

Effective Teaching Methodology in Higher Education

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Abstract— This article describe best practices to show how to involve students into teaching and studying in higher education. The paper provides a theoretical and pedagogical foundation for helping teachers and researchers use more effective practices on the lessons. With these methods the students can better and more effective pick up the knowledge what you need to pass the exam.

I. INTRODUCTION

„What we have to learn to do, we learn by doing.” – tis is saying from the ancient times, from Aristotle. In June 1999 the educational minsiters of EU-members country met in Italy, and made the Bologna Declaration. The aim of this document was to create a common European Higher Education Area. Another aim was to improve the effect and efficiency of the european higher education. The Declaration proposed that the universities and other institutes in higher education can keep up in research and in education with new social and secientific changes.

The international tendencies in education show that the traditional teacher-centred education go to student-centred education: so the hub is not only on education but that is also important what we expect from student finishing a course. Learning outcomes are statements of what a learner is expected to know, understand and be able to demonstrate at the end of a learning experience.

As teacher, I often fool myself in thinking that what we do is necessarily more important for students than other activities in which they engage. However, if I place myself int he position of mediating all the students to know, I not noly cerate unrealistic expectations but I potentially deskill students by preventing them from developing the vital skills of effectively learning from each other needed in life and work. The skill of obtaining accurate information is not learned by being given accurate information by a teacher but through practice in discerning how to judge the accuracy of the information we receive [1].

The aim of the study to show that 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 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 [2].

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).

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

Coordinating the learning outcomes, teaching methods, students work and valuation methods is hard for the 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 110 students. The age range was between 19 and 26, proportionately from different grades, specialties and gender. The research was done during the last term 2013/2014 at the University of West Hungary Faculty of Geoinformatics among the regular students in seven 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.

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 <u>Mind mapping</u>
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 technique
Land valuation cadastre	Mind mapping Group work

In Table II the methods were summarized:

Description of the methods:

- Back to the table: students make two groups, then they collect the main words, definitions about the lesson. The words are written to the table. After

that one from each group is sitting back to the table and this person should guess the word what the group tell him.

- Pot game: the teacher collect 20 statements about the lesson which can be true or false. The teacher read loudly every sentences, statements and the student have to decide if the statement is true or false. The students can give a pot for every sentences and if they guess it they give the pot.
- Definition bingo: the teacher make for all students papers with table. In this table they can read the name of definitions. The teacher read loudly and slowly every definition and student have to guess which definition match with the name of definition. If a student guess three good solution in a line, this person win the game.
- Microstudy: the teacher split for every students a review, a study. The students have to make a short resumé from this review, but only in 5-10 sentences.
- Crosswordpuzzle: the teacher make empty crosswordpuzzles, split for every students one of them. After that the teacher split the definition for the students and they have to write to the right place.
- Amoeba (word or definition): the students make two groups. The teacher read loudly the definition. If a group guess the definition name, they can write a character to a paper. If a group has three same character in a line, they win the game.
- Film-culture: on the lesson the students watch a video. Finishing the video the teacher split sentences in paper from the video. The students have to line up the sentences in right way.
- Bluff: the students make two groups, They have to collect the definition or statements from the lesson. Then they select five pieces from the collection and write two false definition for every definition/statements. They read the three definition/statements to the other group and the other group have to guess what was the right sentences. If they guess it they win one score.
- Reviews: the students make two groups. The teacher split the reviews for each group. The students have to create five questions from the reviews. Then they change the reviews, read fast it and try to give the correct answer for the questions which were given by the other group. The fastest group win the game.
- Project-based learning: the students have to divide more groups. The teacher give for every group a task, a project which the students have to make. It can be not only short-lived project but also during

two or three lessons. The project based on a common problem, but the students have to work in groups.

- Group work: it is very similar to the project-based learning. The different is the time, because the task have to be short, so the students have only one lesson to make that.
- Cartoon: the teacher split for every students a cartoon from the lesson. The students have to collect the main informations.
- Dispute: the teacher tell a global or local problem. The students have to prepare the dispute for the next lesson on which one of the student will be the leader. The students speak about the problem based on direct question from the leader.
- Board game: the students have to make a board game using the study materials. Finishing that they can play with the game.
- Cooperative techniques: the students divide into more groups, but the teacher give not only one task for every group, also give small exercises for every students in the groups.
- Mind mapping: the students have field work. Finishing that they have to make a mind map on which they can draw what they saw on the trip. The map can based also on theoretical knowledge so the student can draw graphs with parts of knowledges.

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,
- board game,
- film-culture.

As a teacher the best practices were:

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

The summa valuation gave very good solution: 60% of the students made the exam with the grade five, so first. 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).

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