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## Exploring the variation of educational developers' teaching-related perceptions in higher education

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### ABSTRACT

The study explored educational developers' (N = 100) teaching-related perceptions in Finnish higher education through questionnaire data. The results indicated that the higher the levels of interactive and organised approaches to teaching, combined with low levels of transmissive and uncertain approaches to teaching, the more positive the perceptions of teaching-related self-efficacy beliefs, collegial support for teaching, and the experienced relevance of teaching seemed to be. The study highlights the importance of acknowledging different elements that contribute to the practices and development of pedagogical experts working in the enhancement of learning and teaching in higher education. Paying attention to educational developers' approaches to teaching and related elements can contribute to the quality of pedagogical development initiatives in higher education.

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### KEYWORDS

Educational developers; approaches to teaching; self-efficacy beliefs; collegial support; teaching relevance

## Introduction

One of the key dimensions of educational developers' (EDs) work is supporting the practices and quality of teaching in universities to enhance better learning (Debowski, 2014; Isaacs, 1997). Thus, EDs are key actors in influencing the pedagogical culture of universities (Roxå et al., 2010). Educational development can focus on individuals or communities, generic or context-specific issues (Gibbs, 2013), as well as institutional development or a broader context outside the university (Fraser et al., 2010). Educational development often involves the organisation of pedagogical teacher training and offering of pedagogical courses. According to a study by Fraser (2001), different practices of EDs – such as consulting, facilitating and supervising – can be viewed as being part of teaching practices. However, there seems to be few studies focusing on EDs' development (Mårtensson & Roxå, 2021), and research has not yet focused on what kind of approaches to teaching the developers themselves employ when teaching in a university.

EDs are often viewed as a diverse group of professionals (see DiNapoli et al., 2010) and referred to by a variety of terms, such as educational, academic, staff, or professional developers (e.g., Fraser, 2001). Based on survey data from 38 countries, Green and Little

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(2016) identified that EDs may perform academic or administrative roles, or a combination of these. Mori et al. (2021) concluded that academic developers may fall *in between* positions, for instance, whether they are approaching matters from a leadership perspective or operationalising them in practice. Isaacs (1997) described two profiles of EDs based on how they entered their profession: those who begin their careers in educational development and those who have a background as university teachers and, during their careers, seek positions as EDs. Despite the variety of roles that EDs represent as professionals, their contributions for developing educational practices are significant (Felten et al., 2007; Sorcinelli & Austin, 2010). Research has indicated the effectiveness of EDs' work, for instance, showing increased utilisation of learning-centred practices by the participants who had participated in educational development initiatives (Wheeler & Bach, 2021). Vreekamp et al. (2023) reported that such initiatives can foster teacher development, but there is a wide variation in regard to their effectiveness.

The present study addresses EDs' teaching-related perceptions in the context of Finnish higher education based on previous research concerning *teachers' approaches to teaching* (see Postareff & Lindblom-Ylänne, 2008; Trigwell et al., 1994) along with connected elements, namely, teaching-related self-efficacy beliefs, collegial support in teaching development (from here onwards, 'collegial support'), and the relevance of teaching. Thus, the study focuses on the pedagogical aspects of EDs' work, through which the pedagogical culture of universities is influenced (Roxå et al., 2010). The research question is: What kind of *approaches to teaching* do EDs employ, and how are these related to their teaching-related self-efficacy beliefs, experiences of collegial support, and experienced relevance of teaching? The study aims to create new knowledge on EDs' teaching-related perceptions, which should be acknowledged in the professional development of the developers.

### **University teachers' approaches to teaching and teaching-related self-efficacy beliefs**

During the last few decades, research concentrating on university teaching has considered teachers' approaches to teaching and their connection to students' learning outcomes. The approaches have been described as ranging from emphasising teachers' roles in information transmission to where the focus is on the students' role in learning through conceptual change (Trigwell et al., 1994). Different teaching approaches have been found to be connected to the quality of students' learning outcomes, indicating that student-focused teaching will enhance students' deeper learning, whereas teachers' focus on information transmission will more likely enhance students' adoption of surface approaches to learning (Trigwell et al., 1999). Approaches have also been categorised as content-focused and learning-focused, which differ in the areas of teaching process, learning environment, and conceptions of learning (Postareff & Lindblom-Ylänne, 2008). However, teaching is commonly a combination of different approaches (Postareff et al., 2008).

In the present study, we utilise a framework of higher education teaching reported by Parpala and Postareff (2021), which includes four perspectives of teaching: an interactive approach, a transmissive approach, an unreflective approach, and an organised approach. The interactive approach engages students in the learning process, whereas the transmissive approach focuses on information

transmission without activating the students' reflection (Parpala & Postareff). These approaches resemble the learning-focused approach and knowledge transmission approach to teaching reported in previous studies (e.g., Kember & Gow, 1994). In the present study, the unreflective approach is considered as *an uncertain approach* because the focus of the scale is on a teacher's ability to understand students' learning. These teachers may lack knowledge of the learning process or see the complexity of it to be so challenging that they feel uncertain how to support students' learning. Previous research shows that it is important for teachers to be able to make transparent how they make students' learning possible (Trigwell et al., 2000). Thus, uncertainty in supporting students' learning may influence the combination of approaches to teaching. The framework also includes the organised approach, which aims to capture time and effort management in teaching (see also Entwistle & McCune, 2004).

University teachers' approaches to teaching have been found to be connected to their teaching-related self-efficacy beliefs; higher teaching-related self-efficacy beliefs have been associated with the employment of student-focused approaches to teaching (Cao et al., 2018; Kaye & Brewer, 2013). Perceived self-efficacy refers to a person's beliefs about their capabilities to perform a certain task (e.g., Bandura, 2006), which, in a teaching context, may be related to the teachers' perceptions of their teaching competence and their beliefs about the requirements in specific teaching situations (e.g., Tschannen-Moran et al., 1998, p. 233). Thus, it represents a judgment of capability, which may influence a person's outcome expectations for certain activities and the amount of effort they put into these activities (Bandura, 2006). Because approaches to teaching are associated with teaching-related self-efficacy beliefs, it is important to take both into account among EDs, who promote teaching-related matters in their institution.

### **The connections between the approaches to teaching, collegial support, and relevance of teaching**

Teachers who perceive their environment to value teaching have reported more student-focused approaches to teaching (Prosser & Trigwell, 1997). Teachers have reported student-focused teaching approaches in a culture where there are opportunities for dialogue and where teachers assist each other in their teaching tasks (Englund et al., 2018). Similarly, Kálmán et al. (2020) found that approaches to teaching were related to higher education teachers' experiences of their departmental cultures, measured as sharing of practices, voluntary collaboration, and departmental support of teaching. Discussion among other teachers may increase teachers' opportunities to experience support from their community (Murtonen & Vilppu, 2020; Myllykoski-Laine et al., 2022) and benefits the students as attention is increasingly directed to student learning (Vescio et al., 2008, p. 88).

In addition to the community's views regarding teaching, EDs' experienced relevance of teaching can be seen as important when exploring their teaching-related perceptions. Relevance of teaching refers to a teacher's perception of how much their teaching matters (Calkins & Seidler, 2011). In addition, it relates to the teacher's self-efficacy beliefs and involves aspects of how much the teacher enjoys teaching (Schiefele et al., 2013). Relevance of teaching is related to interaction with students and colleagues, where positive relationships may increase meaning of work (Turner & Thielkin, 2019). Thus,

we find it interesting to explore the EDs' experiences of collegial support as well as their experienced relevance of teaching. The exploration of the relevance of teaching is especially interesting in the case of EDs, as they may have varying tasks in their institutions.

## Methods

### Context

The higher education system in Finland consists of universities and universities of applied sciences (UASs). In principle, universities offer scientific research and education, whereas UASs emphasise pragmatic education and applied research. There are differences in the requirements for university teachers and UAS teachers; formal pedagogical qualification (60 European Credit Transfer and Accumulation System [ECTS] credits) and sufficient work experience from the field of subject are required only in UASs. Thus, university teachers often start their teaching duties without formal pedagogical qualification. However, pedagogical studies are systematically offered in almost all the universities and more and more teachers complete these studies (often worth 20–60 ECTS credits).

### Data collection

The data were collected via a Finnish network of higher education pedagogical educators and developers, which includes participants from almost all the higher education institutions in Finland (participants from 36 institutions out of 38). Purposive sampling (Cohen et al., 2018, pp. 218–220) was utilised in the data collection and identification of the pedagogical educators and developers in the institutions; institutions in the network compiled a contact list of staff who had identified themselves as belonging to the target group. A total contact list of 281 persons was utilised in contacting the participants of the study via email, of which 119 participants (42%) from 27 institutions completed the questionnaire. However, it was possible to forward the questionnaire; thus, the actual response rate was unknown. The study was conducted in a project, which, for the first time, aimed to identify the scope of EDs in the Finnish higher education institutions.

The data were collected using online survey software (Webropol Ltd, Finland). Informed consent was gathered from the participants to utilise their responses for the research. The sample size was 100 after screening for missing values and repetitive outlier values and removing the responses of participants who had not given their consent to utilise their responses for research.

### Participants

All participants ( $N = 100$ ) had completed pedagogical studies; almost all (95%) had a formal teacher's pedagogical qualification or the equivalent and the rest (5%) had completed some studies. The participants were from universities (35%) and UASs (65%). They were asked about their work titles, resulting in approximately 42 different titles, and some participants even held several titles. Approximately 53% of the participants reported *teaching-related* titles, such as professor, university lecturer, principal lecturer

(UAS), and principal research scientist (UAS), whereas approximately 34% mentioned *development/support-related* titles, such as specialist, co-ordinator, developer, and coach. Additionally, approximately 13% identified themselves as directors, such as developmental directors and service directors. The participants were asked to describe how their work was related to educating teachers and supervisors or the development of higher education pedagogy. In many cases, the work titles referring to *development- or support-related staff* included tasks such as teaching courses on higher education pedagogy, supporting teachers in pedagogical design, or teaching-related tasks, such as training, guidance, and coaching. Thus, the participants were generally seen to work closely on pedagogy-related issues in their institutions.

Most of the participants had been working in higher education for several years or decades (less than five years, 8%; 5–10 years, 15%; 11–20 years, 46%; more than 20 years, 31%). The participants' age varied between 26 and 64, and most (66%) were over 45 years old.

### **Measures**

The study utilised the HowUTeach questionnaire (Parpala & Postareff, 2021), which included items measuring participants' approaches to teaching (partly based on Trigwell et al., 2005), teaching-related self-efficacy beliefs (modified from the Motivated Strategies for Learning Questionnaire, Pintrich et al., 1993, for the HowUTeach questionnaire), experiences of collegial support, and experiences of the relevance of teaching (developed for the HowUTeach Questionnaire). The questionnaire was chosen for the present study because of its recent development in the Finnish higher education context to explore the variety of teachers' approaches to teaching (Postareff et al., 2023). The participants answered the questions on a Likert scale (1 = totally disagree through 5 = totally agree). They were instructed to relate the described situations in the items to their teaching, or other educational and training tasks, while answering the questionnaire.

### **Analysis**

The factor structures were explored through confirmatory (CFA) and exploratory (EFA) factor analyses. A CFA using the maximum likelihood estimation was utilised in the measurement of model validity concerning the items of the approaches to teaching scale, as the validity of the scale was previously explored and reported on by Postareff et al. (2023). In CFA, a chi-squared test is commonly used to assess the overall model fit in which the  $p$ -value should be non-significant. However, the sample size and non-normal data can inflate the chi-squared test statistic, and it is thus 'rarely used in applied research as a sole index of model fit' (Brown, 2015, p. 69). Thus, the comparative fit index (CFI), Tucker Lewis Index (TLI), root mean square error of approximation (RMSEA), and standardised root mean square residual (SRMR) were also used to analyse the model fit. CFI and TLI values over .95 are preferred (Hu & Bentler, 1999). In RMSEA, values below .06, and in SRMR values below 0.08, are preferred (Hu & Bentler). Cronbach's alpha was used to assess the internal consistency of the factors. The original model indicated a better model fit if two error items were allowed to correlate. After this change was made to the model, all the results of the CFA supported the validity of the model, and the

**Table 1.** The model validity statistics, factors, Cronbach's alpha values, items, and item means and standard deviations.

Approaches to teaching scale		$\chi^2$ 62.97, $df = 47$ , $p = 0.063$	CFI .96	TLI .95	RMSEA .06	SRMR 0.07
Factor	C $\alpha$	Items	Mean SD	Standardised regression weights		
F1 Interactive approach	.70	AT_1: In my teaching, I create situations where I encourage students to discuss their thoughts and opinions about the topic.	4.60 0.59	0.40		
		AT_2: I set aside teaching time so that the students can discuss among themselves about the key concepts of the subject.	4.61 0.63	0.69		
		AT_3: In teaching situations, I provide an opportunity for students to deepen their understanding about the subject through discussion.	4.58 0.67	0.87		
F2 Transmissive approach	.79	AT_4: The majority of my teaching time is spent transmitting information to the students about the topic.	2.35 1.00	0.62		
		AT_5: My teaching is focused on the good presentation of information to the students.	1.82 0.92	0.89		
		AT_6: The most important goal of my teaching is to deliver what I know to the students.	2.00 0.96	0.72		
F3 Uncertain approach	.79	AT_7: I have trouble understanding how I can help the students learn.	1.55 0.67	0.87		
		AT_8: The students' learning process is so complicated that it is challenging for me to understand how I can support it as a teacher.	1.60 0.73	0.71		
		AT_9: It is difficult for me to understand what learning is all about.	1.29 0.48	0.67		
F4 Organised approach	.73	AT_10: I am organised and systematic as a teacher.	4.23 0.96	0.41		
		AT_11: I put a lot of effort into my teaching.	4.34 0.75	0.98		
		AT_12: I spend a lot of time to prepare my teaching.	4.10 0.885	0.80		

alpha values indicated good internal consistency of the factors. The statistics are presented in Table 1.

An EFA was utilised in exploring the factor structure of the items measuring teaching-related self-efficacy (SE), collegial support (CS), and relevance of teaching (RE). Principal axis factoring with direct oblimin rotation was chosen as the extraction method, as some of the items violated the normality distribution expectation (based on skewness and kurtosis). The factor structure and Cronbach's alpha of factors related to the items are presented in Table 2.

The Kaiser-Meyer-Olkin test value (.73) and Bartlett's test of sphericity ( $\chi^2 = 344.62$ ,  $df = 45$ ,  $p < .001$ ) support the utilisation of the factor analysis. The communalities were above the 0.3 level, except for one item related to the relevance of teaching (*I enjoy my teaching*). The loadings of the items were good. The factor analysis suggested a three-factor solution in which the factor structure explained 66.21% of the total variance. The Cronbach's alpha values indicated good internal consistency of the factors.

Spearman's correlations were explored in identifying associations between the factors. K-means clustering was utilised to identify participant profiles based on their approaches

**Table 2.** The items, means, standard errors, standard deviations, the factor structure, and Cronbach's alpha values related to self-efficacy beliefs, collegial support, and relevance of teaching.

Item	Mean SD	Communality	Factor loadings		
			F5 Ca .82	F6 Ca .76	F7 Ca .69
SE_1: I believe I can cope with my teaching tasks.	4.52 0.60	.33	0.60		
SE_2: I am confident that I can manage even in the most difficult teaching situations.	4.46 0.66	.68	0.81		
SE_3: I am certain, that I have the necessary pedagogical skills to manage in teaching tasks.	4.37 0.77	.59	0.78		
SE_4: I am confident that the students learn from my teaching.	4.31 0.61	.61	0.70		
CS_1: My colleagues listen if I tell them about the challenges I face in my teaching.	4.22 0.82	.38		0.53	
CS_2: My colleagues are open to new ideas regarding teaching.	3.99 0.93	.86		0.95	
CS_3: My closest work community values teaching and its' development.	4.33 0.83	.44		0.68	
RE_4: The topics I teach are meaningful to me.	4.70 0.56	.98			1.06
RE_5: I enjoy my teaching.	4.46 0.70	.30			0.45
RE_6: The majority of my teaching content is very interesting.	4.40 0.68	.36			0.50

Loadings under .30 are suppressed.

to teaching. The Mann-Whitney U test was used to compare the identified profiles in terms of the participants' teaching-related self-efficacy beliefs and their perceptions of collegial support and relevance of teaching.

## Results

Mean values, and correlations between the factors, were first explored because the aim was to identify participants' approaches to teaching and the connections to their teaching-related self-efficacy beliefs, collegial support, and relevance of teaching Table 3 presents the mean values and standard deviations of each factor and Spearman's

**Table 3.** Mean values and standard deviations of the factors, Spearman's correlations with 95% confidence intervals.

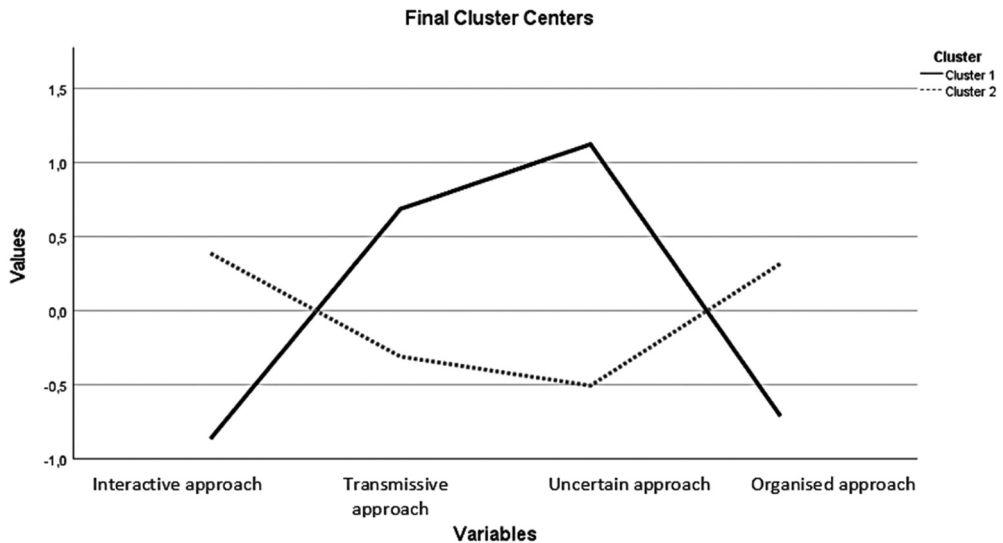
	Mean SD	F1	F2	F3	F4	F5	F6	F7
F1	4.62							
Interactive approach	0.47		-.39**	-.36**	.28**	.34**	.34**	.30**
F2	2.05							
Transmissive approach	0.81							
F3	1.46							
Uncertain approach	0.52							
F4	4.26							
Organised approach	0.67							
F5	4.45							
Self-efficacy beliefs	0.49							
F6	4.20							
Collegial support	0.70							
F7	4.54							
Relevance of teaching	0.49							

correlations with bootstrapped 95% confidence intervals. Significant correlations between the factors were detected: interactive approach, organised approach, self-efficacy beliefs, collegial support, and relevance of teaching had positive mutual correlations (excluding the correlations between organised approach and self-efficacy beliefs, and between organised approach and relevance of teaching). Uncertain and transmissive approaches correlated positively with each other and negatively with the other factors.

As the correlations between the factors indicated general connections within the data, further analyses were utilised to explore whether participants with different approaches to teaching could be identified, and whether significant differences could still be detected between the different groups based on their approaches to teaching. These results are presented in the next section.

### Identifying different profiles based on the approaches to teaching

To explore whether participants with different approaches to teaching could be identified, cluster analysis (with K-means clustering) was utilised. Cluster analysis is generally a means of identifying groups in the data, often so that an individual case will belong only to one cluster (Everitt et al., 2011). The analysis was performed (iteration 7) with the standardised values of the factors measuring the approaches to teaching. Based on the descriptive values and similar previous connections between interactive and organised approaches to teaching (Postareff et al., 2023), a two-cluster solution was utilised in the study. Figure 1 and Table 4 present the results of the clustering. According to the *F*-values, the uncertain factor had the most emphasis in dividing the participants into clusters. In Cluster 1, named as the *mixed profile*, the participants placed more emphasis on uncertain and transmissive approaches to teaching than in Cluster 2. In Cluster 2,



**Figure 1.** Two clusters formed based on the standardised values of the four approaches to teaching factors.

**Table 4.** F-values of the K-means clustering, mean values, and standard deviations of the two clusters.

	F	Cluster 1 (n = 31)		Cluster 2 (n = 69)	
		Mean	SD	Mean	SD
Interactive approach	50.09	4.22	0.50	4.80	0.32
Transmissive approach	26.74	2.60	0.72	1.80	0.72
Uncertain approach	131.89	2.04	0.47	1.20	0.26
Organised approach	29.04	3.78	0.64	4.47	0.57

**Table 5.** The results of the Mann-Whitney U test between the participants grouped by their approaches to teaching.

	Teaching-related self-efficacy beliefs	Collegial support	Relevance of teaching
Mann-Whitney U	395.00	637.50	683.00
Z	-5.14	-3.27	-2.99
p-value	$p < .001$	$p = .001$	$p = .003$
r	.51	.33	.30
Mean rank of the <i>mixed profile</i>	28.74	36.56	38.03
Mean rank of the <i>highly interactive profile</i>	60.28	56.76	56.10

called as the *highly interactive profile*, the participants placed more emphasis on interactive and organised approaches to teaching than in Cluster 1.

### Exploring the differences between the two profiles

The Mann-Whitney U test was performed to compare the two profiles in factors measuring the participants' teaching-related self-efficacy beliefs, their experiences of collegial support, and experienced relevance of teaching. The results are presented in Table 5. The profiles differed statistically significantly (significant *p*-values) in all the factors with medium (above .30) and large (above .50) effect sizes (see Ellis, 2010). The *highly interactive profile* (Cluster 2) reported higher levels of collegial support, relevance of teaching, and teaching-related self-efficacy beliefs than the *mixed profile* (Cluster 1).

The percentage of university staff was slightly higher in the *mixed profile* (42%) than in the *highly interactive profile* (32%), and correspondingly, the percentage of UAS staff was slightly lower in the *mixed profile* (58%) than in the *highly interactive profile* (68%). Because the various titles and varying open descriptions of work tasks were difficult to classify unambiguously, they were not utilised as background variables in the statistical analyses. However, based on an approximate comparison, the *mixed profile* included more development- or support-related titles and directors (over half of the participants) than the *highly interactive profile* (less than half of the participants). There were no significant differences between the two profiles regarding age structure or number of years working in the field of higher education.

## Discussion

The study explored the variation of EDs' teaching-related perceptions through their self-reported measures in a quantitative questionnaire focusing on their approaches to

teaching, teaching-related self-efficacy beliefs, experiences of collegial support in teaching development, and experienced relevance of teaching. The confirmatory and explorative factor analyses showed satisfactory results, indicating that the recently developed questionnaire for Finnish higher education (see Parpala & Postareff, 2021) worked well in the context of EDs.

The study strengthens the view of EDs as a varied group of professionals (e.g., Green & Little, 2016; Mori et al., 2021) participating in *teaching* in various ways to develop institutional practices (see Fraser, 2001). Almost all the participants had a formal teacher's pedagogical qualification and can be seen as pedagogical experts. The perspectives of student-centred practices and the promotion of interactive methods in teaching and learning are central to this group (e.g., Wheeler & Bach, 2021), regardless of the varying work positions they may hold in their institutions.

On average, the EDs reported high scores in interactive and organised approaches to teaching scales and low scores in transmissive and uncertain approaches to teaching scales. However, instead of looking at individual scales, it is important to view the combinations of the approaches to teaching (Postareff et al., 2008). Different combinations of teaching approaches were detected: the *highly interactive profile* reported higher interactive and organised approaches to teaching with lower transmissive and uncertain approaches to teaching than the *mixed profile*. Previous research has shown relationships between the approaches, where, for instance, the transmissive and the uncertain approaches have shown similar scores (Postareff et al., 2023). In the present study, the *highly interactive profile* reported higher scores in the factors measuring teaching-related self-efficacy beliefs, collegial support, and relevance of teaching than the *mixed profile*.

It is important to recognise the positive connection between the interactive approach to teaching and teaching-related self-efficacy beliefs (Cao et al., 2018; Postareff et al., 2023). An interactive approach to teaching and the ability to understand students' learning processes can support a teacher's beliefs about how well they expect to perform in their teaching (see Bandura, 2006; Tschannen-Moran et al., 1998), whereas low self-efficacy beliefs and uncertainty may challenge a teacher in supporting students' learning because it is important that a teacher knows how to foster learning (see also Trigwell et al., 2000). The results bring forward also the role of the experienced relevance of teaching, which may influence how the higher education professionals teach (Calkins & Seidler, 2011) or how much they engage in acquiring pedagogical knowledge (see Schiefele et al., 2013, pp. 30–32). EDs can be supported in employing interactive methods, as well as increasing their pedagogical knowledge, through organisation of pedagogical training and development opportunities, which may result in positive experiences of teaching. These may contribute to higher self-efficacy beliefs as well as experiencing teaching as being more relevant (see Turner & Thielkin, 2019). Employment of an interactive approach is expected to benefit EDs' other teaching-related tasks too, such as planning of development initiatives.

The study showed positive connections between interactive approaches to teaching and experiences of collegial support. Collegial support in relation to pedagogical issues can be seen as especially important for EDs due to their central role in the pedagogical development work. Connections between collegial support and approaches to teaching were recognised by Kálmán et al. (2020), who concluded that teachers utilising diverse teaching approaches and perceiving their culture as

particularly supportive play important roles in the development of teaching and learning in universities (p. 611). Encouraging EDs to promote student-centred approaches to teaching may significantly benefit the entire teaching community and enhance the establishment of a culture of support in which pedagogical matters are discussed (Englund et al., 2018). This can also be considered the other way around: the enhancement of a supportive culture where teaching is valued and discussed will promote the quality of teaching and learning (e.g., Myllykoski-Laine et al., 2022). Such perspectives relate to EDs' work broadly, going beyond individual staff members' development to influencing the community and institutional development as well (see Fraser et al., 2010; Gibbs, 2013).

Although the differences between the two groups in their approaches to teaching were not immense, the direction where the connections point towards is important. The lower the levels in interactive and organised approaches to teaching and the higher the levels in transmissive and uncertain approaches, the lower the levels also in teaching-related self-efficacy beliefs, collegial support, and relevance of teaching. However, a work position relating more or less strongly to teaching may explain the variation in approaches to teaching; some may have less teaching-related experience than others, which then reflects teaching-related perceptions. This is the main limitation of the present study as no unambiguous information on the amount of the participants' involvement in concrete teaching-related tasks was received. Despite the noted limitation, we think the study works as a base for future research that can deepen the understanding of the support needs of EDs.

The study offers implications for the development of research-based initiatives to support the professional practice of EDs through systematic inquiry (see Felten et al., 2007). As the group was already pedagogically qualified, they might benefit from further training offering opportunities for collegial support and learning more on the role of interaction in teaching. The professional competence and continuous development of EDs are important due to EDs' central role in promoting the pedagogical development of university communities (Felten et al., 2007; Hoessler et al., 2010; Sorcinelli & Austin, 2010) and it is important that they themselves have the up-to-date pedagogical knowledge. Thus, paying attention to the EDs' approaches to teaching and related elements can contribute to the quality of pedagogical development initiatives aiming to foster teacher development in universities (see also Vreekamp et al., 2023). Future research should acknowledge the different elements contributing to the practices and development of these pedagogical experts whose development has not been studied as much (Mårtensson & Roxå, 2021), but are a significant group in constructing the pedagogical culture of university communities (Roxå et al., 2010).

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- Conceptualization, supervision and review: Henna Vilppu, Liisa Postareff, Mari Murtonen
- All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

## Research consent

Informed consent was gathered from the participants to utilise their responses for the research. Information on data privacy (purpose and procedures of the study, data handling and storage, guarantee of anonymity) were provided to the participants. Ethics approval for the study is not required from the ethics committee.

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