

Teaching Methodology in Higher Education: present and future

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Abstract— This article describe the teaching methodology in Higher Education. The aim of the paper is to display the present methodology. What can we expect in the future? Smart People - Smart University?

I. INTRODUCTION

In the latest years the role of the universities has been changed. Its judgement, its financial background and also the education in the universities changed and also changing now. What can expect in the future? What change can we expect by the students, the teachers, the methodology, the lessons?

Everybody knows the Bologna Declaration and its effects. The grown students and the permeable education system generated lot of changes. But it is true? In my opinion the most of teachers in higher education only try to follow these changes. Can we teach with those methods, methodology what worked in the past?

The international tendencies in education show that the traditional teacher-centred education go to student-centred education [1].

High quality and relevant higher education is able to equip students with the knowledge, skills and core transferable competences they need to succeed after graduation, within a high quality learning environment which recognises and supports good teaching.

The reform of higher education depends on the competence and motivation of teachers and researchers, yet staffing levels have often not kept pace with expanding student numbers, putting further pressure on already strained capacities. Better working conditions, including transparent and fair recruitment procedures, better initial and continuing professional development, and better recognition and reward of teaching and research excellence are essential [2].

The aim of the study to show the present methodology and compare that with the further methods. In this digital world it is necessary to recognise and prefer the student-centred education, and also important to develop the best methods (best practices) in higher education.

II. EDUCATIONAL MODELS

The traditional method is to make a course description that we start from the educational material of the course.

Teachers decided that in the course, in a semester, what they want to teach, made plans about teaching methods and in the end they appreciated the students knowledges. This approach starts from the knowledge of the teacher, and as valuation it research how students could pick up the curriculum. Course description shows in this case which part of the book/study/other material the teacher will give on the lesson. This approach is called teacher-centred education.

Other model is the student-centred education. This alternative model shows what the students will know finishing a course. This approach is also called as result-based education [3].

III. EDUCATIONAL METHODS

For teacher it is a challenge to coordinate the teaching methods, the techniques of valuation, the criterions of valuation and learning outcomes. But only with this coordination can we help for students to clear the requirements.

Valuation can be formal and summa. Formal valuation is learning-based valuation. This valuation form can help for teacher and also for students that how the students get along with their studies. We use this valuation form usually at the end of the course or during the course. The benchmark of the students can help for the teacher to make good decision what is the adequate direction in teaching. For example: working on the lesson, and after that the student will give instruction and help to achieve the next task. Another example is the oral presentation from certain theme. This can help the student to improve its knowledge, and also improve its skills in communication and organization. Formal valuation is a part of teaching and not part of grading.

Summa valuation is the grading, so finishing a course the students will give a grade. This valuation form show the benchmark of the student in a certain date, and not the whole semester.

The third type of valuation is the continuous valuation, which contain both valuation methods: formal and summa. In deed that means that during a semester there are more summa valuation with grades, but the students give a few feedback from their benchmarks [2].

The different tasks for valuation banter to different learning methods (Table I).

Coordinating the learning outcomes, teaching methods, students work and valuation methods is hard for the

TABLE I.
VALUATION METHODS AND LEARNING METHODS

Valuation methods	Learning methods
Composition, essay: - homework composition - examination essay - exam using materials	memorizers, flash analysis
Objectiv test: - response test - alignment test	strategies
Benchmark valuation: - exercises - oral presentation - poster - interview - critical annotation - project-based learning - work book - case studies, problems - portfolios - small exams - mental maps - Venn-diagram - Small answers	communication, reflex, research, creative skills, information and data mining

teacher, but it can be useful the undermentioned teaching and learning task:

- presentations,
- personal working,
- laboratory,
- field work,
- group working,
- seminars,
- presentation from other students.

An adequate teaching plan can help for the student to learning more efficiently.

Different teaching methods can be grouped:

1. Based on persons
 - based on teacher,
 - based on student,
 - based on both teacher and student.
2. Based on methods
 - oral methods,
 - modern techniques and methods,
 - illustrative methods.
3. Based on pedagogical task
 - given new knowledges,
 - helping the applications.

As oral method it can be mentioned the presentation which it is in higher education frequently used method on the lessons. Also to this method can be grouped the telling and comments, these can be useful on manual trainings. Dispute is a special oral method, the aim is to improve the mind and communication and also give new informations.

The illustrative methods have two basic form: direct and indirect. Direct is e.g. the experiments, indirect is e.g. watching video.

In modern techniques and methods frequently used the project-based learning. Project-based learning hails from a tradition of pedagogy which asserts that students learn best by experiencing and solving real-world problems. According to researchers, project-based learning essentially involves the following:

- students learning knowledge to tackle realistic problems as they would be solved in the real world,
- increased student control over his or her learning,
- teachers serving as coaches and facilitators of inquiry and reflection,
- students (usually, but not always) working in pairs or groups.

Teachers can create real-world problem-solving situations by designing questions and tasks that correspond to two different frameworks of inquiry-based teaching:

- problem-based learning, which tackles a problem but doesn't necessarily include a student project, and,
- project-based learning, which involves a complex task and some form of student presentation, and/or creating an actual product or artifact.

While project-based learning has been criticized in the past for not being rigorous enough, the following features will greatly improve the chances of a project's success:

1. A realistic problem or project
 - aligns with students' skills and interests,
 - requires learning clearly defined content and skills (e.g. using rubrics, or exemplars from local professionals and students).
2. Structured group work
 - groups of three to four students, with diverse skill levels and interdependent roles,
 - team rewards,
 - individual accountability, based on student growth.
3. Multi-faceted assessment
 - multiple opportunities for students to receive feedback and revise their work (e.g., benchmarks, reflective activities),
 - multiple learning outcomes (e.g., problem-solving, content, collaboration),
 - presentations that encourage participation and signal social value (e.g. exhibitions, portfolios, performances, reports).
4. Participation in a professional learning network
 - collaborating and reflecting upon PBL experiences in the classroom with colleagues,
 - courses in inquiry-based teaching methods.

IV. RESEARCH METHOD

The study presents a quantitative research carried out on a sample of 200 students. The age range was between 19 and 26, proportionately from different grades, specialties and gender. The research was done from the term 2013/2014 till the term 2015/2016 at the Obuda University Alba Regia Technical Faculty (earlier University of West Hungary Faculty of Geoinformatics) among the regular students in many courses. The valuation forms were formal and summa and it was continuous. The students satisfaction was also in the research.

The methods was selected from webpage of Tempus Foundation which has huge methodological swatch (http://www.tka.hu/tudastar_kereso). Sometimes the methods were changed, and also it was developed new methods. Not only teaching, but also valuation methods was used in the research. Also cooperative learning

TABLE II.
METHODS IN THE RESEARCH

Course name	Teaching methods
Nature protection and environmental protection	Back to the table Definition bingo Pot game Microstudy Film-culture Board game Reviews Mind mapping
Water management	Back to the table Pot game Definition bingo Microstudy Film-culture Reviews Crosswordpuzzle Amoeba (word or definition) Bluff Project-based learning
Land valuation	Reviews Pot game Group work
Natural resources and environment management	Group work Dispute Film-culture Reviews Cartoon
Land protection and land management	Reviews
Geography of Europe	Board game Cooperative learning
Land valuation cadastre	Mind mapping Group work
Land use and environmental protection	Pot game Microstudy Reviews Film-culture Dispute Cooperative learning
Land use and land valuation	Pot game Microstudy Reviews Film-culture Dispute Cooperative learning

methods has a big literature .

In Table II the methods were summarized.

The background is very important using this methods. We need a good material (coursebook) and a lot of time and effort before the lessons to prepare that. For me it was also very good that sometimes the students give ideas what can be the next method. The cooperation mostly was very good, the success is based on the students. If there motivation was weak it was hard to make interesting the lessons. With ICT technologies the scale of the methods will be wider.

V. RESULTS

During the research the feedbacks were collected from the students. The result was surprising. From 10 students only one said that the task was not good, and from that he could not learn anything. Main difference was by gender. Female students made with pleasure the tasks, unfortunately the female students share in one third part of the whole students. The best practices were by the students:

- project-based learning,
- pot game,
- cooperative learning,
- film-culture.

As a teacher the best practices were:

- dispute,
- project-based learning,
- pot game,
- cooperative learning.

The summa valuation gave very good solution: 63% of the students made the exam with the grade five. Only 10% of the students had unsatisfactory mark.

The formal valuation was also successfully, the students was satisfied with the results and the problem was solved in short period.

As a teacher the application of the methods needs more time and efforts as the teacher-centred approach. Using new methods it is also necessary for the teacher because due to this method we can refresh our knowledge also (lifelong-learning). In my opinion these methods will be more important in the future. The students are changing. The Z generation (and further Alfa-generation) needs interesting teaching methods. E-learning and student-centred education leads to smart university which is one approach in EU strategies [4].

In the future it will be useful to create a web-page about the methods which can be useful in higher education, because the most website does not deal with them.

ACKNOWLEDGMENT

The author declares no conflict of interest.

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