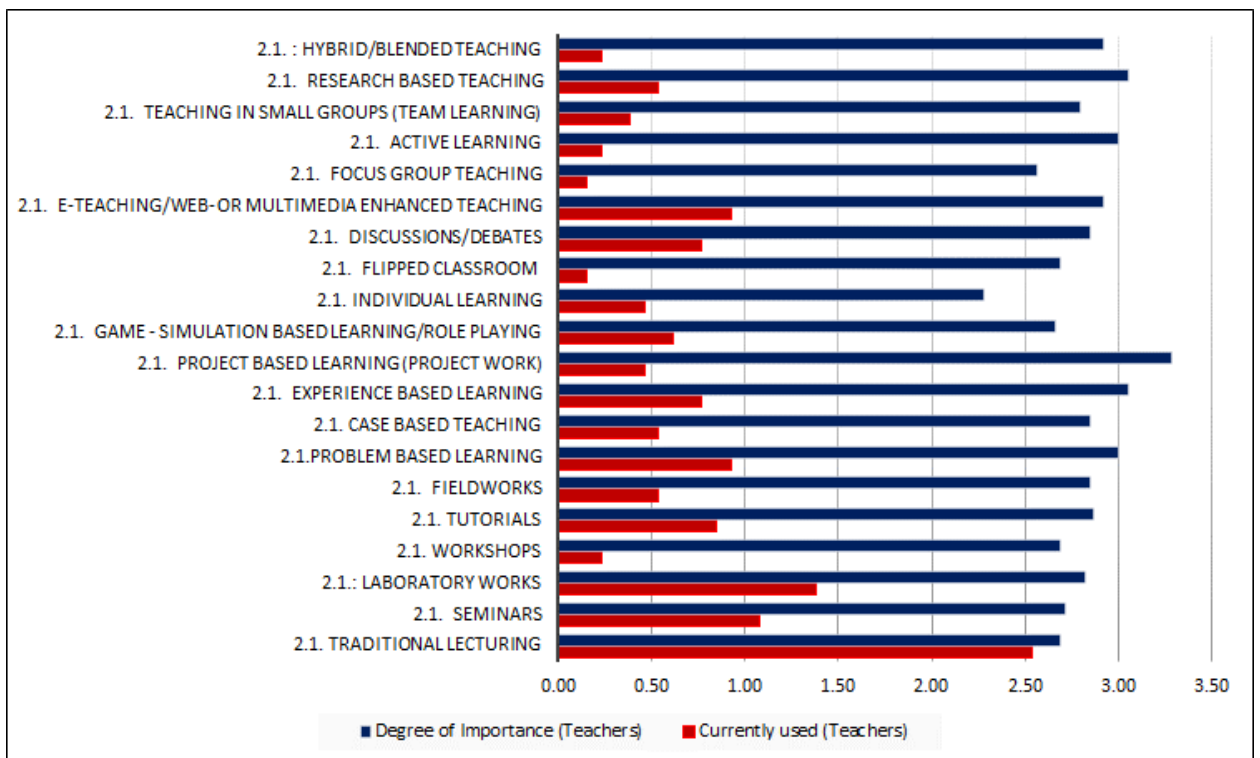

Figure 2.1 Question: 2.1 How do you teach? Please select teaching styles and pedagogical approaches listed below currently used by you in class. 2.2 Please, rate your level of need for training in the teaching styles/approaches from "No need" to "High need".

The most currently used teaching methods among students are the same as for the teachers:

1.   Traditional lecturing,

2.   Laboratory works,

3.   Seminars.

The most important teaching methods marked by respondent students were "Experience based learning", "Laboratory works" and "Traditional lecturing" (Figure 2.2).
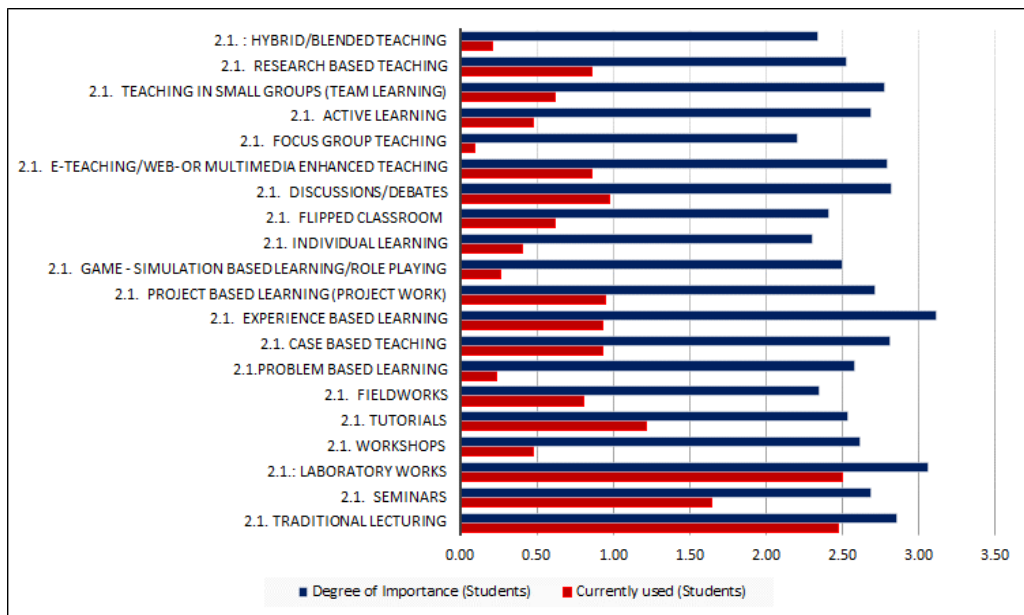

Figure 2.2 Question: How do your teachers teach you? Please select teaching styles/approaches listed below currently used by your teachers in class. 2.2. Please, rate your level of need in the teaching styles/approaches from "No need" to "High need".

The next diagram represents the answers of the teachers and students who completed the survey. The diagram shows that the opinions of the teachers and the students are the same. For them the following training methods are equally important: "Experience based learning", "Discussions/debates" and "E-teaching/Web-or multimedia enhanced teaching". The least popular teaching methods indicated by the teachers and the students are "Individual learning", "Teaching in small groups" and "Workshops" (Figure 2.3).
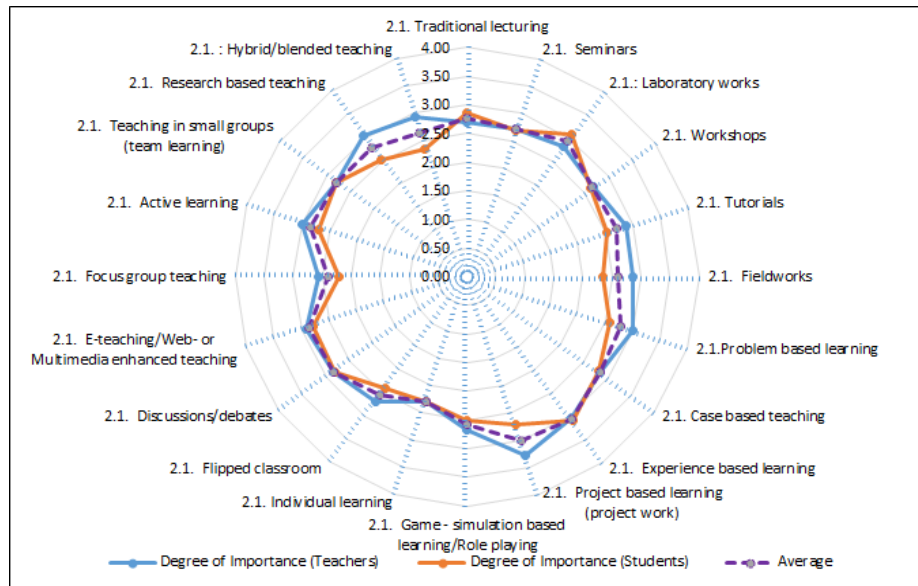
Figure 2.3 Degree of importance of the teaching styles and approaches according to teachers and students' feedback.

Question: Please, rate your level of need for training in the teaching styles/approaches listed below from "No need" to "High need".

If we take into consideration the fact that some part of the desirable teaching forms are already used to some extent in BrSTU then according to teachers the most desirable teaching forms in BrSTU are "Project based learning", "Active learning", "Flipped classroom" and "Hybrid/blended teaching" (Figure 2.4).
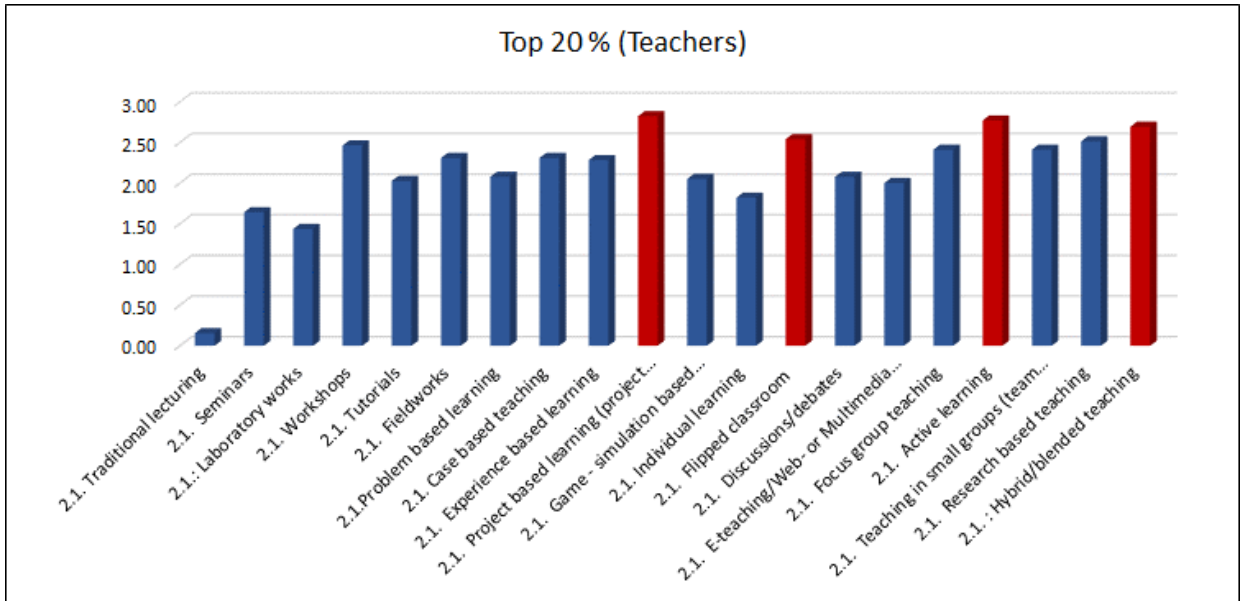
Figure 2.4 Calculated from the data of 2.1 and 2.2 questions of the "*Teaching staff professional development needs assessment*" Survey.

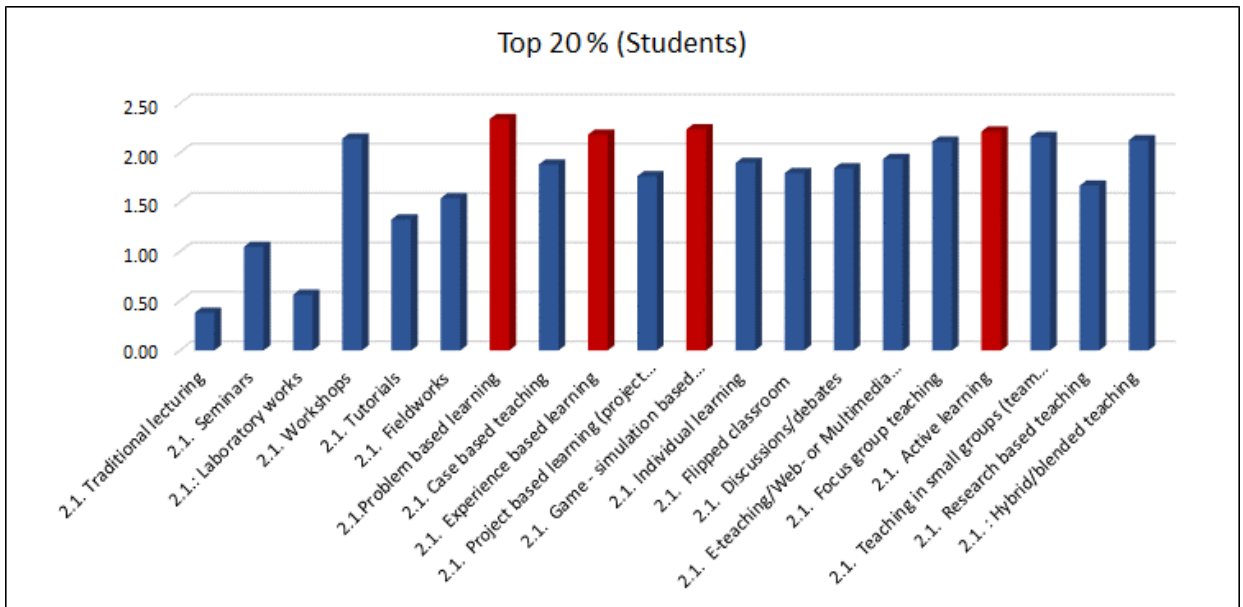**"Degree of importance" deducted from "current use" according to teachers.**

Figure 2.5 Calculated from the data of 2.1 and 2.2 questions of the "*Student learning needs assessment*" Survey.

"Degree of importance" deducted from "current use" according to teachers.

Taken the fact that according to students' feedback some of the desirable teaching forms are already implemented in BrSTU, then according to the respondent students' opinions the most desirable (important) forms of teaching in BrSTU are "Experience based learning",

"Project based learning (project work)", "Active learning", "Game –simulation based" (Figure 2.4)

Summing up the above we can say that the teaching staff considers "Experience based learning", "Discussions/debates", "E-teaching/Web-or multimedia enhanced teaching" and "Active learning" to be the most important areas in which it is desirable for them to gain training and which are desirable to use (to improve).

Section 3. Learning styles and approaches

The answers of the teaching staff and students on the proposed teaching styles currently used in the university are presented in diagrams 3.1 and 3.2.

Both the groups of respondents recognized "Attending lectures & taking notes", "Doing a project" as the most used styles. The teaching staff includes in their number "Power Point or other interactive presentations" and the students also add "Reading an article on the WEB". The last style of learning for the teaching staff did not reach the top 20% but scored a lot of points.
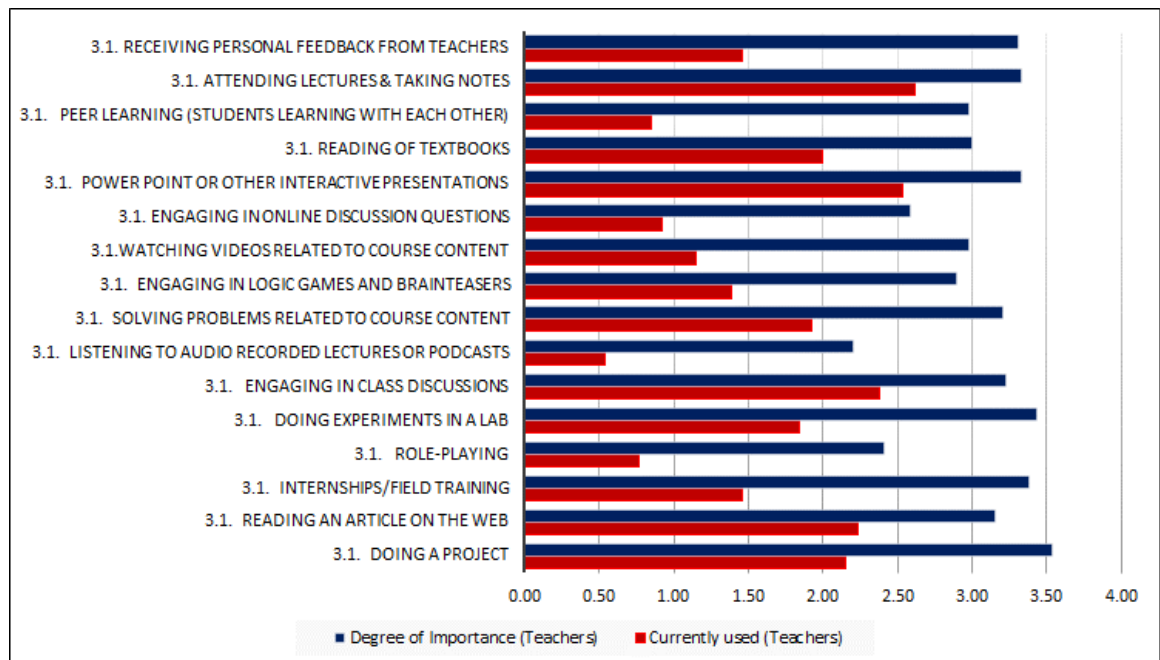

Figure 3.1 Learning styles and approaches (teachers)

Question. 3.1. How do your students learn? Please select learning styles and approaches currently experienced by your students.

Question. 3.2. How do your students learn best? Please rate the learning styles/approaches which you think would enable your students to learn effectively from "Not effective" to "Highly effective".
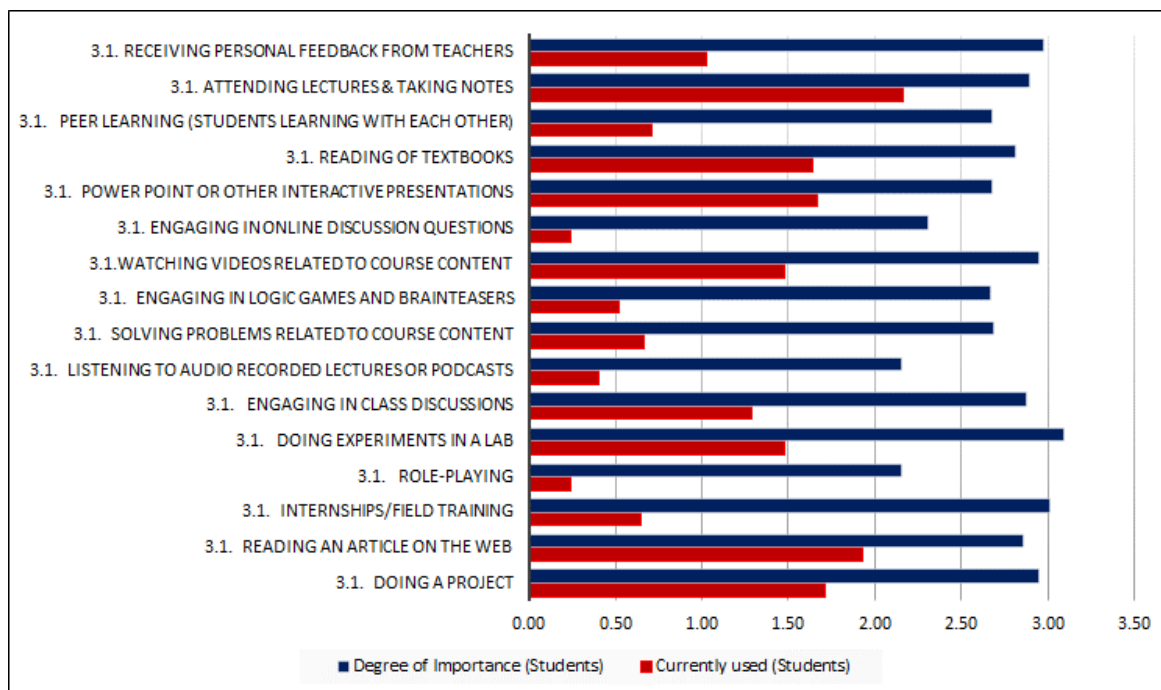
Figure 3.2 Learning styles and approaches (Students)

Question. 3.1. How do your students learn? Please select learning styles and approaches currently experienced by your students.

Question. 3.2. How do your students learn best? Please rate the learning styles/approaches which you think would enable your students to learn effectively from "Not effective" to "Highly effective".

The comparison of the learning styles/approaches of the teaching staff and students in terms of rating is reflected in diagram 3.3 which, like the corresponding diagram of the previous Section, is practically the same for both categories of survey responces.
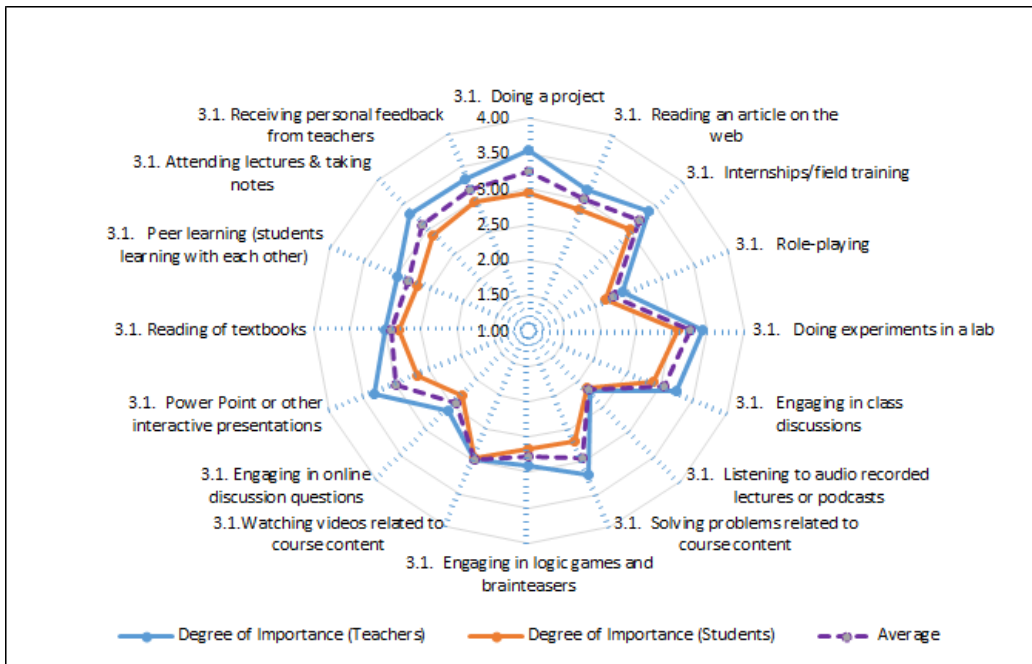
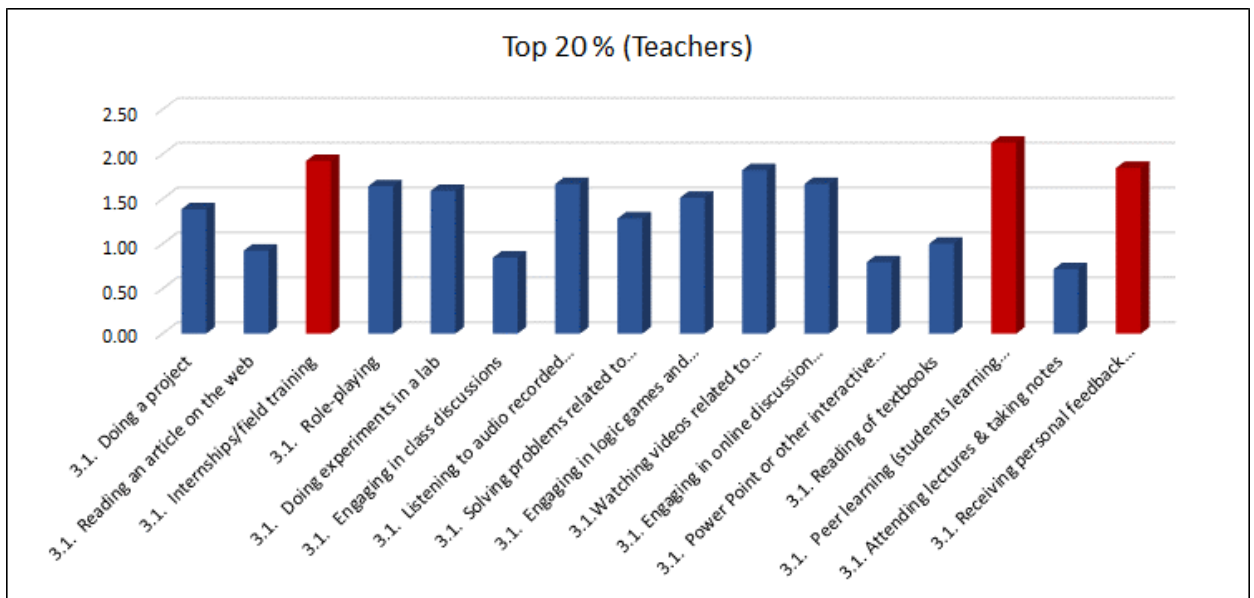**Figure 3.3 Degree of importance of the learning styles/approaches according to teachers and students' feedback**

Figure 3.4 The relative comparisons for the teaching staff.

"Degree of importance" deducted from "current use" according to teachers

According to the opinions of the teaching staff the most important forms of learning in BrSTU which are not widely used are "Internships/field training", "Peer learning" and "Receiving personal feedback" (Figure 3.4).
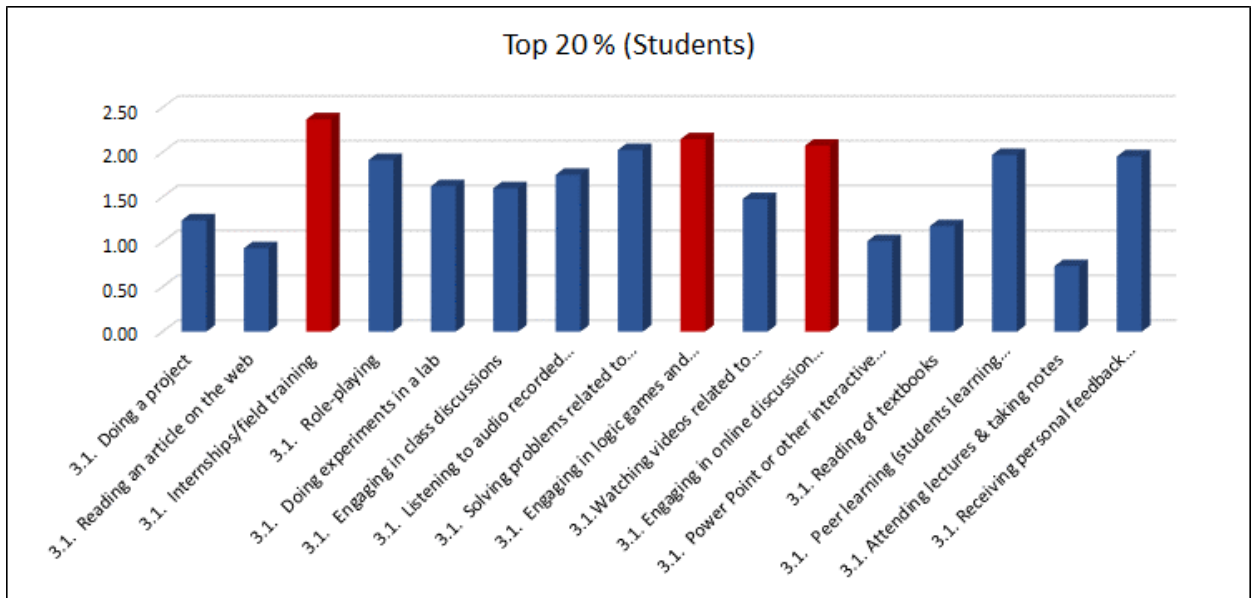
Figure 3.5 The relative comparisons for the students.

"Degree of importance" deducted from "current use" according to students

According to the respondent students' opinions the most important forms of teaching in BrSTU which are not widely used are "Internships/field training", Engaging in logical games, Engaging in online discussion (Figure 3.5).

Section 4. Assessment methods and approaches

According to the answers received from the teachers who participated in the survey, the most popular answers are written exams, standard tests and review of student projects. The students evaluated "Student-to-student (peer) evaluation" and "Portfolios" as the most desirable assessment methods/approaches to be applied in their learning process (Figure 4.1).
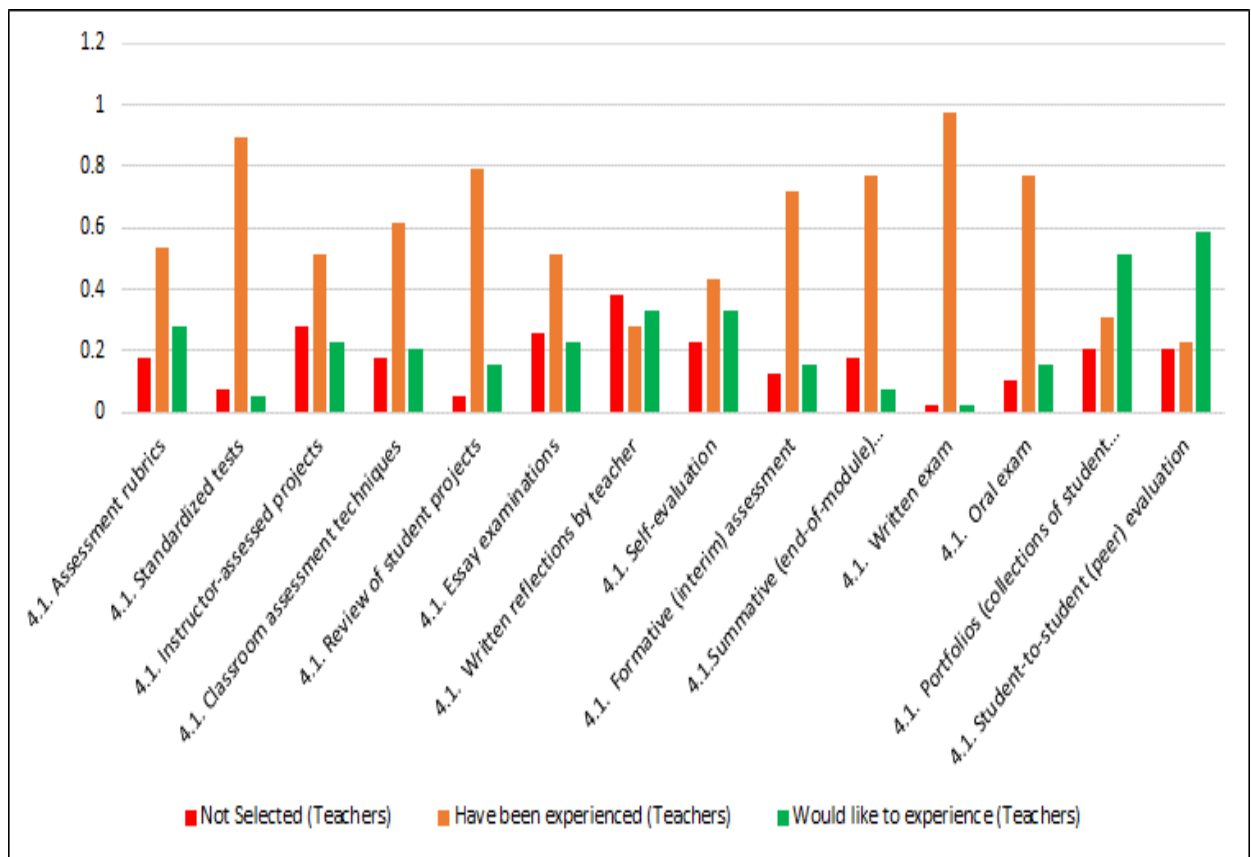

Figure 4.1 Adapted from "*Teaching staff professional development needs assessment*" Survey.

Question. 4.1. How do you assess your students? Please select the assessment methods/approaches which you used and the those you would like to use.

According to the feedback of BrSTU students "Standardized tests" and "Written exam" are generally applied in their learning process. This feedback absolutely coincides with the one received from the teachers. The students would like to be assessed with the help of such methods as "Student-to-student (peer) evaluation", "Portfolios (collections of student work)" and "Written reflections by teacher" etc. (Figure 4.2).
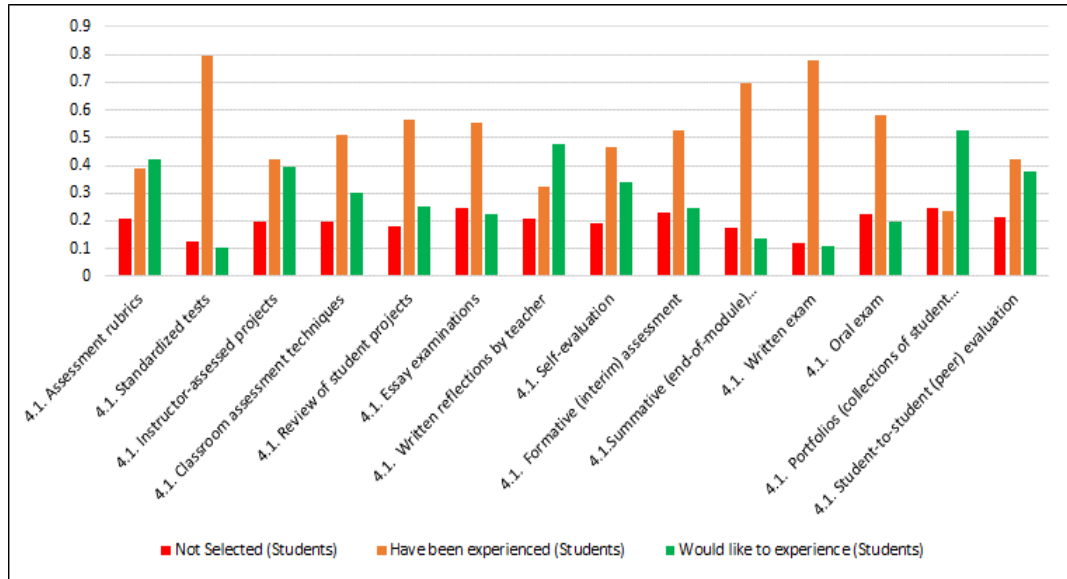
Figure 4.2. Adapted from "Student learning needs assessment" Survey.

Question. 4.1. How are you assessed? Please select the assessment methods/approaches which you have been experienced and those you would like to experience.

In general, the opinions of teachers and students in BrSTU are the same: according to teachers and students' feedback the most desirable assessment methods in BrSTU are "Portfolios (collections of student work)", "Student-to-student (peer) evaluation", "Written reflections by teacher" (Figure 4.3).
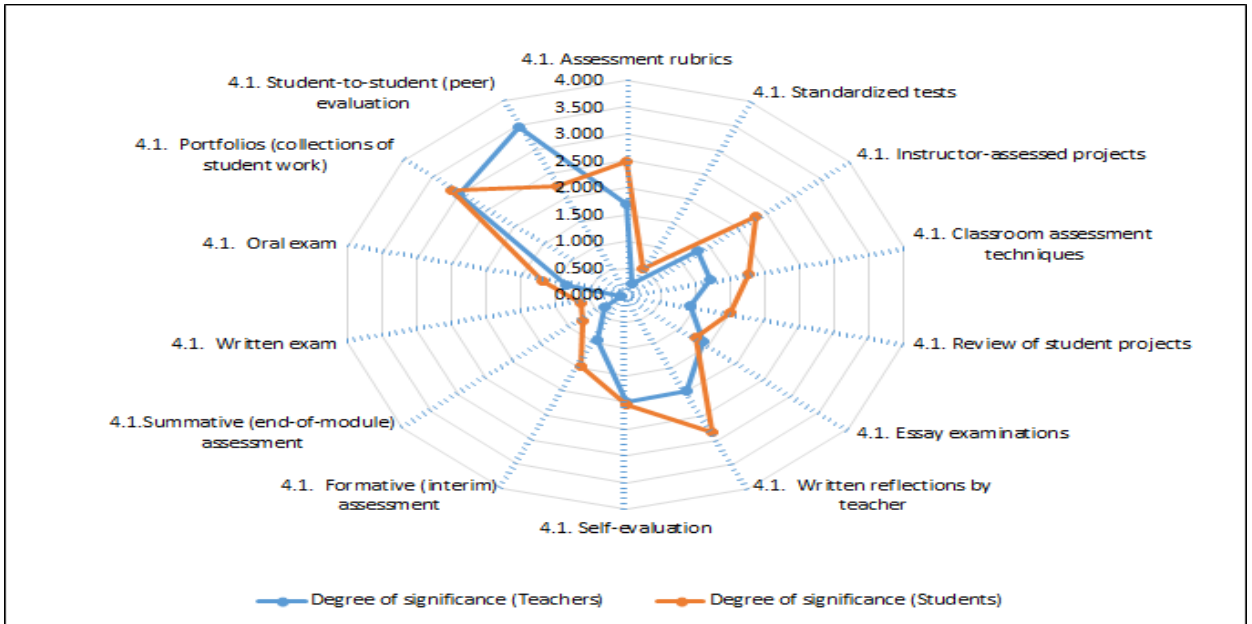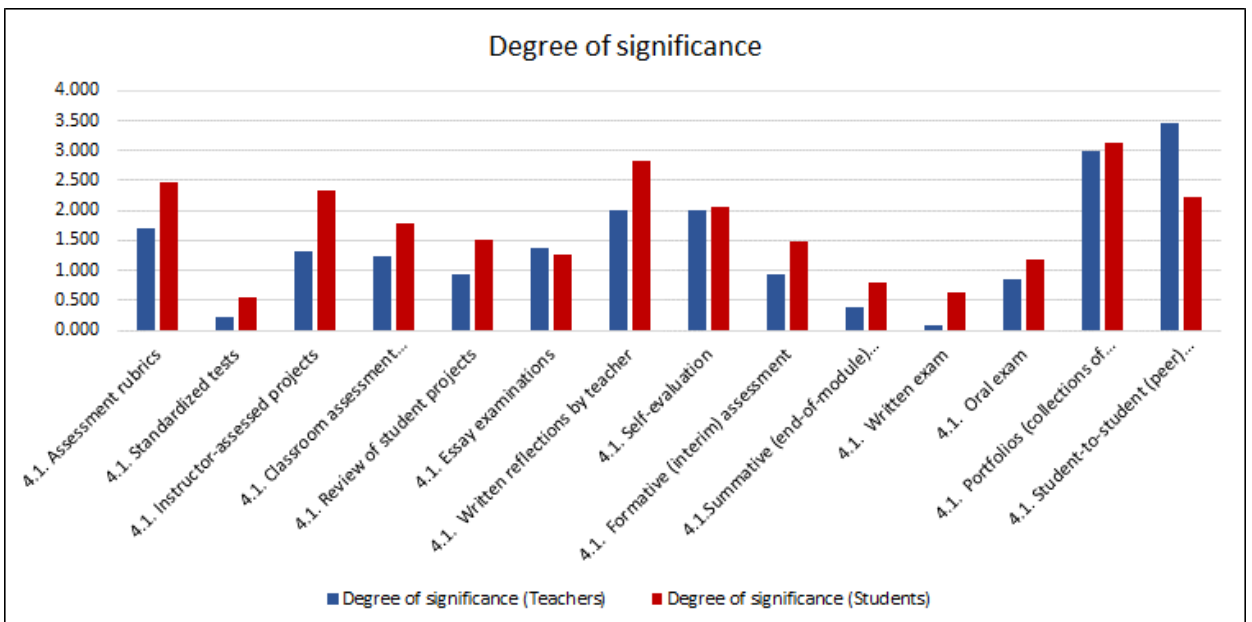
Figure 4.3. Calculated from the data of 4.1 questions of the "Teaching staff professional development needs assessment" and 4.2 "Student learning needs assessment" Surveys.

"Degree of importance" deducted from "current use" according to teachers and students.

Section 5. Use of technology, e-learning & social media for supporting learning

According to the feedback given by BrSTU teachers the relatively widespread technology-enhanced teaching and learning approach in BrSTU is "Multimedia tools". "Learning management systems (Google for education/Microsoft Office 365/Moodle/Blackboard etc.)" are less popular than the one mentioned above. Simultaneously, the teachers find that "Learning management systems (Google for education/Microsoft Office 365/Moodle/Blackboard etc.)", "Multimedia tools" are the most effective technologies supporting teaching process (Figure 5.1).
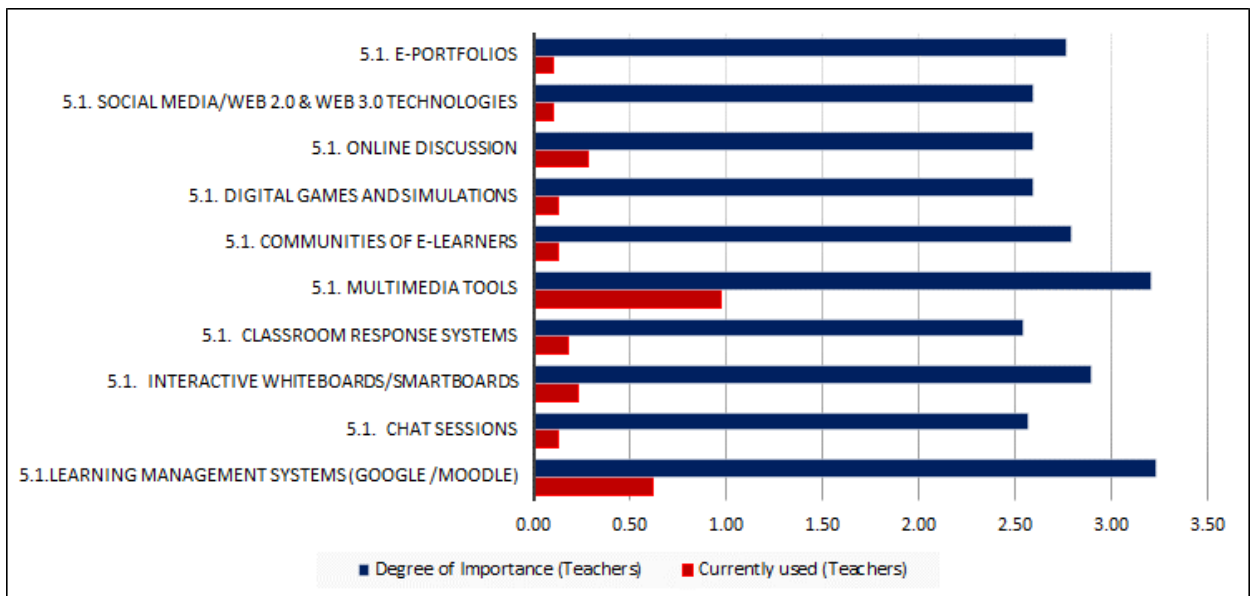

Figure 5.1. Adapted from "Teaching professional staff needs assessment" Survey.

Question 5.1. Please select the forms of technology which you use in your classes to support your teaching.
Question 5.2. Please rate your level of need for training in the technology-enhanced approaches used for teaching and support of learning from "No need" to "High need".

According to the students' feedback the technologies supporting their learning process are "Learning management systems" (Google for education/Microsoft Office 365/Moodle/Blackboardetc.) and "Multimedia tools". The students gave almost equal degree of importance to all the supporting technologies represented in the questionnaire (Figure 5.2).
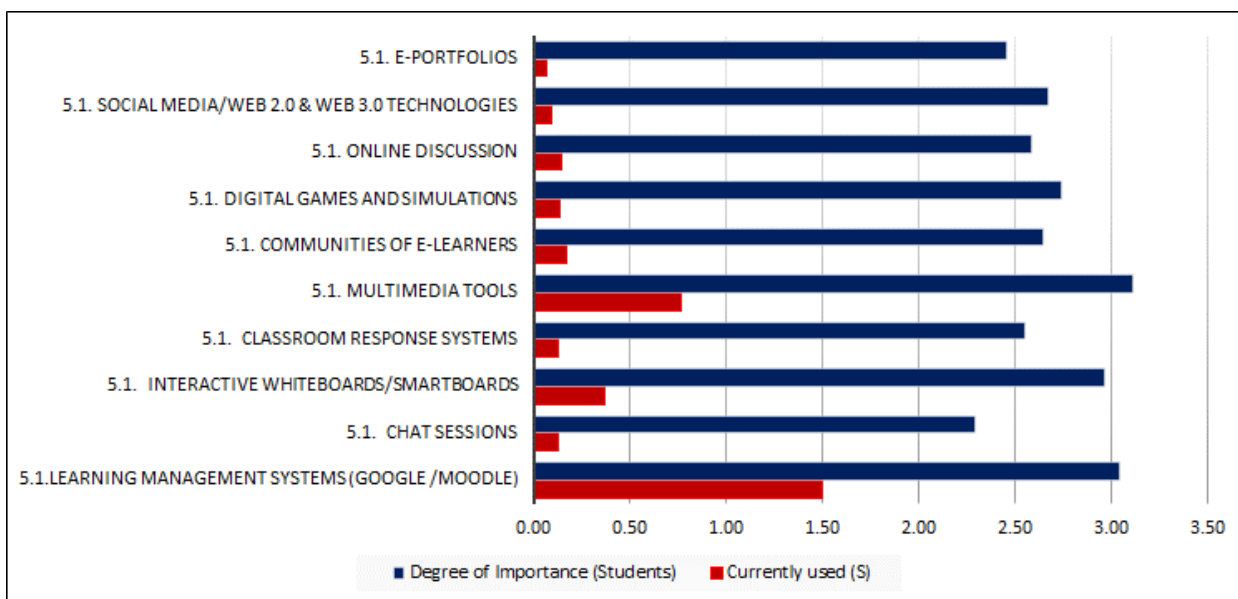
Figure 5.2. Adapted from "Student learning needs assessment" Survey.

Question 5.1. Please select the forms of technology which are used in your classes to support your learning.
Question 5.2. Please rate the forms of technology which would support your learning best from "Not effective" to "Highly effective".

The analysis of the data for the "Degree of Importance" option is shown on the diagram in Figure 5.3. The nature of the lines of the diagram indicates a practical coincidence of the opinions of the respondents on the points of the survey.
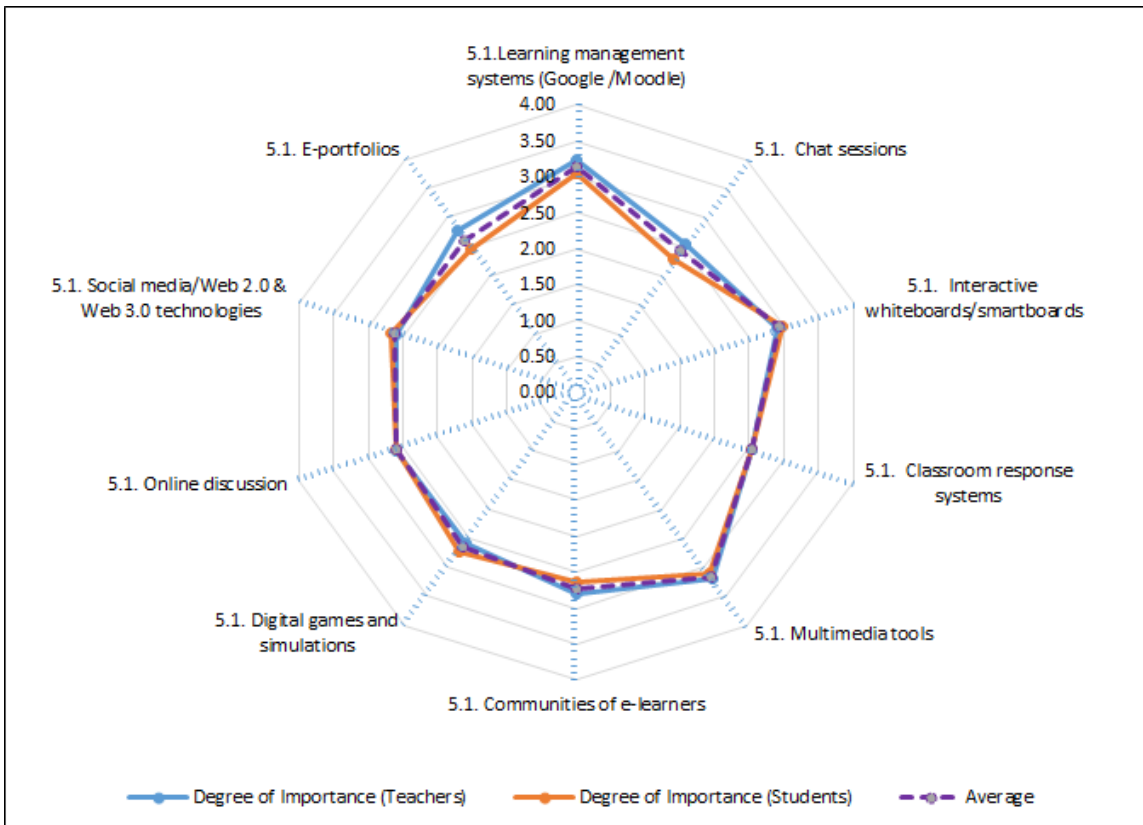
Figure 5.3. Degree of importance of the forms of technologyaccording to teachers and students'feedback

Both the teachers of the University and the students assessed in the same way the degree of importance in relation to the use of the following forms of technology: "Interactive whiteboards/smartboards", "Multimediatools" and "Communities of e-leaning" (Figure 5.3).
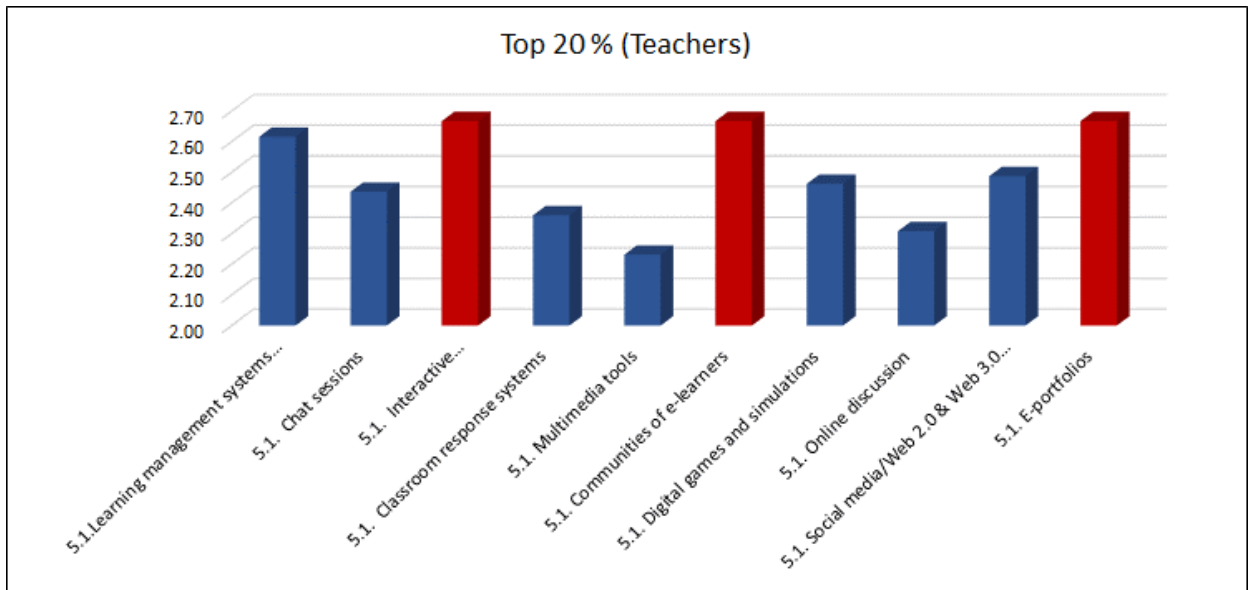
Figure 5.4. Adapted from "Teaching professional staff needs assessment" Survey.
"Degree of importance" deducted from "current use" according to teachers.

Currently, the teachers of the University are actively using tools such as "Interactive whiteboards/smartboards", and "E-portfolios" (Figure 5.4).
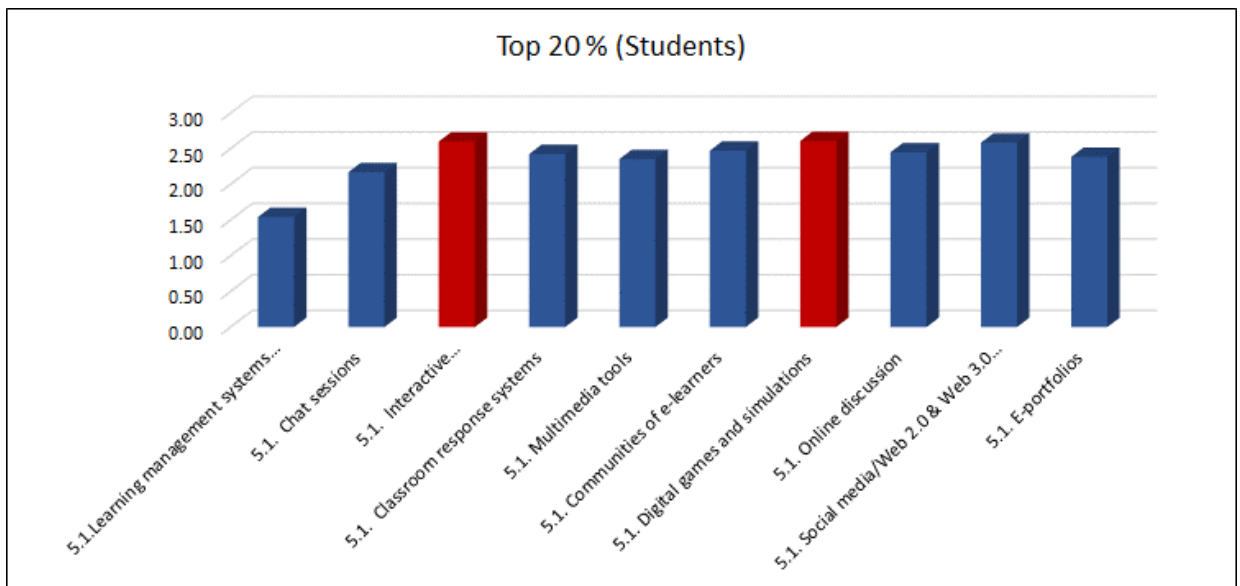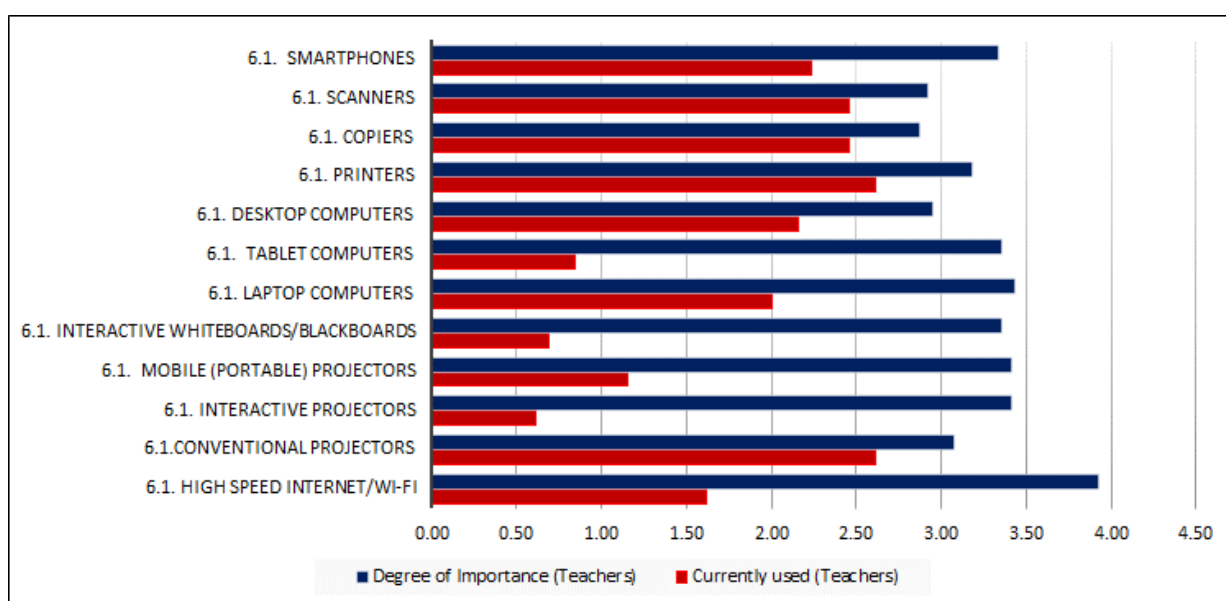

Figure 5.5 Adapted from "Student learning needs assessment" Survey.
"Degree of importance" deducted from "current use" according to students.

According to the students' feedback they believe that it is necessary to use all the means of education presented in the survey (Figure 5.5).

Section 6. Facilities to support student learning

According to the teachers' responses the most popular facilities supporting teaching and learning are "Conventional projectors", "Printers", "Copier", "Scanners". At the same time the teachers consider that the teaching process would be realized in the most effective way with the support of "High speed internet/Wi-Fi". According to teachers all other means of supporting education should also be actively used (Figure 6.1).

Figure 6.1 Adapted from "Teachers learning needs assessment" Survey.
"Degree of importance" deducted from "current use" according to students.

According to the feedback received from the students in BrSTU during their learning process all the learning support tools are very important, but they are not used so actively as it is necessary at this stage. (Figure 6.2).
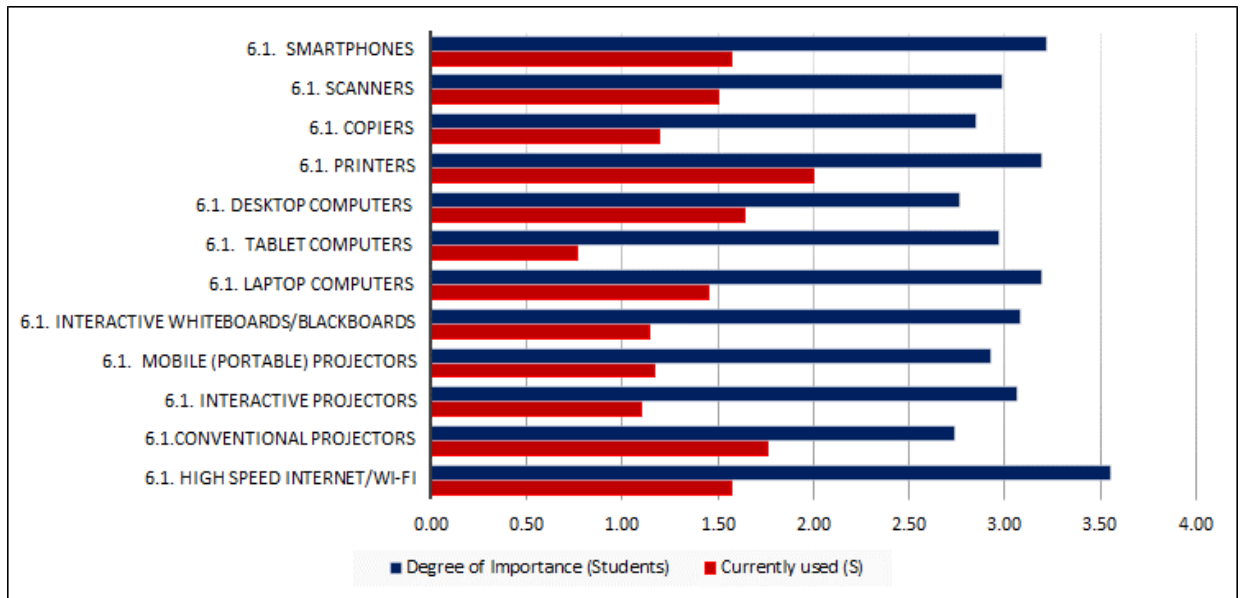
Figure 6.2 Figure 6.2. Adapted from "*Student learning needs assessment*" Survey.
Question 6.1. Please select the facilities which are used to support your learning.
Question 6.2. Please rate the facilities which would support your learning best from "Noteffective" to "Highly effective".

The results of the analysis of the feedbacks received from the teachers and students show that their opinions are not fundamentally different. "Student learning needs assessment" survey results look the same like the ones of "Teachers learning needs assessment" in the following points: "Printers", "Copiers", "Scanners". The students and teachers consider the use of "High-speed Internet" as very important.
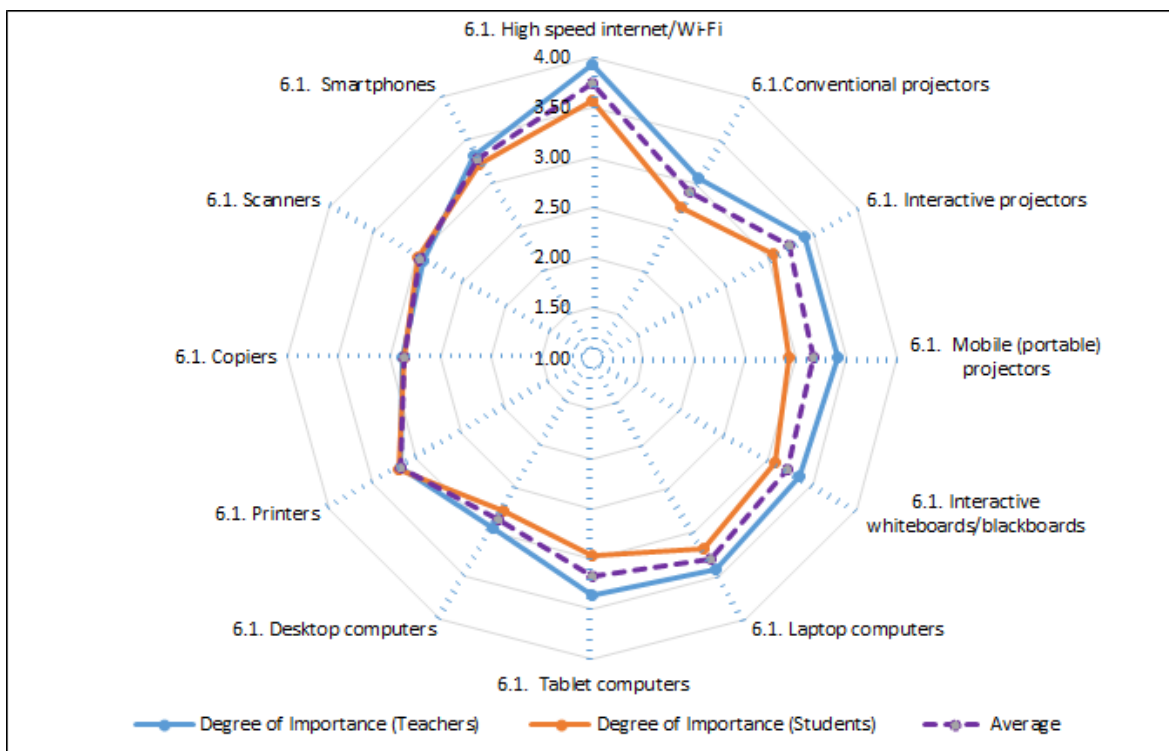
If we take into account the fact that some of the technical means (facilities) mentioned above are exploited to some extent in BrSTU, then according to the teachers' feedback the most preferable facilities supporting teaching and learning are "Interactive projectors" and "Interactive whiteboards/blackboards" (Figure 6.3).
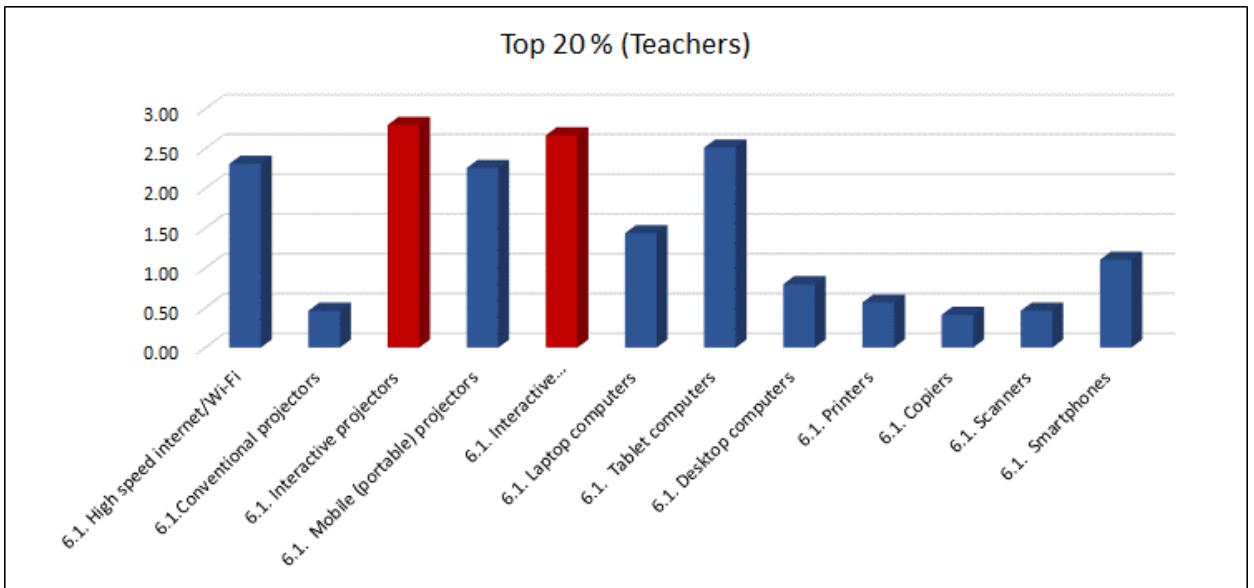
Figure 6.3. Adapted from "*Teaching staff professional development needs assessment*"
Survey.

"Degree of importance" deducted from "current use" according to teachers.

Students' need in "High-speed Internet" and "Tablet computers" is represented in
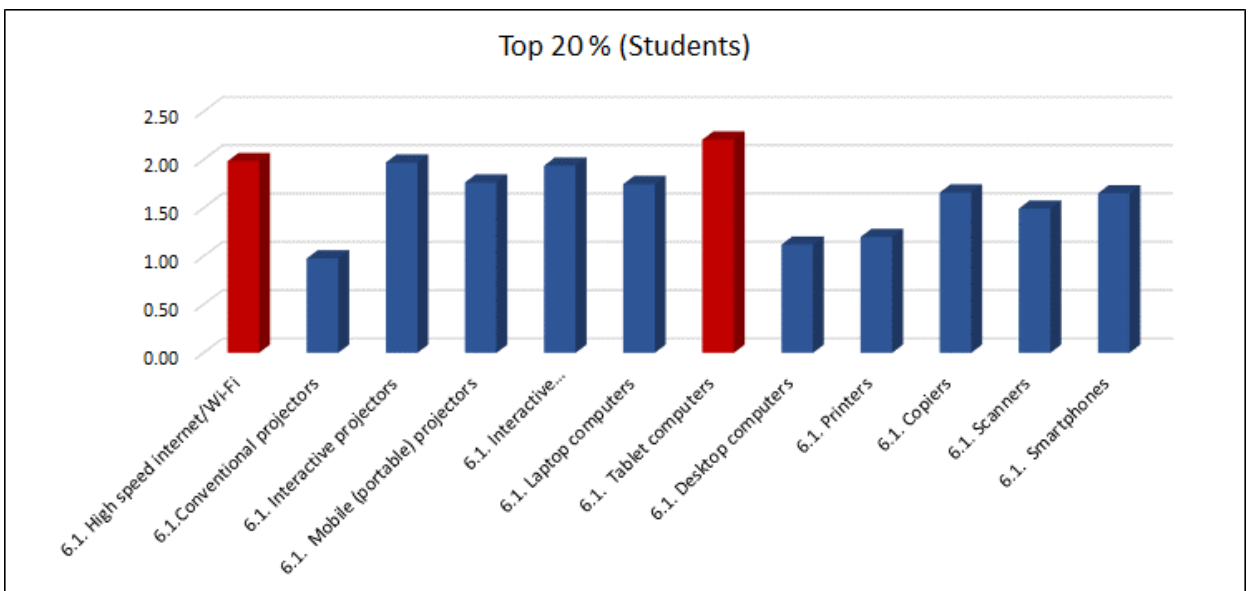Figure 6.4.

Figure 6.4. Adapted from *"Student learning needs assessment"* Survey.
"Degree of importance" deducted from "current use" according to students.

Section 7. Learning materials

According to the teachers' feedback in BrSTU the most commonly used teaching materials are "Text books", "E-books", "Presentations (PP, Prezi, etc.)", "Course/lecture notes". At the same time the teachers prioritize the use of such teaching material as "Course/lecture notes", "E-books", "Presentations (PP, Prezi, etc.)" (Figure 7.1).
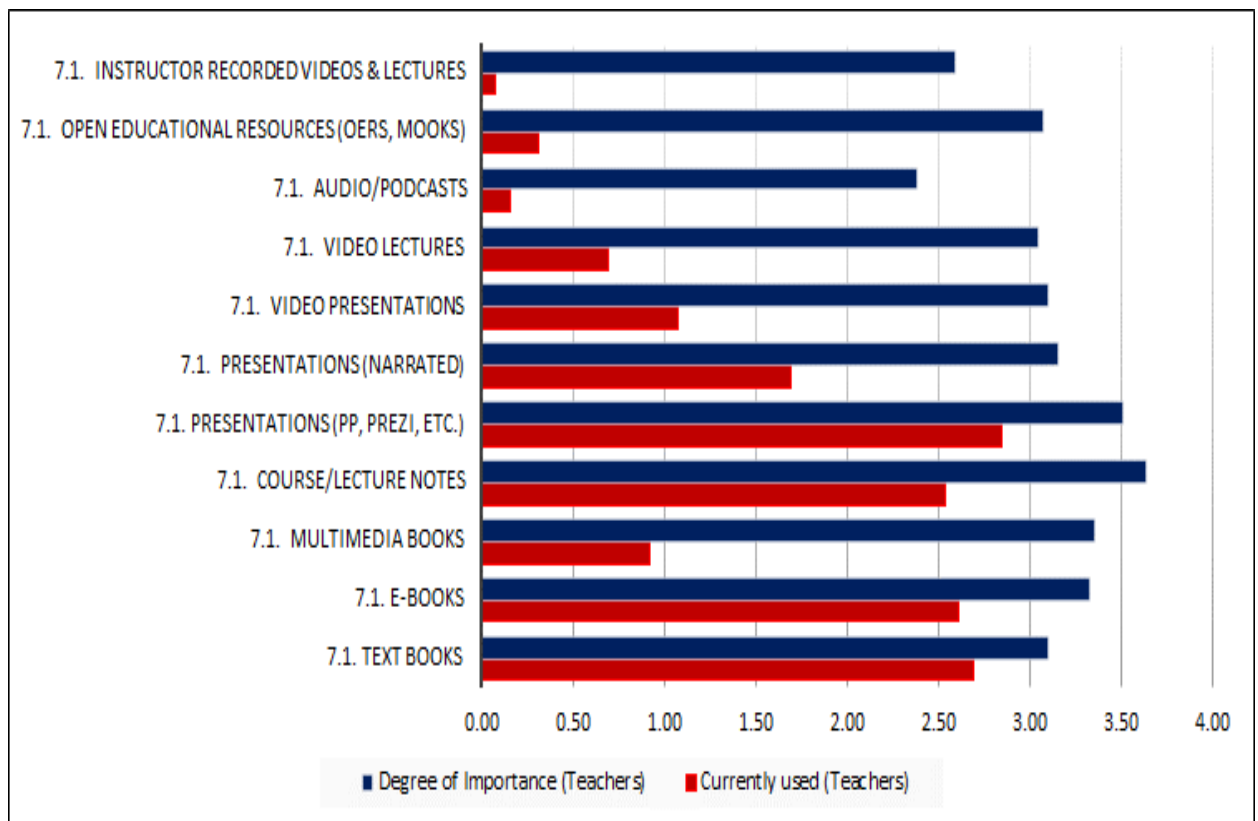

Figure 7.1 Adapted from "*Teaching staff professional development needs assessment*" Survey.

Question 7.1. What kind of teaching materials are currently used by you?
Question 7.2 Please rate the teaching materials which you think would support your teaching best from "Not effective" to "Highly effective".

The students mentioned in their responses that while learning they mostly use "Text books", "E-books", "Course/lecture notes", whereas in the questionnaire they gave equal degree of importance to almost all the learning materials presented in the online survey form, excepting "Course/lecture notes" (Figure 7.2).
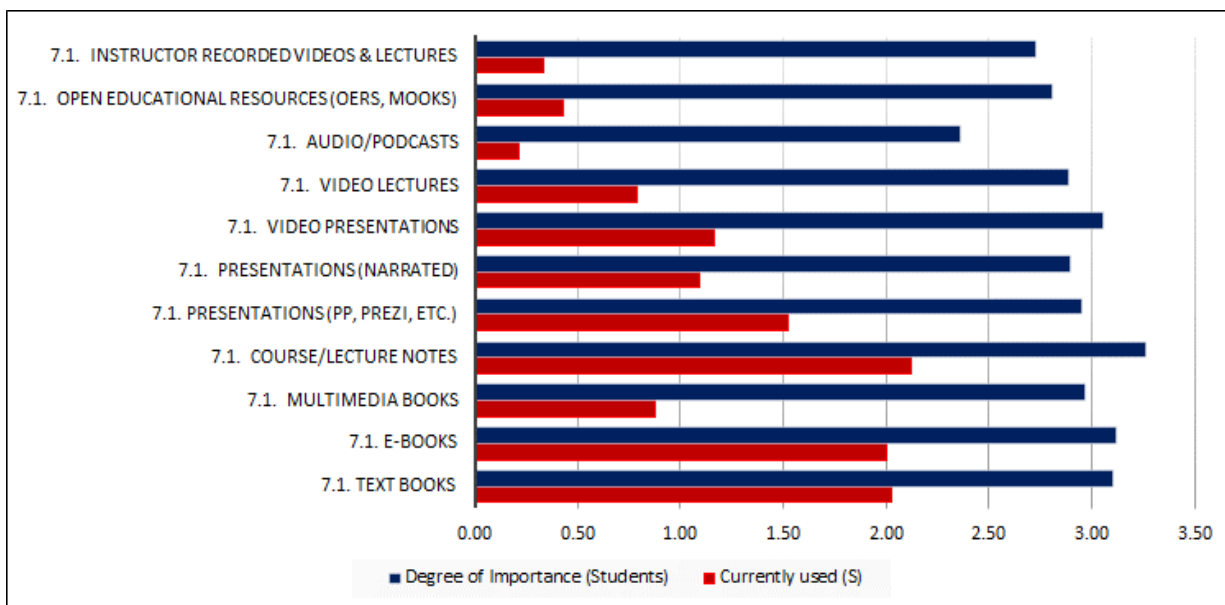
Figure 7.2. Adapted from *"Student learning needs assessment"* **Survey.**

Question 7.1. What kind of learning materials are currently used by you?
Question 7.2. Please rate the learning materials which would support your learning best from "Not effective" to "Highly effective".

In the analysis of the respondents' feedback the opinions of teachers and students are not fundamentally different. The most important teaching/learning materials to be used are "Video presentations", "Presentations (PP)", "Text books" and "Open education recourses (OERs, MOOKs)".
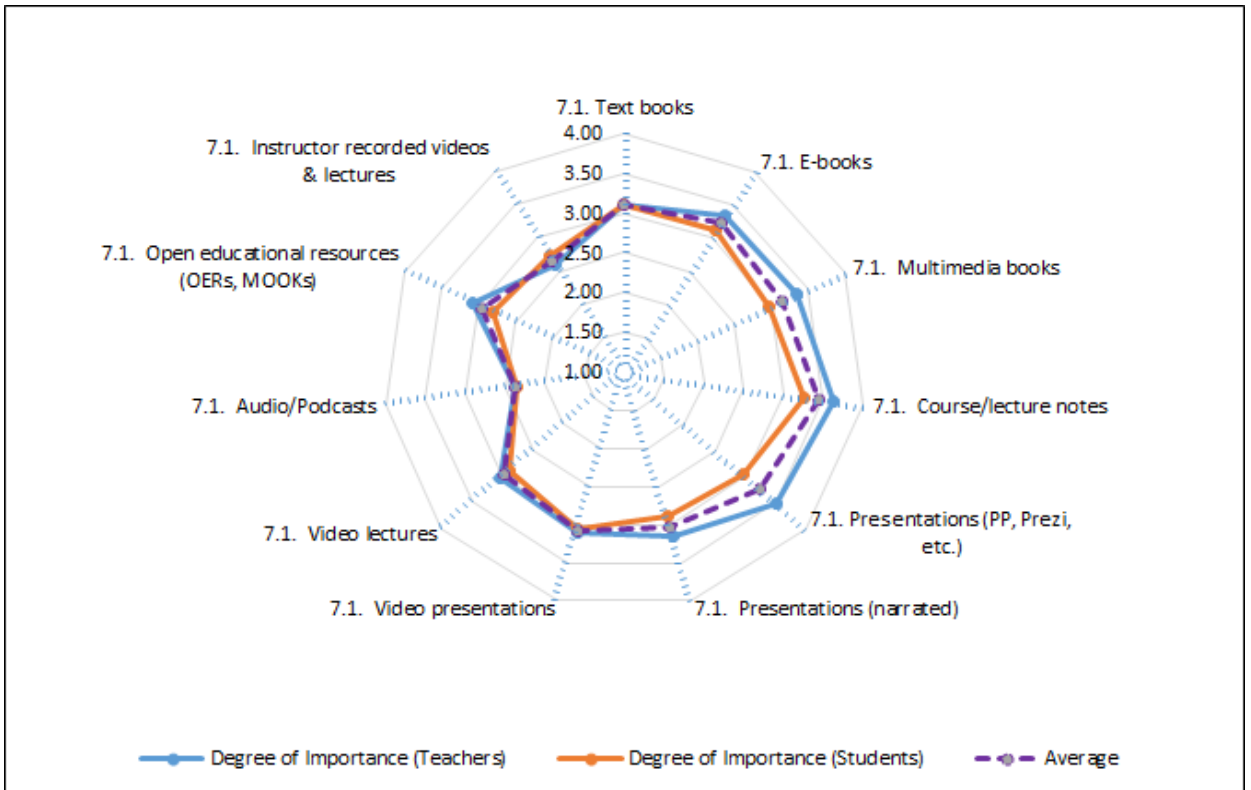
Taken the fact that some of the most important teaching materials mentioned above are already exploited to some extent in BrSTU, the most important teaching materials according to the teachers' feedback are "Open educational resources (OERs, MOOCs)", "Multimedia books" and "Instructor recorded videos & lectures" (Figure 7.3).
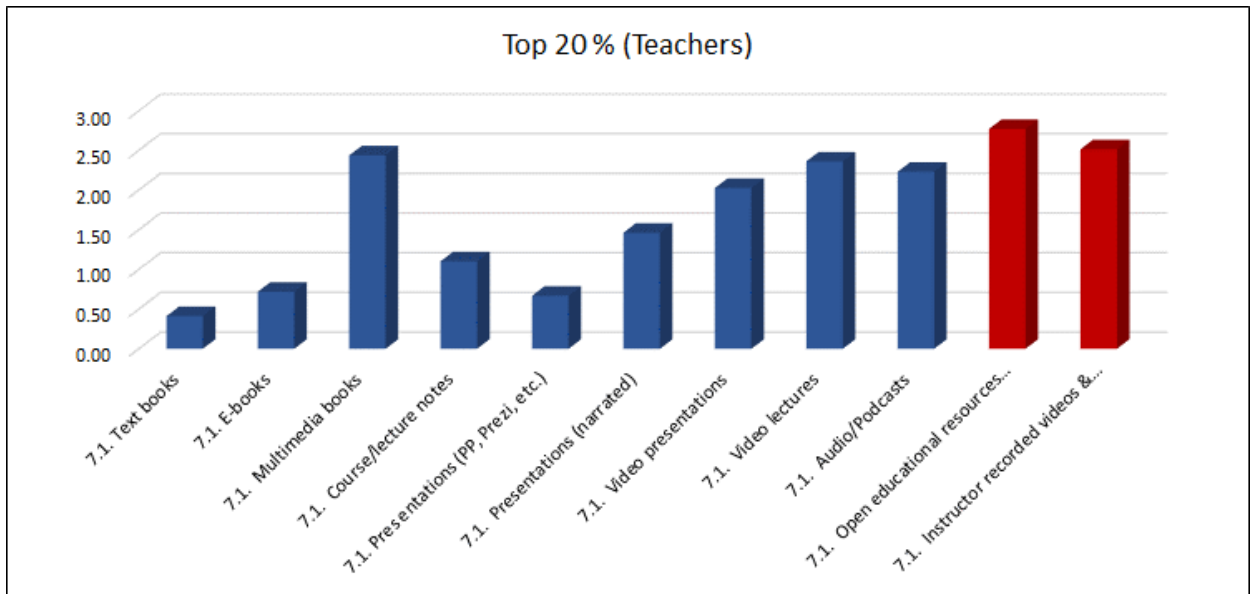
Figure 7.3. Adapted from "*Teaching staff professional development needs assessment*" Survey.

"Degree of importance" deducted from "current use" according to teachers.

As according to the students' responses some part of the materials important for learning is already used to some extent in BrSTU, the most preferable materials necessary for learning from the students' perspective are "Multimedia books", "Open educational resources (OERs, MOOCs)", "Instructor recorded videos & lectures" (Figure 7.4).
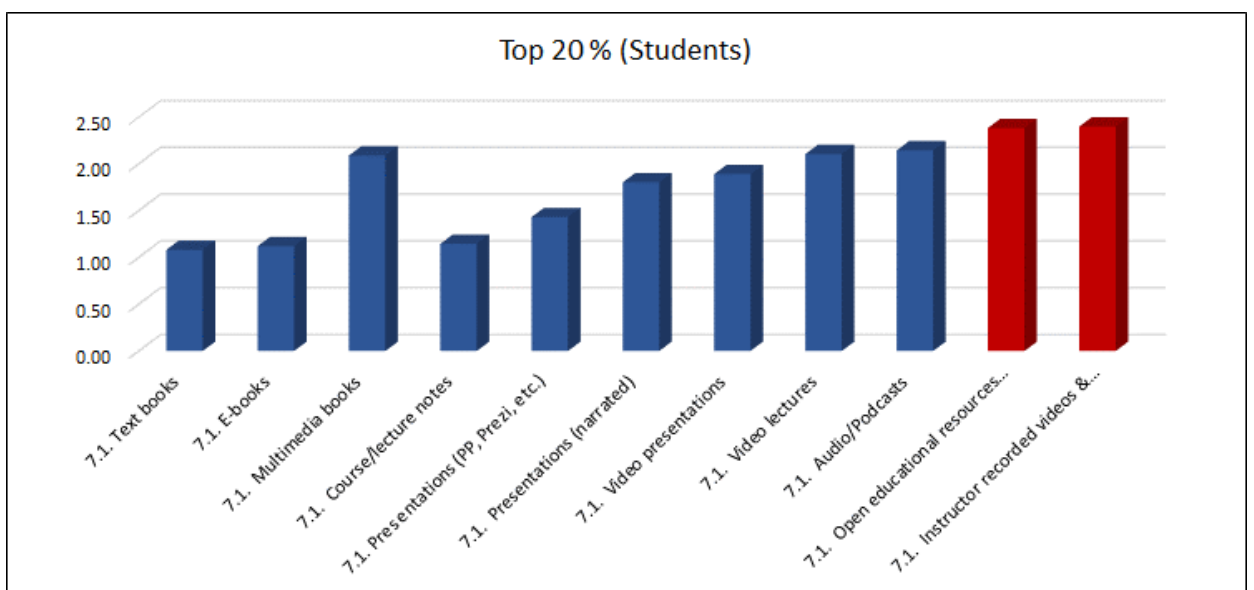

Figure 7.4. Adapted from "*Student learning needs assessment*" Survey.

"Degree of importance" deducted from "current use" according to students

Conclusions and Recommendations

Summing up all the results of the surveys realized within the framework of the PRINTeL project's objectives and conducted among BrSTU teaching staff members and students we come to the following general conclusions:

1. The innovative and technology-enhanced teaching and learning methods and approaches that are needed to be introduced in BrSTU are:

- "Project based learning (project work)",

- "Research based teaching",

- "Experience based teaching",

- "Experience based learning" ,

- "Laboratory works",

- "Traditional lecturing",

- "Experience based learning",

- "Discussions/debates",

- "E-teaching/Web-or multimedia enhanced teaching",

- "Active learning".

2. The technologies and facilities supporting teaching and learning necessary to be present in BrSTU are:

- Printers

- Copiers

- Scanners.

- Interactivewhiteboards/smartboards/blackboards.

- Interactiveprojectors.

- High-speed Internet.

- Tablet computers.

3. The new forms of teaching and learning materials that are demanded for the needs of BrSTU are:

- Text books,

- E-books,

- Course/lecture notes,

- Presentations (PP, Prezi, etc.),

- Video presentations,

- Multimedia books ,

- Text books,

- Open education recourses (OERs, MOOKs),

- Instructor recorded videos & lectures.