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# Helping teachers to focus on learning and reflect on their teaching: What role does teaching context play?

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ABSTRACT

In this study we examine the factors that lead educational programs to achieve their outcomes, in this case helping participants to improve their teaching through becoming more learning-centered and reflective practitioners. In comparing the results from programs with similar aims with evidence from our program we find teachers' pedagogic environment to play a critical role in influencing transfer of program knowledge into participants' teaching. A synthesis of results from our and other programs suggests that engaging participants in action research can be an effective way to help participants to overcome barriers in their pedagogic context. Systematic support of participants through coaching appears as another element important for participants' success. These tools can help to enhance both participants' thinking about teaching and their daily pedagogic practice.



## 1. Introduction

The study of effects of educational programs aims to uncover reasons why some programs achieve their outcomes (and others don't) in order to enhance the program design and provide others with useful information for program development. With this paper we wish to contribute to this discussion by examining the outcomes of an educational development program and the factors that influenced its results. This program aimed to help university teachers to enhance their pedagogic practice through developing their learning-centeredness, reflective approach and the use of theory while designing, conducting and evaluating their teaching.

The current study seeks to improve on past research in three main ways. First, this study adds to existing literature about how knowledge from educational development programs translates into participants' teaching. Studies that previously examined this problem reported difficulty in getting program graduates to apply program knowledge in their teaching (Hockings, 2005; Ginns, Kitay, & Prosser, 2010; Nevgi, 2012; Karm, Remmik, & Haamer, 2013). This study shows how participants demonstrated learning-centeredness and a critically reflective approach in examining their *everyday* teaching. Second, given the concerns about the robustness of previous program evaluations (Weimer & Lenze, 1998; Stes, Min-Leliveld, Gijbels, & Van Petegem, 2010; Saroyan & Trigwell, 2015), this study was designed to move beyond participant opinion to explore changes in their thinking. Third, this study documents how action research can help participants of development programs to focus on learning and regularly reflect on teaching and learning, which appears to be a more effective strategy than, for example, previously used peer discussions (Karm et al., 2013).

The paper is structured as follows. The frameworks conceptualizing program goals, design and evaluation are described followed by the goals of the study. Then the nature of the program and the methods enabling program evaluation are elaborated. This creates the context within which to report the results, implications and contributions.

## 2. Conceptualizing educational development program design and evaluation

### 2.1. Teaching context in Slovakia

In May 2008, the Government of Slovakia adopted a plan aimed at the modernization of the key sectors of public policy, including

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higher education. The plan identified the introduction of courses for doctoral students as higher education teachers as one of the important measures to achieve its aims. Following this, public institutions could apply for funding to introduce educational development programs. Our program, entitled *Teaching and Learning in Higher Education*, resulted from a successful application in this call.

At that time, higher education in Slovakia struggled with a number of challenges, which were also typical for many other post-communist countries. These included, for example, a prevalent focus on teaching rather than learning, reliance on in-class teaching and not on independent learning, assessment through end-of-term exams instead of continuous assessment, using oral exams rather than a variety of assignments, etc. (For a description of similar pedagogic challenges in the region see Renc-Roe (2006, 2008) and Karm et al. (2013).) However, while many institutions in non-post-communist countries have already introduced strategies to address these challenges-like policies enhancing teaching and learning at the university level, grants for course innovation, conferences and journals where teachers exchange their views on higher education pedagogy (Knapper, 2012), these were yet non-existent in Slovakia.

### 2.2. Underlying development principles

When starting to design the program, we primarily drew from the foundational literature on higher education teaching and learning. Educationalists (Biggs & Tang, 2007; Ramsden, 1992) have identified one of the chief impediments to good quality teaching to be teachers holding a "teaching-centred" conception, in which teachers place importance on their own performance and consider education mainly as information transmission. In contrast, those teachers who think of teaching in a "learning-centered" way tend to focus on how their students learn, and design their classes to facilitate student learning (Biggs & Tang, 2007, 19), which is viewed as more effective in developing students' abilities than a teaching-centered approach (O'Neill & McMahon, 2005, 33).

However, becoming learning-centered can be difficult. Students who have previously experienced more teaching-focused approaches may reject the learning-centered approach (O'Neill & McMahon, 2005, 33). Further, an espoused desire to be more learning-centered may be constrained by a lack of knowledge (McAlpine & Weston, 2000). One mechanism for facilitating a more learning-centered approach amongst teachers is a critically reflective approach (Mathias, 2005; Boyle & Boice, 1998). While *critically reflecting* on teaching, teachers (a) habitually think of the reasons why good or poor quality learning is occurring in their students, (b) identify, in particular, both positive and problematic aspects of one's own teaching, (c) come up with alternative ways of teaching, (d) test them in practice and then (e) reflect on whether the outcomes on student learning are improved (Cowan, 2006).

Nevertheless, this can be very challenging if teachers lack understanding of how people learn. Teachers need first to develop insights into how learning occurs and how it can be enhanced rather than being solely trained to carry out teaching techniques (Ramsden, 1994; Prosser & Trigwell, 1999; Biggs & Tang, 2007). If teachers get such a solid *background in pedagogic concepts* they can then make informed decisions as to which teaching methods to choose to help students to learn more effectively. Examples of these pedagogic concepts include those related to teaching such as constructive alignment (Biggs & Tang, 2007) and Bloom's taxonomy (Krathwohl, 2002), and those related to learning such as deep and surface learning (Marton & Säljö, 1976), external and internal motivation for learning (Kvasz, 2005), etc.

The intended outcomes of our program thus reflected these three most challenging things for new teachers to learn as described in the literature. The program aimed to help participants become:

(1) *learning-centered*, which means that the teacher's focus is on how his/her students learn, rather than on his/her own performance in all activities related to teaching from curriculum design and lesson planning across leading classes to student assessment. Student choice is facilitated; the student is encouraged to do more than the lecturer and/or the shift in the power relationship between the student and the teacher can be observed. The teacher pays attention to who his/her students are and how they learn, so that good learning can occur.
(2) *critically reflective*, which implies that the teacher demonstrates that he/she has thought about the reasons why good/poor quality learning occurs in his/her students; these reasons are summarized in a clear and comprehensive way and seem realistic. The teacher can identify both positive and problematic aspects/outcomes of his/her own teaching and the assumed reasons for them. The teacher may also manifest the connections he/she can see between his/her own research and teaching. Based on this understanding, the teacher can suggest changes for future teaching and their expected effects on student learning.
(3) *theory-informed*, which presumes that the teacher has learnt a set of concepts, models and principles related to various aspects of teaching and learning. The teacher can use the theory when designing and evaluating his/her teaching.

### 2.3. Evaluating educational development programs

There is a growing literature reviewing and critiquing program evaluation, particularly the mechanisms used to evaluate effectiveness (Levinson-Rose & Menges, 1981; Weimer & Lenze, 1998; Stes et al., 2010; Saroyan & Trigwell, 2015). A consistent critique across the decades has been the reliance on participant satisfaction/opinion as a principle means of evaluating program results. Much of the past research into the outcomes of development programs are derived primarily from participants' perceptions of program conduct and its outcomes (see for example the studies by Renc-Roe, 2006; Truijen & Van Woerkom, 2008; Hubball, Clarke, & Poole, 2010; Wang, Pengu, Pearson, & Hubball, 2011; Karm et al., 2013; Chng & Soong, 2012). This has important implications for the value of previous studies' findings.

Therefore, this study was designed to evaluate program impact on participant thinking and practice in relation to program outcomes by using more robust methods than solely participant perceptions of program outcomes—as has been done in most previous studies. A range of kinds of data were collected from participants and program facilitators and triangulated to establish a clearer relationship between the program and its impact on learning.

### 2.4. The influence of teaching context as reported in literature

Despite methodological shortcomings, we have found previous studies useful because they reported on the program outcomes as perceived by the participants and they identified barriers for a better enhancement of program outcomes. For example, studies into how programs for teachers from Central and Eastern Europe and Asia influenced their thinking reported that participant teachers had became more learning-centered as well as critically reflective in the course planning stage (Renc-Roe, 2006, 2008; Wang et al., 2011; Renc-Roe & Yarkova, 2012) but progress in their conceptions was limited by a number of factors. These included prevalence of teaching-centered approaches in participants' higher

education system, institutional tendency for prescribing teaching methods, small institutional support or even resistance to teaching innovations, participants' cultural learning styles, participants' workload, integration of development program into participants' doctoral studies and student attitudes, i.e. factors related to participants' teaching context.

Different from these studies, Karm's (2010) research found that many from the program participants continued to approach teaching mainly as imparting information rather than valued using a range of pedagogic methods, or designing outcome-based courses. Possibly this was because of the features in the participants' teaching environment, as participants had identified them, such as changes in the country's economy, in educational policy or in technology.

Karm et al. (2013) presented results from a program designed to help instructors from Estonia to become more learning-centered and reflective while teaching. Although some participants demonstrated learning-centeredness and a critically-reflective approach to teaching, many participants admitted they could not apply the things learnt in the program into their courses. Further, in the follow-up sessions after the program where participants were required to introduce something new into their classes, teachers avoided reflecting on their individual practice and overall, the reflection taking place was mostly surface. The authors described several factors that may have impacted these results including pedagogic traditions in participants' disciplines and the lacking practice of habitual discussions with colleagues on teaching and learning.

Transferring program knowledge into university teachers' practice has been considered problematic also in other contexts than in post-socialist countries. Studies from programs in the UK, Canada, Australia or Finland (Knight & Trowler, 2000; Trowler & Cooper, 2002; Hockings, 2005; Ginns et al., 2010; Nevgi, 2012) reported that the ability of participants to apply program knowledge had been significantly constraint by factors like support or discouragement from the head of the department and colleagues, student attitudes, class size, teachers' workload, etc. They confirmed earlier findings that teachers' approaches to teaching are context sensitive: they are influenced by teachers' perceptions of class size, level of control over the content taught, departmental support, workload and student characteristics (Prosser & Trigwell, 1997).

We found the difference between a relative success in changing program participants' pedagogic thinking and a much lesser success in influencing their pedagogic practice puzzling. In line with the fundamental questions raised by past studies about the role of teaching context in implementing new approaches to teaching and learning, this study attended to factors (as reported by participants and facilitators) that hindered them from teaching in the ways embraced during the program. The study moreover sought to examine the tools that could help participants mitigate the influence of these factors by trying to establish a link between program components and program outcomes.

## 3. The program

### 3.1. Design process

The teaching program was designed in a workshop with internationally recognized educational developers to ensure a solid conceptual basis. The program was intended for relatively inexperienced teachers, advanced doctoral students and individuals who had obtained their doctorate in the previous five years. Teachers from any discipline and university in Slovakia outside its capital city were eligible for the program if they had university teaching experience of at least two semesters. As noted earlier and confirmed by participant comments in their applications, in this higher education context, individuals would rarely have experienced learning-centered methods and would find few incentives in their departments to deliberate about teaching.

The applicants in our program were required to submit a letter outlining the reasons why they wished to attend the program and a statement of teaching philosophy. The applicants could also attach an endorsement letter from the head of the department, which about half of them did. The criteria for assessment included: applicants' level of interest for participating in the program, their level of commitment to work as a teacher and the general quality of the application.

Initially, the program attempted to address the challenges expected from the teaching context by giving a preference to applicants coming from the same departments. By this we intended to facilitate the formation of *communities of practice*, which could more effectively change the established ways of teaching (Lave & Wenger, 1991). However, we quickly found this impossible as the applications from individuals working in the same departments differed much in quality. We also planned to engage critical friends within participants' contexts; establishing closer contacts with the heads of the departments or more senior colleagues was another possible strategy for addressing the teaching context. However, we soon realized that this was beyond the capacities of our small program team to do.

We thus decided to support desired change through other ways: mainly through action research (Biggs & Tang, 2007: 43) and coaching. Engaging participants in action research meant in this program that participants were collecting and evaluating data on their student learning and comparing them with their course intended learning outcomes after they had completed the program. Ho (1998) presents the outcomes of the program where participants were engaged in a similar assignment: they were asked to confront their espoused (ideal) ways of teaching with their actual practice. Whereas asking participants to solely reflect on their teaching practice was found to have little influence, the assignment of confrontation was critical for changing participants' conceptions of teaching, their teaching practice and student learning. Thanks to this element participants were able to overcome barriers in their context, like disciplinary teaching traditions, workload or prevalent practices at the institution such as missing discussions over teaching (Ho, 2000: 28, 31–33). This element of confrontation was also built into our program by participants comparing their intended and actual outcomes of student learning.

We also provided coaches to support participants as they were implementing their action research projects. By coaching we mean a form of mentoring where during a limited period of time (an academic year) developers (coaches) help program participants (coachees) to enhance their reflection over student learning and to achieve other program outcomes, i.e. student-centeredness and the use of theory. (For definitions of coaching and mentoring in educational development see Pleschová & McAlpine, 2015: 121). Previous research has demonstrated that coaching by individuals in the program participant's department has good potential to win support from colleagues initially sceptical to such programs and help new teachers develop their teaching (Mathias, 2005: 101). Since we had not been able to establish these links, it was the program facilitators who acted as coaches.

### 3.2. Program structure

The program consisted of two phases: an intensive summer school phase and a one-year follow-up application phase.

#### 3.2.1. Summer school

On most of the nine-days of the summer school, the schedule included three 90-min teaching and learning sessions, one reading session (participants individually read assigned texts) and one consultancy session where participants could consult on their teaching problems with session leaders. Most sessions were led by the educational developers. In each session, session leaders assigned participants various tasks that stimulated their active learning through, for example, discussion, group work, etc.

During the course of the summer school participants learnt essential principles of learning-centered teaching together with a reflective approach while teaching and how to apply these in course design and lesson planning, small and large group teaching, supervision, and assessment. Participants were also introduced to various pedagogic concepts, models and principles. Two sessions discussed the use of information technologies in teaching. In the final part of the summer school, participants presented a proposal outlining the changes they wished to introduce in their teaching.

#### 3.2.2. One-year application phase

Summer school participants with teaching obligations in the following academic year were invited to continue in the program by further elaborating their plan for changing their course and implementing this plan during a semester. Those who had volunteered for this and were moreover teaching a course in this phase, were required to elaborate five written assignments: (1) a detailed design for teaching their course, (2) a course syllabus, (3 + 4) a presentation and a research paper, where they discussed the course results and (5) a revised statement of teaching philosophy. In the research paper, which was the major output of participants' action research, the participants were asked to describe the theory they used as a starting point for their change in teaching and student learning, discuss data collection methods and their limitations, analyze the outcomes of new learning strategies based on collected data, summarize the key points learnt from introducing a teaching change, compare results with the outcomes as suggested by theory and propose improvements for future teaching. All assignments were to be produced according to criteria reflecting the program outcomes.

Whereas participants were introduced to desired ways of thinking during the summer school (learning-centeredness, reflective approach and use of pedagogic theory), in the one-year follow-up phase they were asked to integrate this new knowledge into their conceptions of teaching and learning and their pedagogic practice. In this one-year phase, the educational developers, who previously acted as summer school leaders, were engaged as coaches. Their role was to facilitate the attainment of the three program outcomes, principally by commenting on the five written assignments, and answering questions participants might have concerning the implementation of change in their teaching practice. Participants and developers were paired on the basis of participant preferences.

Because participants were distributed across a range of institutions as were the developers communication between program participants and developers over the implementation period was online in response to questions posed by program participants and in feedback provided on all written assignments. Moreover, the program included a face-to-face one-day workshop near the end of the program when developers commented on participants' presentations on the outcomes of their course changes.

### 3.3. Facilitators

Lack of professionals in the field of educational development in Slovakia led us to engage developers from universities in neighboring Austria (1) and Hungary (3 from a US accredited institution) as program facilitators. The four were chosen because they all had worked in educational development for some years, and had studied higher education pedagogy: two had PhDs in Education; one was finalizing his doctorate in Sociology with a focus on Education; and the fourth a PhD in Political Science with an undergraduate degree in Education. Three had participated in the design of the program so had ample knowledge of the design principles. Still, the program expectations as regards outcomes and coaching were discussed through several meetings and email exchanges before the start of the program, and made clear in program documents. No specific training was provided as it was understood that most of the activities that these individuals were expected to carry out were tasks that they were already accustomed to taking on in their own institutions, though they did not have experience of online coaching. Each of the developers was simultaneously coaching 4–5 program participants.

Given the challenges of becoming (more) learning-centered, the role of the developer was seen as essential in helping the program participants to find ways of teaching more consistent with a learning-centered approach and to seek modifications so that the change of teaching was feasible in participant's institution. Second, because the improvement of reflective capacity was seen as supportive of learning-centered thinking, developers were also expected to help participants challenge common assumptions, including those prevalent at their institutions. This was not a new task for the developers: all of them had experience from working with instructors trying to teach differently that had been usual in their departments. Third, since pedagogical theories were new to most participants, it was assumed that participants would benefit from guidance in applying theory to their teaching.

### 3.4. Participants, including recruitment into the program

Based on previous experience with organizing development workshops for similar target groups, we assumed the demand for the program to be high. Doctoral students in Slovakia are required by law to teach 4 h per week and they often teach large introductory classes or courses outside their narrow area of specialization. Since their institutions seldom offer courses on teaching and learning in higher education, we assumed many first-time teachers would appreciate some form of preparation.

This expectation was confirmed as we had received 109 applications out of which we chose 47 participants for two schools organized that summer. Applicants were not selected on the basis of their teaching approach (i.e. teaching-centered vs. learning-centered), however, and the selected applicants held a wide range of views based on their teaching philosophies submitted as part of their application. Because participants were coming from different starting points in this respect, it was expected that the program would bring about a bigger change in some teachers than in others. From the 47 summer school graduates 26 continued in the one-year phase, mostly because many school graduates were not teaching in the academic year following the school. The one-year phase was completed by 19 participants—the drop out was usually the result of changing an institution or being too busy with completing the dissertation.

The developers received an honorarium for their involvement in the program, an incentive used in similar programs (Boyle & Boice, 1998; Huston & Weaver, 2008). Also the participants were promised a small remuneration upon successfully completing the program, in order to compensate for the time and effort dedicated to evaluating and formally reporting on the results of their changes.

## 4. Methods

A mix of methods (documents, a survey and interviewing) and sources (participants and developers) were used to provide a comprehensive picture of the influence of the program.

### 4.1. Participants and sampling

The four developers were asked to contribute to data collection by providing program documents and participating in an interview. The participants included all 19 university teachers who completed the whole program—both the summer school and follow-up phase. These were four males and 15 females, aged 22–33 years, teaching at eight universities across Slovakia. Most of these participants were doctoral students. Approximately 60% of them had formal support from their institution to participate in the program, as could be seen from their endorsement letters.

In order to undertake a more in-depth study, a sub-set of eight participants were selected to provide their program assignments and be interviewed. Reputational case selection was used: using the recommendation of an "expert" to capture unusual manifestations of the phenomenon of interest (Miles & Huberman, 1994, 27–28). By this, we mean the circumstances under which the program worked the best and the worst for the program participants. Each developer was thus asked to recommend the participant they considered the most and least successful (using their expert opinion rather than a defined construct) in attaining the program outcomes. Recommending the most successful was straightforward for the developers, however, while two developers proposed the participants who had been relatively weak in attaining the program outcomes; the two other developers *could not* identify anyone like that among their coachees. Therefore they suggested those participants who were relatively successful in achieving the outcomes but required and/or received little help from the developers. These two developers thus conceptualized "little successful" as relating to the process of coaching rather than to the program outcomes.

All informants provided their informed consent to use their data either electronically (before submitting their responses to the online survey) or in a written form (for all other data). Data collection begun after the study had received approval from the relevant Research Ethics Committee at Oxford University.

### 4.2. Data collection

Data were collected from March 2011–June 2012; this encompassed applications to the program, the summer school and the implementation of teaching changes in the 2011 fall term. Data collection included: (a) assignments produced by the sub-set of eight participants and the four developers as part of the program; (b) an online survey completed by all 19 participants; and (c) interviews with all developers and the sub-set of eight participants.

The assignments from participants analyzed in this study included: (1) the initial teaching philosophy submitted in applying for the program; (2) a revised teaching philosophy near the end of the program, (3) draft report on the results of the change participants reported they had implemented in their teaching, and (4) a revised report on the results of the change. The choice of early and later assignments permitted an assessment of the extent of change in pedagogic thinking and practice. Another set of assignments included materials produced by the developers: (i) their comments on the draft versions of assignments written by participants and (ii) developers' evaluation forms on their cooperation with each of the participants and on participants' achievement of program outcomes.

The survey included questions about the details of the changed course and perceived program outcomes. The responses from the survey were used to specify the questions asked when interviewing the sub-set of participants and the developers with the purpose of gathering more detailed information about the nature of cooperation and program outcomes. Most interviews were carried out using Skype software and one developer was interviewed face-to-face. All interviews were recorded and transcribed. Data collection methods are summarized in Table 1.

### 4.3. Analysis

Data for this study were collected and analyzed across the entire study. In this fashion, early findings informed subsequent data collection and analysis. While trying to document changes in participant pedagogic thinking and practice that occurred during and after the program, we first analyzed data from the sub-set of eight participants who had been chosen by their coaches as the most/the least successful program participants. From each of these participants we used four written assignments collected before, during, and at the end of the program. For each program outcome, low-level, medium-level and high-level manifestations of change were defined. Then we identified in the assignments sections of text referring to any of the three outcomes using the definitions to code these parts high, medium or low within one of the categories. Each participant's document was read and coded by two researchers; when they disagreed, the third researcher was engaged. Discussion to resolve any inconsistencies ensured initially that the meaning of different codes was clarified, and later on that there was stability over time and across data sets. The codebook is available from the first author.

Data from the assignments from the sample of eight participants were then triangulated with the evaluation forms. Here we compared our judgements on the attainment of program outcomes of eight sampled participants with the coachees' judgements on the attainment of program outcomes of all participants. For those eight participants parallels were sought with the evaluation forms from their particular developers. These data were then cross-checked with information from the interviews with individual developers. Finally, we looked at developers' comments on the draft versions of the eight sample assignments and interviews if these could help us to explain why some program outcomes have been attained whereas other not.

**Table 1**
Overview of methods of data collection.

| Existing program information and participant assignments | | | New information collected post-program | | |
|---|---|---|---|---|---|
| 4 assignments from each of 8 sampled participants (32) | Developers' comments on the draft reports from 8 sampled participants | Developers' evaluation forms (19) | Survey questionnaire 19) | Interviews with the developers (4) | Interviews with a sample of participants (8) |

## 5. Results

### 5.1. Learning-centeredness and critically reflective approach

Analysis of the sample of participants' assignments showed that the participants – even those considered the least successful – had achieved two program outcomes: they demonstrated learning-centeredness and critically reflective approach to teaching. All but one participant manifested a high level of learning-centeredness at least in one of two final assignments and typically in both. Similarly, six of eight participants showed a high level of critical reflection on at least one of two final assignments.

While comparing first and revised versions of participants' assignments (from a sample of eight participants) it was clear that most of them had become more learning centerd, as intended by the program. In their revised version of the teaching philosophy, five participants increased their learning-centeredness (all to the high degree); learning-centeredness remained at a high level for one participant and a mid-level for other participant and interestingly; one participant demonstrated a decrease in the level of learning-centeredness. This participant evidently put more effort into writing the teaching philosophy submitted when applying for the summer school than into its reworked version.

When we assessed participants' reports from their courses, we noted that learning-centeredness mainly referred to the design of a new way of teaching. The nature of the assignment required the participants to focus on outcomes of student learning, which all of them respected already in the draft reports. Therefore, we did not notice any significant change in learning-centeredness between the draft and revised reports.

These are some examples of how program participants expressed their learning-centered thoughts (for more see Adamová & Muráriková, 2013).

> I think that the fact I started to think about my teaching as a strategic and purposeful activity helped me to look for and see new ways how I can teach and make my seminars more interesting for the students.

> ...progress of students and their increased interest, the feedback and willingness to cooperate and actively participate is both fulfilling and motivating.

> The feeling that I can always do something more for students in addition to what I have already done is the essential motivational force pushing me towards the deeper awareness of standing so close to the point from which their lives can take different, more valuable course.

When considering the assignments from the sample of program participants we noticed that critical and reflective skills had improved at half of the participants. In their revised teaching philosophies, four sampled participants managed to improve the level of their critical thinking (two to the high level and two to the mid level), three participants did not change (two of them remained at the middle level and one did not manifest sufficient reflective ability) and one participant teacher actually decreased the level of critical and reflective thinking in the revised document. This participant, however, focused on the expected results of change on student learning rather than on identifying difficulties pertaining to teaching the course, which could be seen as quite natural in this phase of her development.

While assessing participants' reports from their courses, only one participant improved the level of critical/reflective thinking whereas seven participants did not change. It must, nevertheless, be said that four of these participants originally had high levels of critically reflection in their draft reports (another one remained at the middle level, one at the low level and one – the same as in case of the teaching philosophy – did not manifest sufficient reflective ability).

To illustrate participants' ability to critically reflect on their teaching we chose the following excerpts from their assignments.

> What are my main difficulties while teaching? First, I have often realized on the seminar that the fact that I understand something doesn't mean that I can find suitable words to make my student to understand it. Another problem I often face is inability to persuade my students that economics is not scary and completely disconnected from the real life, but very logical and describing natural things around us. And moreover, that it is interesting. And solution? Careful preparation and experience.

> Several interpretations of such negative results for e-learning come into consideration. Firstly, the fact that the students had never had an experience with e-learning before could have affected their learning system in more disruptive than productive way. Secondly, lack of experiences may imply lack of skills–in fact, a lot of students admitted they had been having problems with computer literacy at the beginning of the course. Thirdly, the idea of virtual learning environment could be directly associated with weekly assignments. The amount of workload, even though admitted by majority of students to be useful, could have diminished the enthusiasm and in this way influenced the motivational potential of virtual learning environment...

> ... the actual results of the students were not in line with my expectations. Their results did not markedly differ from those of other students. There might be several possible explanations. First, the aim of the innovation that the students actually understand the topics better (not just state facts) was not reached. Second, without the innovation, the results could have been worse. Third, the assessment measures (short quizzes, final test, and submitted research design of the diploma thesis) did not reflect, or measure the understanding of the topics.

Whereas we based our judgements on the assignments from eight teachers (chosen as the most/least successful program participants), the developers considered in their evaluation forms all participants. In these evaluations, the developers were highly positive: they said they had evidenced learning-centeredness and a critically reflective approach to teaching in the assignments from 17 out of 19 program participants. In the interviews developers were similarly optimistic about participants demonstrating learning-centeredness: they noted that (many) teachers had become more reflective. Developers' judgements, however, did not specify the level of the attainment of these program outcomes, only if the outcomes were met or not. This suggests that the program achieved its first two outcomes through there is still room to help participants to become more learning-centered and to better reflect on their teaching and student learning.

### 5.2. Low level of theory-use

For the use of theory, the participants achieved program outcomes to some extent. None of the sample of participants demonstrated a high level of theory use in any of the assignments, with five revealing a mid-level of theory use as their best outcome. Because all sampled participants started with no evidence of theory in their teaching philosophies submitted together with the application, for some participants their revised assignments

manifested a leap forward in terms of the embracing of theory. When considering participants' sample reports, two of them improved in the theory application whereas six did not change. Developers' evaluation forms for all program participants confirmed that most participants had difficulty with theory use and the developers made similar comments also in the interviews.

### 5.3. Constraints of the teaching context

Work from the sample of participants as well as the interviews of five of the participants repeatedly pointed to how much participants felt constrained by their teaching context. In their reports, four participants mentioned large constraints (for example, pressure from the department to concentrate on research rather than teaching, workload associated with doing research, and above all, the fact that students' work during the semester could not count toward their grade and the program participants could not affect this). Among these four participants, two were identified by their coaches as the most successful in attaining the program outcomes and two were identified as successful though receiving little help from their coaches. This indicates that there is probably a relationship between an awareness of teaching constraints and ability to design and realize strategies to overcome them. A fifth participant spoke about medium-level constraints (for example, the school's established ways of teaching). The remaining three participants identified either no or small constraints in their pedagogic context.

The impact of the context was evident also in the statements of teaching philosophies, albeit to a lesser level. The context constrained the teaching of one participant to a medium and one to a large extent. Again, these participants were those considered either the most achieving or requesting the least help throughout the program. Two others spoke about small constraints and four did not mention any barriers in their pedagogic context. Of note, neither in the interviews nor in the written assignments did participants or developers mention that the teaching context would be supportive of change of teaching. If participants referred to any constraints in the pedagogic context, they almost with the same frequency mentioned the constraints at the level of their department, school, system of higher education and discipline.

As for the survey, constraints were much less evident; only three participants (out of 19) spontaneously said they had limited competences when teaching their course and one of these complained about tensions between what the developer and the head of the department wished him to do.

More than one fourth of the developers' and participants' statements in the interviews referred to participants' pedagogic context, even if no question had specifically addressed this issue. Participants typically appreciated help from the developers to deal with the context's constraints. Developers, who referred to these barriers even more frequently than the participants, said that some participants could fit their teaching change into their teaching environment, while other participants could only change some aspects of student learning due to the context. In the survey, twelve participants appreciated that the developer's advice had been useful for addressing their teaching problems, which may have referred also to dealing with the restrictions of their pedagogic context. The limits of the teaching context were less obvious from the developers' evaluation forms where only one developer pointed these out.

Still, there was some sense that participants could find ways to overcome – at least to some extent – the difficulties associated with their teaching setting. Two excerpts from the participants' assignments illustrate how they had thought about the relationship between their context and their effort to enhance student learning.

> One of the most determining factors is the level of "freedom" in teaching, in terms of competences in organizing time and content of teaching. However, even in the case of very limited possibilities to modify the content, design of learning units or evaluation, there are still some possibilities to perform efficient tools leading to better students' learning.

> The experience confirms my belief that even in the most "innovation–unfriendly" environment it is possible to make small changes which leads to considerable results.

Interestingly, we did not see any relationship between the existence of the endorsement from participants' institutions and a lowered level of constraints in the pedagogic system. In fact, those participants, who claimed their teaching context to be most limiting their practice, had typically submitted a letter of endorsement from their institution, whereas some of those who felt little constrained did not attach any letter of endorsement to their application. Most probably the departments did not assign enough importance to the letter, contrary to what we had hoped for.

## 6. Discussion and conclusions

This study explored the extent to which an educational development program facilitated the application of student-centeredness, critical reflective thinking and the use of pedagogic theory in a context in which a traditional teaching-centered approach prevailed. It is clear that the most influence was in learning-centeredness, followed by critical reflection and then the use of theory.

### 6.1. Learning-centeredness and critically reflective approach

As this study revealed, participants' pedagogic setting played an important role in determining what participants could change in their courses. Contextual factors uncovered in our research (level of control over the course, departmental support, workload and institutional pressures to concentrate on research rather than on teaching) are identical with those reported in existing literature. This study mainly helped to better detail them: participants were constrained by small possibilities to influence the course content, teaching methods and assessment, particularly because many of them were doctoral students with limited teaching competences. Also, this study pointed out to the fact that teachers from various higher education contexts oftentimes have to struggle with similar obstacles from their teaching environment.

Despite these contextual barriers, most participants from this study could find ways of how to be learning-centered and critically-reflective in their daily pedagogic practice. In this respect, the participants went further in developing their teaching than their colleagues from some previous studies. For example, Hockings' (2005) single case study described how factors like large student numbers, students accustomed to certain ways of learning, teacher's workload or lack of support for teaching innovation at the university level constrained a teacher who had wished to develop a learning-centered course for his students but was regularly bouncing back to teaching-centeredness. Similarly, Karm et al. (2013) evidenced how a program for university teachers helped participants to become more learning-centered but failed to enhance their ability to critique and reflect on their teaching.

We assume that the key determinant why the program participants in this study were more successful than their colleagues from some other studies is the nature of learning tasks. This program involved the participants in action research: the teachers were asked to complete a number of written

assignments where they had to support their judgements about student learning with evidence as, for example, quality of student work, student feedback, student grades, teachers' observations, etc. Moreover, participants were expected to put these judgements into the context of the scholarly literature on teaching and learning, which many of them did.

On the other hand, the program described in the Karm et al.'s study (2013) engaged participants in peer discussions. In these discussions, participants may have shared similar experiences which could have reinforced rather than challenged their thinking about teaching. And while the case study by Hockings (2005) briefly says that the teacher had engaged in action research, he may only has completed some elements of action research as the study was written from the point of view of the developer without mentioning any role of the teacher in assessing collected data on student learning.

Findings from other studies support this assumption. Nevgi (2012) reported that only those program participants who had been engaged in research into student learning and had critically read pedagogic literature, manifested learning-centered approach to teaching, as intended by the program. This way, participant teachers could overcome constraints from their teaching environment including a pressure to focus on research rather than on teaching or unsupportive attitudes from their colleagues.

Norton, Norton, and Shannon (2013) found that a complex interaction of institutional, disciplinary and individual factors hindered participants of development programs to implement program knowledge into their courses, even if participants appeared to have changed their pedagogic conceptions. Referring to their experience as educational developers, the authors suggested that the practice of action research could potentially become a more effective tool for facilitating pedagogic change than solely attending development programs. This is because collecting and evaluating data on student learning appears to personally empower teachers to change teaching by stimulating their intellectual curiosity and reflective practice (Norton et al., 2013).

We can thus recommend action research – or similar learning tools that ask program participants to confront their teaching conceptions with reality of student learning – as a useful element for facilitating application of program knowledge into the teaching practice. Such assignments can help program participants to react to the barriers of quality teaching at the level of individual departments, faculties or universities, as is often the case in countries advanced in transforming their higher education, but also to deal with the constraints existing at the level of the entire academic system, as was the case for participants in this program.

Further, the format of engagement with the developers may also have contributed to the desired change. Developers in this program were involved in all program stages: summer school, design of participant courses, actual teaching and commented on self-evaluation of participants' teaching, rather than when coaching was mainly centerd on the observation of teaching practice (Karm et al., 2013) or on the design and conduct of teaching (Hockings, 2005). The contribution of developers to the achievement of program outcomes deserves more attention and is currently the subject of another study.

### 6.2. Low level of theory-use

Several factors may explain why participants in this study did not learn to use theory for their teaching as expected. Most participants had little knowledge of pedagogic theory before the summer school but theory was not well integrated into the summer school program: it was largely introduced through the readings and during the summer school the session leaders used relatively little time to explain theory. Also, reading and listening are predominantly passive ways of learning, and participants were only asked to demonstrate their understanding of theory during two presentations at the end of the summer school when they introduced a proposed change in their teaching informed by pedagogic theory. Interestingly, as judged by the developers, most of these presentations revealed a misunderstanding of theory or a low level of theory insight and use. Therefore, in retrospect, it can be seen that the summer school did not sufficiently prepare participants to use theory. Another factor that appears to have influenced a low-level of theory use was small attention of developers to this program outcome. This was evident from the limited number of developers' comments related to theory application they offered to participants' assignments.

When we compared our findings with results from past research, we were surprised to find that previous studies typically did not pay attention to participants' ability to use pedagogic theory. This was even the case with studies that had examined the outcomes of scholarship of teaching and learning programs (Renc-Roe, 2006, 2008; Wang et al., 2011; Renc-Roe & Yarkova, 2012). This is striking, because, as argued by Trowler and Cooper (2002), "all practice is underpinned by theory, albeit often tacit and sometimes of rather poor quality" and therefore only the practice rooted in "explicit, rigorously evaluated theory" can lead to more effective outcomes. We thus recommend that future studies explore in more detail how participants of development programs embrace and use pedagogic theory.

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