

Training of university lecturers at National University of Costa Rica in competency-based learning and testing, University of Münster, Germany



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Summary

Competency-based learning and testing is one of the major issues throughout the didactic circles in Germany. For many years, this didactic concept has been implemented at the Faculty of Business Administration at Münster University of Applied Sciences. According to empirical results (Pankow 2008, Heidenreich 2011), employers expect that graduates of a study programme should not only possess professional but also methodical, social and personal competencies. To prepare students for a successful professional career, a shift from teaching to learning is necessary. According to Biggs (1996), coherence between learning outcomes, teaching and testing should be intended through constructive alignment. Based on the close relationship between the Universidad Nacional of Costa Rica and Münster University of Applied Sciences since 2001, training of the Costa Rican colleagues is realized during a 6 month stay. The workshops helped to create an awareness of the need to shift towards more learning oriented study plans and specific courses, at the same time allowing participants to start redesigning their didactic concepts of the courses accompanied by an ongoing coaching process.

Key words

Competency-based learning, competency-based testing, learning outcomes, constructive alignment, training of university lecturers



Introduction

The objective of this paper is to present the experience of a competency-based learning and testing workshop conducted by the first author at the Universidad Nacional of Costa Rica (UNA) within the frame of collaboration between the Faculty of Business Administration at Münster University of Applied Sciences (MUAS) and the Universidad Nacional of Costa Rica.

In 1999, the Faculty of Business Administration at Münster University of Applied Sciences established the German-Latin American study programme of Business Administration CALA (Carrera Alemana-Latinoamericana de Administración) which is a double Bachelor degree programme with 9 associate universities in Argentina, Brazil, Chile, Colombia, Mexico, and Costa Rica. The relationship with the Universidad Nacional of Costa Rica in Heredia started in 2001, and the double degree programme was stipulated by a cooperation agreement in 2002. The students of both institutions commence their studies at the home university and complete it with a 3-semester stay abroad including a 20 weeks internship at a foreign company or institution. The objective of CALA is to prepare its students for a profession in an internationally operating company with a strong focus on Latin America. In addition to the regular curriculum of a study programme in business administration, students are thoroughly prepared at MUAS in language, culture, politics, history, geography, law and ecology with a Latin American focus. This preparation, combined with the experience during their long stay abroad, enables students to not only achieve professional competencies in international management but also intercultural and other social competencies which are very important for their professional life.

Based on this close relationship between UNA and MUAS, the dean of the Faculty of Social Sciences of UNA, Carlos Buezo, Ph.D., invited the first author to conduct a training programme for university lecturers in didactic concepts and quantitative methods. The training is aimed to enhance the quality of teaching by motivating the lecturers to apply new didactic concepts and has been realized in several workshops at the Centro Internacional de Política Económica para el Desarrollo Sostenible (CINPE), directed by the second author, and at the Faculty of Social Sciences. Training was conducted during a 6 month stay of the first author in Costa Rica, financed by DAAD (German Academic Exchange Service), UNA and MUAS. The majority of the workshops have outlined the didactic concept of competency-based learning and testing which is described briefly in the next section. The motivation for and the objectives of the training are presented in section 3, followed by the process and experiences made in section 4, and an outlook to further possible activities in the last section.

Overview of competency-based learning and testing

Competency-based learning and testing is one of the major issues throughout the didactic circles in Germany (see websites of Bündnis Lehren and Stifterverband für die deutsche Wissenschaft). According to empirical results (Pankow 2008, Heidenreich 2011), employers expect that the graduates of a study programme should not only possess professional but also methodical, social and personal competencies, subsumed by the term key competencies. To prepare students for a successful professional career the didactic concept should focus on the facilitation of professional and key competencies. Besides, with additional courses for specific key competencies like "Presentation techniques" or "Introduction to scientific methods" professional and key competencies may be developed in an integrated way. The requirements of the employers induce the necessity for the facilitation of the students' competencies to become the centre of the teaching, rather than the content provided by the teacher. Therefore, a shift from teaching to learning is necessary where the role of the lecturer changes from being a teacher as a "knowledge provider" to a coach supporting the learning process of the students. Consequently, in the following the term teaching / learning is used to illustrate this shift.

The term competency has been defined by many authors (see Cano 2008 for an overview in Spanish, or Whiddett / Hollyforde 2003). In a project of developing competency-based learning as a didactic concept at the Faculty of Business Administration at Münster University of Applied Sciences the definition of Van der Blij et al. (2002) has been very useful:

"Competency is defined as the ability to act within a given context in a responsible and adequate way, while integrating complex knowledge, skills and attitudes".

It is important to realize that in this definition competency is related to actions and focused on the integration of knowledge, skills and attitudes. This means that a person who applies his knowledge and skills without attitudes does not act competently on the basis of this definition.

In the structural model of Orth (1999), it is differentiated between professional, methodical, social and personal competencies. Professional competencies are referred to the content of the academic discipline needed for the profession. Methodical competencies are needed to systematically work on the solution of problems within the profession like generating and processing information or analytical thinking. The way of communicating and cooperating with others is the main area of social competencies. Personal competencies are related to self management and include objective-orientation, structuring one's own work and disposition to ethical behavior.

Learning outcomes (Kennedy et al. 2006) describe competencies as results of the students' learning process. They should fulfill the following criteria:

- Specific and concrete formulation
- Revisable to evaluate them in a testing format
- Use of verbs related to actions
- Realistic to achieve
- Coherence:
 - Internal: Relation between the learning outcomes among themselves
 - External: Relation between learning outcomes of a course and learning outcomes of the study program
 - Integrated: Relation between learning outcomes, teaching/learning format and testing format

When formulating learning outcomes it is important to take into account the perspective of the employer and the needs of society with respect to the question what the graduate can contribute to society. Furthermore, the learning outcomes should be related to the four types of competencies according to the model by Orth (1999).

Learning outcomes can be related to the taxonomy of learning objectives of Bloom et al. (1956) who ordered learning objectives, beginning with the lowest level: knowledge, comprehension, application, analysis, synthesis, and evaluation. It is possible to assign verbs to each of these levels used in the formulation of learning outcomes to clarify the intended level. This also helps to place the learning out-comes of a course in the curriculum of a study programme.

According to Biggs (1996), coherence between learning outcomes, teaching and testing should be intended through constructive alignment. This relates to the integrated coherence criterion of the learning outcomes. Constructive alignment refers to the intention to deduce the teaching / learning format and the testing format in conformity with the learning outcomes. The teaching / learning format should help the students to facilitate the competencies formulated in the learning outcomes, and the testing format should check if the students achieved them at a sufficient level. The consequence is that a (re-)design of a course should start with the formulation of learning outcomes from the employers' and society's perspective and continue with the deduction of the teaching / learning and testing format.

Examples of teaching / learning formats may be "minor" elements within a traditional lecture to activate the participation of students like murmuring groups, "think-pair-share" or the use of cognition cards with open questions remained to be answered autonomously and to be used as a good opener for the following session. Re-designing the teaching / learning concept can lead to new concepts like coaching of learning-teams, problem-based learning or the realization of real projects contracted by companies or other institutions who, in fact, are future employers (see Harper / O'Brien 2012, Rózsa 2012).

Bearing in mind that the learning process is more effective when it is self-directed by the student (Gage / Berliner 1998, Schunk 2008), it helps to make the didactic concept including learning outcomes, teaching and testing format transparent to the students. To support the students' learning process it is important to give constructive feedback in a positive atmosphere. This leads to the insight that formative evaluation methods are often the better way than summative evaluation methods.

Reis/Ruschin (2007) specifies the following attributes of competency-based testing:

- Setting of the tasks:
 - Constructive alignment
 - Application and problem orientation
 - Possibility to review the solution process by the examiner
 - Possibility of autonomously directed, self-structured and intentional solution processes of the examinee
- Evaluation criteria:
 - Standardized and justified differentiation of the performance into competency levels
 - Transparent transformation of performance levels into marks
- Roles of examiner/examinee:
 - Examinee as a colleague or even an expert in the subject area
 - Examiner as an approving peer

This entails a remarkable change in the paradigm of exams usually applied, and illustrates the consequential shift from teaching to learning.

The didactic concept described in this chapter has been applied successfully for many years at the Faculty of Business Administration at Münster University of Applied Sciences and is permanently being improved.

Objectives of the training

The Faculty of Social Sciences at UNA has followed a strategy to enhance the quality of university education for many years. On the one hand, the qualification of the university lecturers has been systematically improved by facilitating the participation of lecturers in Ph.D. programme in foreign countries. Even though Ph.D. programme develop strong skills in research methods and specialization knowledge, they are not oriented to develop modern skills required to conduct the teaching / learning process. This implies that the teaching / learning methods applied at most of the courses are reproducing the traditional model, with emphasis on the development of professional competencies.

On the other hand, it has been necessary to enhance the quality of teaching by a didactic training of the lecturers. The training is conducted by the first author during a 6 month stay at UNA starting the end of July, 2013.

The main objective of the training has been the motivation to apply the concept of competency-based learning and testing as described in section 2 in the courses taught by the lecturers. Specifically, this means the redesign of existing courses starting with the formulation of learning outcomes from an employers' perspective. On this basis, the teaching / learning format and the way of evaluation shall be deduced in a coherent manner. Finally, the attributes of competency-based evaluation shall be applied.

Another objective in the progress of the workshops has been to animate communication among the lectures about didactic aspects and experiences to finally achieve a closer collaboration in the redesign of their courses.

Process and experiences

The 6 month stay was prepared during a short visit of the first author at UNA 9 months before discussing the needs of the lecturers and conceptualizing the format of the workshops to be offered. At the beginning of the 6 month stay, these concepts were refined and concretized to offer 6 workshops at CINPE. These were announced by the second author to his colleagues sending a short description of the objectives and content of the workshops. Each workshop has been evaluated by written feedback to indicate improvements and expectations of the participants for the next session.

Looking at the experience offered at CINPE, 11 of 17 fulltime and 3 external lecturers attended the workshops. Another 3 fulltime lectures from CINPE attended the workshop offered one month later at the Faculty of Social Sciences, which means from the 17 fulltime lectures from CINPE, only 3 did not attend the workshops, and this was explained by personal reasons. The number of participants varied between 10 and 14 due to travelling to conferences abroad or other commitments. Up to 3 participants attended repetitions of workshops to gain on lost content while they were abroad. Some of the participants asked for deeper insights in learning outcomes and teaching / learning formats in their evaluation, so 2 additional workshops were offered to fulfill these requests.

During the course of the workshops, 7 participants already started to redesign the didactic concepts of their courses, most of them accepting the personal advisory service offered by the first author.

On the other hand, the contribution of all participants provoked a refinement of the concept of the workshops leaving more time for group works and plenary discussions. At other times, the coacher of the workshops suggested some very interesting dynamics (such as role playing games) to reinforce the key concepts, making the learning process more effective. In general terms, the dynamics of the workshops allowed intensive interchange between the participants and initiated collaborative works in the redesign of courses.

The workshops have been evaluated very well by the participants. They have considered the new approach very much constructive and more effective than the traditional teaching methods usually applied. At the same time, the new approach allows for the consideration of additional competencies, other than the mere professional ones.

Furthermore, another 6 workshops, starting one month later, were offered to lecturers of the Faculty of Social Sciences with an almost constant number of 14 participants (3 of them being newcomers from CINPE, as explained before). These workshops have also been evaluated very well, and it is interesting to assert that the dynamics of the second group is very similar to the first with regard to the time for group works and discussions. However, the participants are not so familiar with each other as they belong to different academic units at the faculty.

In the following, some answers of the participants to the question, what was useful in the session, are quoted:

- "Rethink the formulation of objectives taking into consideration the needs of the students as future (or actual) employee."
- "Mental opener to look for/deepen new forms of guiding the learning process of the students."
- "It was useful because it made me realize that I should be less of a controller and more a motivator in the classes."
- "Reinvent my strategy of teaching and learning by competencies putting my focus on the student."

These examples indicate that the workshops initiated a process of change fulfilling the main objective to motivate the lecturers to apply the concept of competency-based learning and testing.

Outlook

The ongoing coaching process in the redesign of courses at CINPE seems to be very fruitful, even though participants are aware of the challenges this process implies. A process of internally organised workshops to collaborate in the redesign of courses and, later on, of study programmes, is intended to be initiated in the last session at CINPE and at the faculty. Also, the possibility of making short videos with the key concepts as developed during the workshops as tools for internal lectures is being discussed, especially for those lecturers unable to attend any of the workshops. This will strengthen the expectation that in future complete study programmes are developed with the new approach. Additionally, a workshop with deans from several faculties of Social Sciences, Economics and Business Administration of Central American universities is scheduled to be offered at UNA at the end of November.

Furthermore, similar workshops are intended to be offered to other associate universities in the CALA network.

References

1. Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education*, 32(3), 347-364.
2. Bloom, B.S.; Engelehart, M.D.; Furst, E.J.; Hill, W., Kratwohl. D. (1956): Taxonomy of educational objectives. Volume I. The cognitive domain. New York: McKay.
3. Bündnis Lehren: www.lehrehochn.de/en/home/.
4. Cano García, M. E. (2008): La evaluación por competencias en la educación superior. *Profesorado*, 12(3), 1-16.
5. Heidenreich (2011): Die Studienreform zum Erfolg machen! – Erwartungen der Wirtschaft an Hochschulabsolventen. Berlin: DIHK Deutscher Industrie- und Handelskammertag.
6. Gage, N.L.; Berliner, D. (1998): *Educational Psychology*, Belmont, CA: Wadsworth Publishing; 6th edition.
7. Harper, J.; O'Brien, K. (2012): *Student-Driven Learning: Small, Medium, and Big Steps to Engage and Empower Students*, Markham, Ontario: Pembroke Publishers.
8. Kennedy, D.; Hyland, A.; Ryan, N. (2006) Writing and Using Learning Outcomes: a Practical Guide. In Eric Froment, Jürgen Kohler, Lewis Purser and Lesley Wilson (eds.): *EUA Bologna Handbook – Making Bologna Work*, Berlin: Raabe, 1-30.
9. Orth (1999): *Schlüsselqualifikationen an deutschen Hochschulen*, Neuwied: Luchterhand.
10. Pankow (2008): Die Studienreform zum Erfolg machen! – Erwartungen der Wirtschaft an Hochschulabsolventen. Berlin: DIHK Deutscher Industrie- und Handelskammertag.

11. Reis, O.; Ruschin, S. (2007): Kompetenzorientiertes Prüfen als zentrales Element gelungener Modularisierung. *Journal Hochschuldidaktik*, 18(2), 6-9.
12. Rózsa, J. (2012): *Aktivierende Methoden für den Hochschulalltag. Lehren und Lernen nach dem Core-Prinzip.* Heidelberger Hochschulverlag.
13. Schunk, D. H. (2008): *Learning theories. An educational perspective.* 5. ed. Upper Saddle River, NJ: Merrill Prentice Hall, XIV.
14. Stifterverband für die deutsche Wissenschaft: www.stifterverband.org/wissen-schaft_und_hochschule/lehre/, www.stifterverband.org/ueber_den_stifter-ver-band/english/index.html.
15. Van der Blij, M.; Boon, J.; Van Lieshout, H.; Schafer, H.; Schrijen, H. (2002): *Competentieprofielen: over schillen en knoppen.* Digitale Universiteit, Utrecht.
16. Whiddett, S.; Hollyforde, S. (2003): *A Practical Guide to Competencies: How to enhance individual and organisational performance.* 2nd ed. London: Chartered Institute of Personnel and Development.

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