

Promoting Student-Centered Teaching Through A Professional Development Program For Academics - A Mixed Study

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Abstract

In the context of student-centered learning (SCL) promoted by the Bologna process, the West University of Timișoara (WUT) encourages SCL implementation by organizing an annual didactic grant competition. Participation is voluntary and consists of creating a SCL activity project. After the blind peer-review process, the winners must participate in a pedagogical program based on WUT's reflexive-collaborative instructional model (RCL) to improve their SCL teaching practices. The present study aims to evaluate the impact of a pedagogical program on academics' teaching approaches and conceptions, their work environment experiences, well-being, and occurrence of burnout. We used a within-subjects quasi-experimental design with two measurement points. Quantitative and qualitative data were collected from the 13 beneficiaries. Depending on the fulfillment of the assumptions, the quantitative data were analyzed through paired samples T-tests or the Wilcoxon signed rank test, while the qualitative data were organized into categories via thematic content analysis. The pedagogical program positively impacted academics' SCL conceptions and teaching approaches and decreased exhaustion levels. Implications for the design of faculty training and relevant stakeholders are further discussed.

Keywords: higher education, pedagogical professional development, student-centered teaching

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1. Introduction

Within the last decades, higher education (HE) institutions have come under the strain of the ever-changing global context, leading to gaps that cannot be addressed by the traditional paradigm (i.e., teacher- or content-focused teaching) (Hoidn and Reusser 2020). The student-centered learning (SCL) paradigm tackles those issues by changing the compass toward the students and their needs. SCL targets an instructional process that stimulates imagination, active participation, reflection, independent thinking, and knowledge construction and promotes meaningful learning (Postareff and Lindblom-Ylänne 2008; Prosser and Trigwell 2014). Higher education teaching activities structured and implemented according to SCL principles tend to be associated with increased deep learning, leading to higher motivation to learn, retention, and understanding of taught content (Uiboleht et al. 2018). Consequently, SCL became a policy priority area of the European Bologna Process (Hoidn and Reusser 2020).

To facilitate these processes, universities ensure opportunities in the form of professional development programs, which can take many forms depending on the objectives pursued, such as teaching grants, workshops, or instructional development programs (IDPs) (Ilie et al. 2020). There is evidence worldwide that IDPs can help teachers adopt student-centered teaching (e.g., Ilie et al. 2020). Regarding the Romanian context, evidence of the impact of the pedagogical programs tailored to enhance SCL and teaching is somewhat limited (e.g., Eraşcu and Mladenovici 2022; Mladenovici et al. 2019). However, there are some recurrent initiatives to stimulate the adoption of SCL approaches in Romanian universities. For example, at the West University of Timișoara (WUT), an annual didactic grants competition is implemented to help teaching staff develop SCL practices. As part of this competition, there is an IDP and an impact assessment process. The present study describes the grant's implementation and impact assessment process.

1.1 Theoretical framework

There is evidence that academics' teaching conceptions and approaches transform positively toward a more SCL approach thanks to their participation in IDPs (Ilie et al. 2020). Accordingly, academics can also enhance their self-efficacy after participating in an IDP (Noben 2021; Postareff et al. 2007). However, these changes could be influenced by several other variables such as supportive communities, well-being (Esdar et al. 2016), specific of discipline (hard vs. soft disciplines), teachers' burnout (Trigwell and Prosser 2020), peer support (Kurtts and Levin 2000) or autonomy (Esdar et al. 2016). For example, suppose a teacher has a community of practice or a professional learning community at the university. The existence of a supportive community might allow a teacher to share, discuss, and reflect on its best teaching practices. It could also provide emotional support, a sense of empowerment, as well as networking and collaboration opportunities to implement the lessons learned in an IDP. All these factors could facilitate the implementation of a different instructional approach in the classroom. Also, several studies (e.g., Lindblom-Ylänne et al., 2006; McMinn et al., 2020) concluded that academics from "soft disciplines" (e.g., Social Science and Humanities) are in general more learning-focused in their instruction than academics belonging to "hard disciplines" (e.g., Mathematics or Medicine). Therefore, significant changes in academics' teaching approaches after participating in an IDP, could happen slower in the case of teachers that teach hard disciplines as compared to teachers teaching soft disciplines. Even more, a teacher that feels too exhausted will have higher levels of resistance against new initiatives or changes promoted by an IDP and limited availability for extra effort. Consequently, investigating IDP's impact on those variables is a regular research topic in international literature (Ilie et al., 2020).

1.1.1. Academics' teaching conceptions and approaches

Depending on the specific teaching conception academics have, they will be inclined to have specific intentions, ultimately determining the implemented teaching strategy (Kember and Kwan 2000). Therefore, teaching conceptions centered around knowledge transmission are more likely to lead to teaching strategies focused on delivering content specific to the discipline (Prosser and Trigwell 2014). Likewise, teachers who consider students to be individuals capable of building their knowledge, will try to encourage active implication and critical thinking (Prosser and Trigwell 2014; Postareff and Lindblom-Ylänne 2008). Therefore, a teacher should display conceptions and approaches that are student-centered rather than teacher-centered since they are more likely to encourage implication, increase interest, and promote growth (Kember 1997; Prosser and Trigwell 2014).

Until recently, both conceptions and teaching approaches have been considered dichotomously as poles of the same continuum (i.e., teacher- or student-centered) (Postareff and Lindblom-Ylänne, 2008; Prosser and Trigwell, 2014). However, approaches described using this dichotomic categorization were characteristic of a specific subject taught by the teachers. As academics' teaching approaches and conceptions can be influenced by various personal (e.g., teaching experience, gender, age, etc.) or contextual variables (e.g., institutional and teaching context, type of teaching activity, etc.) (McMinn et al., 2022; Vilppu et al., 2019), recently, an alternative perspective has been used to describe academics' teaching approaches not in a specific context but in teaching activities in general (Postareff et al. 2023). General teaching approaches are defined beyond the classical dichotomy of student- and teacher-centeredness (i.e., four teaching dimensions: transmissive, interactive, unreflective, and organized). Moreover, conceptions and approaches are closely related to teachers' roles. According to Grasha (1994), there are five possible roles, three of which resemble the teacher-centered approach (i.e., expert, formal authority, and personal model) and the other two of the student-centered one (i.e., facilitator and delegator).

1.1.2. Autonomy

According to the Self Determination Theory (Deci and Ryan 2000), autonomy is an essential psychological ingredient to foster psychological growth, integrity, and well-being. Autonomy is the desire to balance one's activity and one's integrated sense of self (Sheldon and Elliot 1999). Perceived autonomy substantially impacts motivation; for this reason, it is considered a crucial requirement in higher education (Esdar et al. 2016). Also, high autonomy indicates feelings of freedom and integration, paramount elements of healthy human functioning (Deci and Ryan 2000). From this point of view, we could argue that the effectiveness of an IDP is directly connected to its ability to satisfy the need for autonomy. Unfortunately, research on the role of autonomy in professional development programs in HE is lacking.

1.1.3. Peer support

Offering complementary forms of support in addition to the IDPs can increase the programs' positive effects (Steinert et al. 2019). For instance, the mentor-mentee relationship is a form of support where participants are sustained by disciplinary experts (Noben et al., 2021). This kind of support entails public evaluation of the outcomes (Zellers et al. 2008) and scheduled meetings (Phillips and Dennison 2015). Mentorship increases satisfaction, supportive reflection, and the chances of faculty development impacting teaching activity outside the program (Steinert et al. 2019). Thus, mentorship could facilitate academic learning and thinking, with positive outcomes for both the mentee (developing teaching skills and increasing confidence) and the mentor (sense of accomplishment and increased networking) (Beckerman 2010).

1.1.4. Self-efficacy

Self-efficacy is one's belief in acting successfully in a specific context (Bandura 1997). Instruction-related self-efficacy is a teacher's belief concerning their capability to manage the educational process to positively influence students' learning (Trigwell et al. 2004). Teachers' self-efficacy beliefs have been researched mainly at the pre-university level, with research in HE settings relatively scarce (Postareff et al. 2007). The little existing evidence on academic self-efficacy concluded that this variable is influenced by teachers' physiological and affective states and by their social experiences (Bandura 1997). In HE settings, teachers' self-efficacy is positively associated with students' learning outcomes (Daumiller et al. 2016), increased classroom engagement (Fong et al. 2019), and increased teachers' job satisfaction and commitment (Han et al. 2020). Prior research has shown that IDPs were an effective way of increasing academics' self-efficacy (Noben et al. 2021). Specifically, after participation in an IDP, increases in academics' sense of competence (self-efficacy) indirectly influence them to be more student-centered in their instruction (Fabrizz et al. 2020). Less experienced teachers appear to benefit the most following their participation (Postareff et al. 2007). Nevertheless, once established, academics' self-efficacy seems to remain relatively stable (Morris & Usher 2011).

1.1.5. Burnout

There are many definitions for the concept of burnout; out of them, the most sustained and accepted definition is the one proposed by Maslach (1982, p.2), which represents *burnout* as a "syndrome of emotional exhaustion, depersonalization and low personal fulfillment" that occurs as a reaction to chronic emotional stress reaching from working with others. Unfortunately, despite its importance, the concept of burnout remains understudied in relation to academics' participation in IDPs (Trigwell and Prosser 2020).

2. Methodology

2.1. Study design

The current study aimed to determine whether an IDP significantly affected teachers' teaching conceptions and approaches, autonomy, support, self-efficacy, and burnout. We used a mixed quasi-experimental design (quantitative and qualitative data) with two measurements (pretest and posttest) without a control group. Four research questions were formulated:

Q1. Does the program significantly change teachers' teaching approaches in a specific subject context or the teachers' general teaching approaches?

Q2. Does the program significantly change the teachers' work-related experiences (autonomy and peer support)?

Q3. Does the program significantly change the teachers' well-being (self-efficacy and burnout)?

Q4. Does the program significantly change the teachers' conceptions about teaching?

2.2. Participants and procedure

Our sample comprises 13 academics (i.e., all female, mean age = 36.62, mean teaching experience = 10.42 years) who teach soft disciplines (i.e., Social Science and Humanities). Four academics were at the beginning of their teaching career. The academics were informed about data anonymity and consented to its use in our research. The participating teachers were required to select a subject they

taught (i.e., referential subject) for which they applied what they learned during the IDP and about which we collected the data. One participant did not complete the form during the second measurement, leaving us with a final sample of 12 participants.

2.3. The training program

All the academics of the WUT were invited to participate in one didactic grant competition. Following the double-blind peer review process, only 13 applications were awarded a grant of around 1000 euros (i.e., 5.000 Ron) from the total number of applications ($n = 17$). Afterward, grant winners assume to participate in a training program and implement an innovative instructional model (i.e., Reflective-Colaborative Learning – RCL; CDA, 2019) in one specific subject they teach during one semester. Consequently, a team of academic developers organized two training sessions to help the grant winners deepen their understanding of the RCL model and change their teaching and learning conceptions and practices towards a more SCL approach. Both sessions took place before the beginning of the semester, and participation was mandatory. Throughout the semester (i.e., between the measurements), the academics benefited from support mentoring from teachers experienced in using the RCL model. The program had 25 hours of activities, of which 8 hours represented the two workshops (4 hours each) and 17 hours to complete the individual and mentoring activities.

The first workshop informed participants about the RCL educational design principles and tools, aiming to help the participants design a syllabus (according to the RCL model) for a subject they taught. The elaboration of the syllabus was considered the final assessment task of this workshop. In the second workshop, academics learned how to elaborate a lesson plan according to the RCL model. To complete the program, participants had to elaborate three lesson plans according to the RCL model for three different instructional activities for the same subject they previously elaborated on the syllabus. During the semester, the participants received mentorship from experienced teachers to use the RCL model in their current instructional activities at the same subject for which they prepared the syllabus and the lesson plans. The mentoring process included scheduled meetings and a public evaluation of the outcomes.

2.4. Instruments

To increase the current study's internal validity, we collected both quantitative and qualitative data.

2.4.1. Quantitative measurements

To assess academics' teaching conceptions, we employed the Romanian form (Mladenovici and Ilie 2023) of the Conceptions of Learning and Teaching (COLT) inventory (Jacobs et al. 2012). This inventory comprises 18 items divided into three dimensions: Teacher-centeredness, Appreciation of active learning, and Orientation to professional practice. Each item is measured on a five-point Likert scale, ranging from "Strongly disagree" to "Strongly agree".

To assess academics' specific teaching approaches, we employed the five-factor R-ATI (i.e., Revised-Approaches to Teaching Inventory), as validated on the Romanian population by Mladenovici et al. (2022). R-ATI has 22 items divided into five dimensions: three representing a student-centered teaching approach (i.e., conceptual change, discussions between teacher and students, and discussion between students) and two a teacher-centered approach (i.e., information transmission and focus). The items are scored on a five-point Likert scale ranging from „Very rarely true” = 1 to „Almost always true” = 5.

To assess academics' teaching approaches (in general), their well-being, autonomy, and work environment experiences, we used the HowUTeach self-assessment tool developed by Parpala and Postareff (2021). HowUTeach contains 22 items covering general approaches to teaching (i.e., four approaches to teaching, three items each: transmissive, interactive, unreflective, and organized), experiences of the work environment (autonomy - three items, peer support - three items), and well-being (self-efficacy - four items). The items use a five-point Likert scale, from „Totally disagree” = 1 to „Totally agree” = 5.

To evaluate the burnout level of the participating teachers, we used the shortened version of the Burnout Assessment Tool (BAT-12, Hadžibajramović et al. 2022). The 12 items of the instrument are split into four dimensions (i.e., exhaustion, mental distance, cognitive, and emotional impairment), assessed on a five-point Likert scale (i.e., 1=never to 5=always).

2.4.2. Qualitative measurements

The online forms (both in the pre-test and post-test) also contained the following open-ended questions: Q1. *What do you want to achieve through your teaching (in the university context)?* Q2. *From your point of view, what is teaching (in the university context)?* Q3. *What do you think your role is?* Q4. *Do you think your teaching influences student learning? If so, how?*

Questions 1 and 2 are meant to collect information regarding teaching conceptions by revealing the meaning teachers attribute to their didactic activity from a practical and theoretical point of view. The answers to these questions are analyzed within the framework proposed by Kember (1997), which proposes five categories: two teacher-centered/content-oriented categories (A. Imparting information; B. Transmitting structured knowledge); one intermediary category (C. Student-Teacher interaction/Apprenticeship); and two student-centered/learning-oriented categories (D. Facilitating understanding; F. Conceptualizing change/Intellectual development).

For questions three and the second part of question four, we can further expand our understanding regarding the respondents' teacher-focused or student-focused approaches by determining the roles teachers identify with and whether their actions are aligned with those roles. There are five roles, according to Grasha (1994): expert, formal authority, personal model, facilitator, and delegator. The first three represent the teacher-focused approach, and the other two represent the student-centered one. The first part of question 4 indicates the teachers' self-efficacy beliefs.

3. Results

3.1. Preliminary results

We verified the reliability and distribution of the quantitative data we collected. Most of the variables presented adequate levels of internal consistency (α Cronbach $\geq .70$) in both moments. The few exceptions that presented a less-than-desirable value ($\alpha < .70$, e.g., the organized approach and mental distance dimensions) were also included in the study following the recommendations of Tavakol and Dennick (2011). Next, depending on the degree to which the assumptions were met, we employed the paired sample T-test (Table 1) or the non-parametric alternative. As in some cases, the assumption of the symmetrical distribution of differences for the Wilcoxon signed rank test was not met, we used the Paired-Samples Sign Test (Table 2).

3.2. Quantitative results

Variable	Dimension		M	SD
Academics' teaching conceptions	Teacher Centeredness	Before	3.11	.613
		After	3.20	.616
		Change	-.093	
		t	-1.511	
		p	p > .05	
	Appreciation of Active Learning	Before	4.53	.365
		After	4.68	.289
		Change	-.150	
		t	-1.750	
		p	p > .05	
Academics' general teaching approaches	Interactive Approach	Before	4.58	.452
		After	4.69	.301
		Change	-.111	
		t	-.688	
		p	p > .05	
	Organized Approach	Before	3.78	.520
		After	3.89	.457
		Change	-.112	
		t	-.941	
		p	p > .05	
Academics' perceptions of the work environment	Support	Before	4.28	.600
		After	4.08	.867
		Change	.195	
		t	.778	
		p	p > .05	
Academics' burnout	Mental Distance	Before	1.61	.446
		After	1.50	.415
		Change	.109	
		t	.917	
		p	p > .05	
	Cognitive Impairment	Before	1.39	.446
		After	1.56	.557
		Change	-.168	
		t	-1.153	
		p	p > .05	
Academics' teaching approaches in the referential subject	Conceptual Change	Before	4.27	.637
		After	4.55	.385
		Change	-.276	
		t	-2.593	
		p	.025	
	Discussion Student	Before	4.63	.742
		After	4.42	.764
		Change	.208	
		t	.923	
		p	p > .05	
	Test-Focus	Before	3.77	.516

		After	3.77	.750
		Change	.000	
		t	.000	
		p	p > .05	

Table 1: Results of the paired samples T test

Following the analysis of the normally distributed data through the paired samples T-test, we found a significant change in the academics' conceptual changes dimension (of the R-ATI), for which we identified a significant increase from the pre-test (mean = 4.27) to the post-test (mean = 4.55), $t(11) = 6.352$, $p < .05$, with a small to medium effect size ($d = .41$).

Variable	Dimension	Neg / Pos / Ties	N	Median T1	Median T2	Median difference	Z	p	d
Academics' teaching conceptions	Orientation to Professional Practice	Pos.	2	4.80	4.80	0.00	.00	p > .05	.05
		Neg.	2						
		Ties	8						
Academics' general teaching approaches	Unreflective Approach	Pos.	4	2.17	2.50	0.00	.00	p > .05	.03
		Neg.	3						
		Ties	5						
	Transmissive Approach	Pos.	2	2.50	2.33	0.00	-1.58	p > .05	.50
		Neg.	8						
		Ties	2						
Academics' perceptions of the work environment	Autonomy	Pos.	6	4.33	4.33	0.00	.32	p > .05	.00
		Neg.	4						
		Ties	2						
Academics' well-being	Self-efficacy	Pos.	4	4.38	4.38	0.00	.00	p > .05	.24
		Neg.	3						
		Ties	5						
Academics' burnout	Exhaustion	Pos.	1	2.50	2.33	-0.17	-2.21	.021	.88
		Neg.	9						
		Ties	2						
	Emotional Impairment	Pos.	5	1.50	1.17	0.00	.00	p > .05	.24
		Neg.	4						
		Ties	3						
Academics' teaching approaches	Discussion Teacher Students	Pos.	2	5.00	5.00	0.00	.00	p > .05	.28
		Neg.	1						

in the referential subject		Ties	9						
	Information Transmission	Pos.	5	2.93	2.93	-0.07	-.29	p > .05	.15
		Neg.	7						
		Ties	0						

Table 2: Results of the Paired-Samples Sign Test

The results of the Paired-Samples Sign Test did not yield significant changes from the pre-test to the post-test for the variables related to conceptions and approaches toward teaching ($p < .05$). However, regarding the burnout level, there was a significant median decrease in Exhaustion (0.17) from pre-intervention (2.50) to post-intervention (2.33), $p < .05$, with a large effect size ($d = .88$).

3.3. Qualitative results

For the open-ended questions, we decided to use an exploratory approach and analyze the answers for questions 1 and 2 based on Kember's (1997) framework and questions 3 and 4 based on the five roles described by Grasha (1994). After analyzing the content of the answers given by the 12 teachers, we often identified teachers expressing views belonging to a student-centered and teacher-centered style. For ease of analysis, teachers were framed in the category for which we considered they expressed a higher tendency.

Q1. What do you want to achieve through your teaching (in the university context)?

At the pre-test moment, 41,67% (5 teachers) expressed views specific to Kember's cluster C, 33,33% (4 teachers) with cluster D. Clusters E, B, and A had 8,33% (one teacher) each. At the post-test moment, 50% (6 teachers) of the teachers are inclined toward cluster D, 33,33% (4 teachers) toward cluster E, and 16,67% (2 teachers) to cluster C (no one identified with A and B). The change from one moment to the other is significant: 83,33% of teachers belonging to clusters specific to student-centered conceptions following the completion of the program.

Q2. From your point of view, what is teaching (in the university context)?

At the pre-test moment, 41,67% (5 teachers) of the answers seem to correspond to cluster C, 25% (3 teachers) to cluster E, 16,67% (2 teachers) to B, and lastly, A and D had 8,33% (1 teacher) each. At the post-test moment, 75% (9 teachers) of teachers identified with cluster D, 16,67 (2 teachers) with C, and 8,33% (one teacher) with B (no one identified with A and E). Teachers' conceptions significantly shifted after the program, with the majority (75%) expressing student-centered opinions.

Q3. What do you think your role is?

At the pre-test moment, 41,67% (5 teachers) of the teachers' views seem to correspond to the role of facilitator, 25% (3 teachers) with delegator, and the roles of expert and formal authority represented 16,67% (2 teachers) of the teachers each. No teacher identified with the role of a personal model. At the post-test moment, 75% (9 teachers) of the teachers' comments tend to fall within the role of facilitator, and each of the role's expert, formal authority, and delegator represents 8,33% (one teacher) of the total. Again, no teacher identified with the personal model. We can observe a significant increase in teachers identifying with the facilitator role after the program (75%).

Q4. Do you think your teaching influences student learning? If so, how?

All teachers responded positively to the first part of the question, expressing confidence in their teaching (i.e., self-efficacy). For the second part of the question, at the pre-test moment, the roles of facilitator and formal authority have an identical distribution, representing 33,33% (4 teachers) of the sample's views. The delegator follows in the hierarchy with 16,67% (2 teachers); one teacher expressed the personal model role, while another did not identify with any role. At the post-test moment, the answers of 50% (6 teachers) of teachers could be framed within the facilitator role, the delegator role was specific for 25% (3 teachers), and the personal model role was identifiable in the answers of the remaining 25% (3 teachers). No teacher has identified with the expert and formal authority roles in the post-test. Overall, at the post-test, the evolution from teaching practices specific to a teacher-centered role to a student-centered one was sustained by the qualitative data (i.e., 75% of academics stated after the IDPs to use mostly student-centered roles such as facilitator and delegator).

4. Discussions and implications

The present study attempted to investigate the effect of a pedagogical training program offered to academics in the 2022-2023 WUTWUT's grants competition by employing a mixed quasi-experimental design with no control group and two measurement points. Both quantitative and qualitative data sustained the existence of positive transformation in academics' teaching approaches regarding the extent to which they perceive instruction as enabling students to develop new insights in the taught subject independently. This conclusion aligns with previous findings of studies investigating IDP's effects (Ilie et al. 2020). However, the lack of impact over general approaches limits the program's capability to determine changes outside the subject considered during the training.

Even though the current IDPs positively determined positive transformation in academics' SCL conceptual change in the referential subject, there were no significant decreases in teacher-centered approaches. This finding aligns with previous studies that show that it is more challenging to change teacher-centered approaches compared to student-centered approaches (Prosser and Trigwell 1999; Lindblom-Ylänne et al. 2006). One possible explanation is that the IDPs usually focus too much on increasing SCL approaches and overlook the need to decrease teacher-centered instruction. Support in the form of debriefing sessions to increase awareness of these differences and help teachers extrapolate what they learned outside the specific context of the program could yield positive results. Thus, academic developers should independently target the two approaches through distinct activities (i.e., increasing student-centered and decreasing teacher-centered approaches) (Mladenovici and Ilie 2023).

Regarding our teachers' burnout level, we identified a significant decrease in exhaustion after completing the program, which is an encouraging result since, in a previous edition of the teaching grants, academics reported a significant decrease in their resilience levels after participating in the program (Balan et al., 2023). We attribute this result to the mentoring process, the only novelty element differentiating this edition's training from the previous one. Although we could not identify studies directly speaking of the relationship between academics' involvement in mentoring activities and burnout levels, we did find other elements that could indirectly lead to a decrease in burnout. Namely, mentoring increases productivity and confidence (Beckerman 2010) and facilitates building learning communities (Margalef and Roblin 2018). Learning communities, in turn, lead to a further increase in teaching culture, collaboration focused on student learning, and teacher empowerment (Vescio 2008). Knowing they can receive assistance whenever necessary may make academics less stressed by the workload, which could decrease psychological exhaustion. Considering the implications for teachers' well-being, academic developers should integrate mentoring systems as part of IDPs to ease the workload while enhancing effectiveness.

We observed a significant change in teachers' conceptions and roles based on the qualitative data. At the post-test, more teachers identified with cluster D (i.e., facilitating understanding) and the role of facilitator. This may indicate an impact on teaching practices outside the limited scope of the self-reported instruments. Previous studies stated that quantitative and qualitative data are needed to understand an IDP's impact (Miles et al. 2014). For example, some studies that used mixed methods confirmed with both types of data the positive impact of their IDPs over teaching conceptions (Noben et al. 2021) and approaches (Postareff et al. 2007). We could not obtain similar results due to the low statistical power resulting from our small sample size. After all, previous studies discovered that SCL conceptions and approaches are related to high levels of self-efficacy (Noben et al., 2021; Postareff et al., 2007), and our sample maintained a high level of self-efficacy during both measurement moments.

5. Limits and recommendations

Our results should be interpreted cautiously, considering limitations that make their generalization challenging. First, our small sample of participants lowered the study's statistical power, increasing the possibility of a type 2 error (i.e., false negative) and lowering the internal consistency for some variables. Second, we could not realize separate analyses based on teaching experience, type of discipline, and gender (i.e., a small sample comprising only female teachers from soft disciplines). Besides the obvious need for a more balanced sample, previous research stated that these variables influence the effectiveness of IDPs (McMinn et al. 2022; Mladenovici and Ilie 2023; Postareff et al., 2007). For example, Mladenovici and Ilie (2023) presented evidence that debutant teachers in HE are more likely to change their teaching approaches (compared to more experienced teachers), which may further determine complementary teaching conceptions. In our case, it would be more beneficial to have implemented separate training directions depending on the participants' experience, focusing more on the development of teaching approaches in the case of debutants and more on the teaching conceptions in the case of experienced academics.

Third, previous studies show that teacher-centered approaches require more time and effort to lower (Lindblom-Ylänne et al. 2006), and soft discipline teachers are more inclined towards student-centered approaches (Postareff et al. 2007). Our intervention is both too general and too short to enact fundamental changes. To address this, Mladenovici and Ilie (2023) recommend the use of distinct training practices (i.e., for increasing student-centeredness and decreasing teacher-centeredness), and Postareff and her collaborators (2007) recommend IDPs at least one year long.

Fourth, a follow-up could help observe the changes in time, even for a short intervention (Ilie et al. 2020). Fifth, our study's qualitative approach (i.e., open-ended questions) could be improved. To increase the quality and validity, future studies should employ observations of teaching (i.e., real-time or recordings) and interviews in addition to quantitative self-reported data. Using more measurement methods might also address one last limit: many variables presented already high values at the pre-test, leaving little room for improvement (i.e., the floor and ceiling effects).

6. Conclusion

Our investigation reveals (once again) how challenging it is to reinforce teaching and learning to achieve effective, sustainable, student-centered teaching in Academia. The present study measured the impact of an IDP offered as part of a teaching grants contest meant to encourage the implementation of SCL practices in a comprehensive Romanian university. After the program, there were significant transformations in academics' SCL approaches (i.e., conceptual-change intentions and strategies) but only in the subject they chose as referential. Participants also reported significant decreases in their exhaustion levels. Also, data revealed changes in teachers' conceptions and roles, with academics stating that they see themselves as facilitators regarding students' learning. Given the positive results

of our endeavor, we believe that future IDPs that foster the creation of teaching practice communities where academics can share and reflect upon their difficulties and successes related to implementing SCL in their teaching will have sounder outcomes. Also, developing a recognition and reward system supplemented by training and peer support for academics eager to implement SCL into their daily teaching practices will be a step toward a more effective and sustainable SCL in HE. Making higher education a genuinely inclusive and sustainable process can only be achieved with the transversal integration of knowledge from the social sciences and humanities, especially from university pedagogy and educational psychology. To further equip students with the necessary higher-order competencies to navigate and succeed in a rapidly transforming economic landscape as an engine of innovation, knowledge dissemination, and human capital development, HE has to reinvent itself permanently and look for innovative solutions to reinforce teaching and learning. Although it remains to be seen why some academics became more student-centered than others, we hope that other stakeholders interested in implementing similar IDPs to reinforce student-centered teaching and learning in higher education will consider our study's main takes and keep documenting how individual participants make sense of such learning experiences.

7. References

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