METHODS OF TEACHING-LEARNING-EVALUATING IN HIGHER EDUCATION AND SKILLS TRAINING

MUŞATA BOCOŞ*, DANIEL ANDRONACHE**, DORIN IONUŢ STANCIU***, BACIU OANA RALUCA****

ABSTRACT. The present paper aims to address briefly the teaching-learning-evaluating methods used in higher education and how these methods determine and support competences training and development. Thus, we present several methods, such as: teaching-learning methods: lecture, lecture with discussion, heuristic conversation, didactic exercise, problem-solving, brainstorming, computer assisted learning; for assessment: traditional assessment methods: oral, written and practical evaluation; alternative evaluation methods: the continuous and self-evaluation, the essay, the project, the portfolio. Finally we propose a graphical model in which we highlight the relations of permanent interaction between the three components of the educational process – teaching, learning and assessment.

Keywords: *competences, competences training, teaching-learning-assessment methods, higher education*

I. Preliminary considerations

At EU level, the first decade of the third millennium has resulted in remarkable progress in the implementation of an effective extended European area of education by valuing the next approaches:

– ***Education*** as a fundamental way of personal and social affirmation;

– ***Focusing education on developing skills*** and ensuring their transferability and thus a better social and economic integration of graduates, by capitalizing on achieved learning in non formal and informal situations;

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* Prof. Ph.D., Babes-Bolyai University, Faculty of Psychology and Education Sciences, Cluj-Napoca, Romania, musata.bocos@yahoo.com

** Drd., Babes-Bolyai University, Faculty of Psychology and Education Sciences, Cluj-Napoca, Romania, daniel_cosminandronache@yahoo.com

*** Drd., Babes-Bolyai University, Faculty of Psychology and Education Sciences, Cluj-Napoca, Romania, id.stanciu@gmail.com

**** Drd., Universitatea Babes-Bolyai University, Faculty of Psychology and Education Sciences, Cluj-Napoca, Romania, baciu_raluca@yahoo.com

– ***Assurance of education quality***, its capacity to meet personal expectations and interests of all beneficiaries: students, parents, employers, other categories of beneficiaries and at the same time, the qualities of the various components of the education system.

University education reform measures were imposed to adapt education to social, political and economical changes in recent years, in general, and in response to the educational needs of university professors and the development of science education field.

European Commission and UNESCO reports highlight the major trends of curriculum reforms at European level: education for all, adequate training to the needs of each individual, student-centered teaching and learning, focusing education on skills, integrated approach of curriculum, curriculum relevance for the individual and society, developing desirable attitudes and values, developing critical thinking, authentic assessment of school performance.

At the micro level, concerning the activity in the classroom, these lines of educational policy calls for a better understanding of students to identify learning needs, interests of knowledge and own development and individual training. In this respect, the use of appropriate teaching-learning-evaluating methods is an efficacious and profitable solution; methodological solutions are recommended by priority, knowing the strikingly dynamical and operational character of teaching methods in their role of components of teaching strategies.

In trying to make a primary assessment of the importance and impact on which established methods of teaching-learning-assessment have on student skills development and training, we will make a separate approach of these methods for strictly educational reasons, knowing that in reality, teaching, learning and assessment coexist and reinforce each other.

II. A summary of recoverable teaching-learning methods in higher education. Their relevance in the development of skills

The term ***method***, etymologically speaking, comes from two Greek words: *odos* which means "way" and *metha* which means "to" or "toward", as deriving meaning "way, a path to ...". The teaching method refers to the way which should be followed towards achieving the educational goals (Cucos, C., 2002). In other words, by a method we mean all activities undertaken in order to meet certain objectives, in this case the teacher has to ask himself, "What can I do to achieve what I want?"

A Competence represents the demonstrated ability to select, combine and use the appropriate knowledge, skills and other acquisitions consisting of values and attitudes for successful resolution of certain categories of work or learning and professional or personal development, under effectiveness and efficiency circumstances.

In the activities carried out in university teaching, the most common method to support teaching and learning is ***the lecture***.

The lecture is considered appropriate to achieve the objectives aimed in gaining knowledge, but may be less appropriate in achieving formative objectives.

The advantages of this method of organizing teaching and learning refer to aspects such as students' access to original, new and synthesized information coming from the teacher and who may not be readily available through other sources. Information provided by lecture is well structured and organized.

Referring to the lecture limits we can say that this method, doesn't often give the opportunity to obtain feedback from students, they are mostly passive.

Regarding the skills that a lecture can develop, they are of cognitive impairments, but mainly developed by learning information and declarative knowledge.

A version of the lecture, common in universities, usually alternating lecture, is **the lecture with discussions**; it consists in insertion of questions during lecture, and the flow of information from teacher to student may become in this way an interactive one.

Following the advantages of the lecture with discussions, they may relate to issues such as active-participatory engagement of students in learning, development of higher cognitive processes involved in learning (analysis, synthesis, comparison, generalization) or provide permanent feedback from both the students and the teacher.

In analyzing the limits of this type of lecture, issues regarding the small amount of time may arise during the realization of discussions. Also, the risk of inappropriate questions or discussion topics may determine possible deviations from the objectives.

The lecture with discussions can develop a series of *skills* such as: analysis and synthesis skills, organizational and planning skills, interpersonal interaction skills.

Both lecture and lecture with discussions can be framed, methodologically speaking, in the category of **expository teaching methods**. Expository methods are assigned with *heuristic conversation* and *teaching exercise* in the category of *traditional methods*, *classical methods*, whose importance in achieving the pedagogical competence models we will describe below together with *modern methods*, such as: *questioning*, *brainstorming* or *scheduled training*.

Heuristic conversation is a dialogue that takes place between teacher and student, prompting the student through a set of questions that ultimately lead to epistemological truth. By this method, students are urged to make analysis of their own knowledge and to identify links between them. Connections between the held information determine the acquisition of new knowledge. A promoted concept in education refers to that if a question is a tool in knowing; practically, it is the beginning of knowing and development, and thus true knowledge is not within the answer, but in asking questions and relentless pursuit of answers, which in turn arise other questions, which is actually a chain reaction.

The advantages of heuristic conversation consist of indirect intervention of teacher which fosters interactivity, student initiative and spontaneity, also encourage conversation, stimulate motivation for learning and provide promptly feedback to the teacher on effectiveness of educational objectives.

Heuristic conversation can have *limits* at the same time, such as time allocated for a course that may obstacle the conversation progress.

The skills that heuristic conversation develops are analysis and synthesis, practice and communication skills.

Didactic exercise (intellectual type) is a teaching method used to develop deliberately some mental operations with the purpose of purchasing or building knowledge, acquiring skills, abilities or competences.

Competences that can be developed through didactic exercise refer to communication skills and social interaction, and during information technology courses, didactic exercises develop ICT skills.

Problem-solving is a complex teaching activity, requiring both students and teachers. The specificity of this method is that the teacher does not transmit information but the most important thing is: creating situations that emphasize difficulties and cognitive conflicts in a certain gradualism, choosing the best time to place the issue during the course, manifesting real interest in solving the issue, the problem, by conducting the process of formulation and verification of hypotheses and the discovery of the solution.

Because of the formative effects, problem-solving can be considered among the most valuable methods of modern didactics. It finds use in all circumstances that can create problem-situations to be solved through research and discovery of new scientific truths. The teacher does not communicate ready-made knowledge to students, but brings them in a research situation, to solve the problem faced. By "didactic problem" we mean either a cognitive conflict or difficulty understanding that the student cannot deal only with involvement and search, in their own research. This is, namely, a special event organized by teacher, in which the students seek to overcome difficulties, gaining knowledge and new learning experiences.

Competences that problem-solving method can develop may be reflexive, but also critical thinking skills. Also this method of teaching enables building cognitive structures, can foster the spirit of exploration and an active style of learning, contributing to the development of transversal competences.

Brainstorming is a method that helps to create innovative and creative concepts and ideas. For an efficient brainstorming, inhibitions and criticism will be suspended, meaning that they are not said at that particular time, but are postponed. This way expression will become free and participants will tell their ideas and opinions without the fear of being rejected or criticized. In a brainstorming a concept or an idea is being exposed and every student has to say his opinion on the subject, anything that comes through their mind, including inapplicable ideas, without making value judgments at that time.

The competences that can be developed using brainstorming are: communication, social interaction and role skills; this method can also help develop creativity.

Computer-assisted teaching method. Use of computers in education is proving to be a necessity under the accelerated development of information technology. For the new generation of students, the concept of computer assisted instruction has become a requirement, considering the avalanche of multimedia information.

The concept of computer assisted instruction can facilitate the transmission of knowledge, but also the application, consolidation, systematization and immediate evaluation of them.

It is obvious that computer-assisted learning method primarily develops ICT competences, contributing to a conscious, active and systematic learning of contents. Also computer-assisted learning leads to the formation and development of various intellectual capacities and skills of individual learning.

It is obvious that for the development of required skills for a teacher it is necessary that in the curricular planning documents to have as many methods of teaching and learning as possible, understanding that these teaching methods should be combined in a manner as more appropriate. During a course of teaching a sequence (lasting on average two hours) you cannot use more than one or two methods, but on a medium or long period is recommended diversification, but also choosing appropriate teaching and learning methods, as this increases the likelihood of attaining designed competences.

In an attempt to systematize the importance of teaching and learning methods, we present below, in a schematic way, the contribution of each teaching method in achieving the pedagogical competences.

Teaching – learning methods	Mainly developed competences
Lecture	• Cognitive competences
Lecture with discussions	• Analysis and synthesis competencies • Organization and planning competences • Interpersonal interaction competences
Heuristic conversation	• Analysis and synthesis competencies • Communication competences • Cooperation-work competences • Counseling competences
Didactic exercise	• Methodological competences • Communication competences • Social interaction competences
Problem-solving	• Communication competences • Counseling competences • Role competences
Computer assisted	• IT Competences • Individual learning competences • Analysis and synthesis competencies

III. Assessment methods. Customize for higher education

Curriculum design involves also establishing methods for the assessment of competences that are intended to be learned. Competences assessment is in fact an integral part of learning. After teaching was made in order to achieve some competences, it is used that in the end of training sequence or after a learning unit, an assessment takes place to see whether the objectives have been met and for any adjustment of teaching-learning methods, if it is found that targets were not fully achieved.

The new vision of assessment focuses on competences, provides feedback for students and underlies individual learning plans (National Education Law, Article 72, paragraph 1). Assessment centered on competences is regarded as more relevant and profitable, as:

–   *The competence* is the most important part in educational measurements because *it is the only organizer of the Romanian national curriculum* for all levels of education, for all curricular areas and for all disciplines;

–   *the competence has a composite structure, irreducible to knowledge, skills, attitudes or other acquisitions*, an integrated functional structure, a systematical one, which makes simple tools for measurement and evaluation to not be adequate, at least for some competences;

–   *the competence has the property of portability*, which determines the demonstration of having a competence to claim different situational contexts, to solve various tasks related to daily or professional life, more precisely - evaluation in different contexts;

–   *the competence is availability which is translated into performance / results and infers from performance / results*, but are also relevant the used cognitive and metacognitive strategies; so it is necessary that assessment reports on the process too, not only on the learning outcomes;

–   *Competences are found in a variety of types (general, specific, disciplinary, trans-disciplinary),* which require specific evaluative approaches and a certain level of effort for design and taking the tests and interpretation of results.

In assessing competences we can use several methods, assessment strategies depending on what it is like to evaluate.

From the evaluation methods established in the literature we next summarize:

- Traditional assessment methods:
– oral evaluation,
– written evaluation,
– practical assessment.
- Alternative assessment methods:
– ongoing evaluation and self evaluation,
– the essay,
– the project,
– the portfolio.

Traditional assessment methods

Oral assessment is based on achieving a conversation, through which the teacher aims to identify qualitative and quantitative student performances. The conversation can be individual, collective or combined.

Oral assessment exploits best the level which competences reached especially through the method of conversation, so it is very important that the curriculum was designed having as the predominant method the one of teaching-learning based on conversation, then the evaluation method to be used should be the oral assessment.

Written evaluation is made by some written media embodied in control or testing works. Written evaluation unit is beneficial because it provides subjects for all students, it takes advantage of a large area of knowledge, skills, abilities and also allows results reporting to a single criterion.

This evaluation method can identify the extent to which competences mainly formed by lecture method have been achieved, considering that the lecture method can transmit a greater volume of information and written evaluation can best verify to what extent that knowledge were acquired.

Practical assessment is made by practical tests used to check students' ability to apply knowledge in practice, the mastery degree of skills and abilities previously formed.

For example, evaluating pedagogical practice can be achieved through various tutorials, teaching activities (during pedagogical training) or by performing computer tasks.

It is obvious that this method of evaluation verifies the practical skills acquired through teaching-learning methods, such as didactical exercise and computer assisted instruction.

Alternative assessment methods

Continuous evaluation, also known as **formative** or **progress evaluation**, is a kind of indicator for teacher and students, because they show throughout training where partial results are situated to the final results, projected as targets, and allows improving activity (teacher will improve the teaching strategy and the students the learning one).

The main purpose of continuous assessment is to complete or correct learning activity and can be achieved by systematic observation of students' activities, both in the class, but especially during seminars. This evaluation method can be very efficient because it can reduce the distortions in providing marks, in that decreasing importance of final evaluation, the level of objectivity increases, allowing monitoring the students who learn systematically.

A very important part of formative assessment is the self-evaluation, because, as we already mentioned, in formative assessment, the student involvement plays a very important role.

Self-evaluation is an alternative form of assessment, as the learner, the student, self-appreciates, verifies or critically analyzes his own knowledge, skills or abilities. The self-evaluation has also a formative value by allowing the students appreciation of

their performance against stated objectives; of course that a self-evaluation against the objectives is possible only if the teacher communicates the students which are the course objectives, and this way the students can appreciate the level of the expectations scale, which may lead to reconsider their learning activity. By self-evaluation, students are able to check all types of competences, especially personal and professional skills development.

Trying to essence the reason of a modern teaching assessment, we could say that it consists in preparation and supporting of an objective self-evaluation, essential to support learning progression. Involving students and determine their own assessment may have beneficial effects on several levels:

- the teacher acquires the confirmation of his assessments regarding the observed results;
- the student can exercise the role of subject of the teaching action, of participant and co-participant in his own development;
- it can help students appreciate and understand the results of necessary efforts to achieve established objectives;
- it cultivates the intrinsic motivation toward learning.

It may become obvious after considering this assessment method, that ongoing assessment is part of the teaching-learning activity, but it can be used successfully especially in the lectures with discussions, in activities generally based on interactivity, as it is clear that continuous assessment involves interactivity and teacher-student communication.

The essay is a test for assessing the way in which the students have acquired a certain part of the curriculum, such as a more complex problem of a theme. It is made either on a minimal bibliography, recommended by the teacher or on a preliminary investigation, in the latter case, the essay summarizing the results of investigation, performed by using specific methods (observation, conversation, inquiry etc.). When the essay is drawn from the study of some sources of information, it should include opinions of the studied authors, but also their own opinions. It won't be considered as a satisfactory essay the one which summarize or reproduce certain studied works. The essay usually has three to four pages and is used only as part of a portfolio or to grant a partial mark in continuous assessment made during training.

The project – is a broader evaluative approach, allowing a complex and nuanced appreciation of learning, helping to identify students' individual qualities. It is a highly motivating form of assessment for students, even if consists of an increased work content – including individual and collective activity outside the faculty. The project is a complex form of assessment that leads to intellectual and practical quality assessment approaches made by students, such as:

- approaching to scientific methods of investigation;
- finding original solutions for solving problems;
- organizing and synthesizing the material;

- generalization of the problem;
- implementation of solutions to a broader field of experience;
- presentation of findings.

The portfolio – is a comprehensive assessment tool that capitalizes the experience and the results obtained by other methods of assessment. It is a form of evaluation which deals with the global process registered by students, not only in terms of acquired knowledge per unit of time, but its attitudes; it is a means to value the individual work of students, acting as a factor of personality development, retaining the student an active role in learning and training.

The portfolio is of two types: learning portfolio and assessment portfolio. Depending of its character, its content is changing also. The portfolio captures and evaluates students in the complexity of their competences, its components being part of the interdisciplinary field.

As mentioned above, the three components of the educational process – teaching-learning-assessment is a continuous relationship of interaction; therefore, in conclusion, we propose a schematic illustration of functional-dynamic relationship between teaching-learning-assessment-training competences:
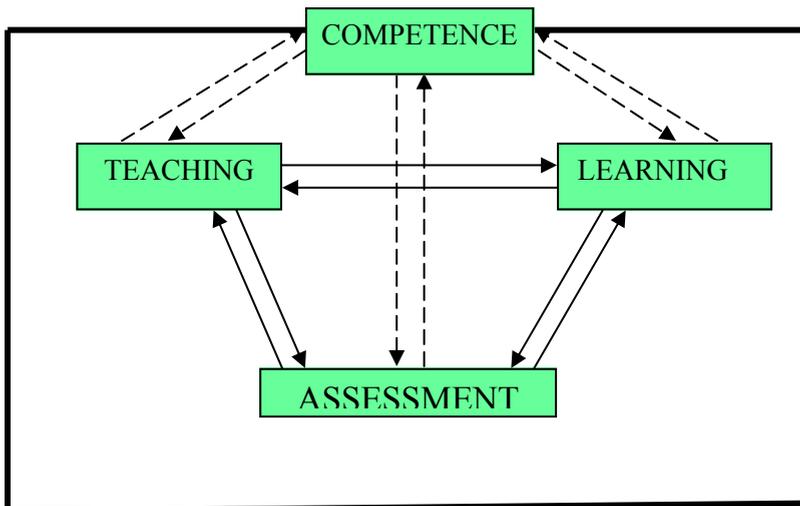
Figurative graphic model to highlight the interrelations between teaching-learning-assessment-training of competences

The graphic model that we propose overtakes the multiple interactions between teaching, learning, assessment, as well as the teleological convergence of their influences in competences training and development. This model can be analyzed and adapted in the context of enhancing the competence paradigm from different analytical and actional perspectives.

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