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Developing entrustable professional activities for university teachers in the health professions

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ABSTRACT

Purpose: There is a widely recognized need to improve teacher professional development as well as recognition of teaching expertise in health professions education (HPE). This study aimed to develop Entrustable Professional Activities (EPAs) for university teachers in HPE as foundations for systems of training, certification, and career opportunities.

Method: A local expert consultation using a two-round Delphi study at a Dutch academic medical center (round 1: $n = 23$; round 2: $n = 13$) was conducted to reach a consensus on an initial set of EPAs developed by the researchers. Subsequently, an international expert consultation was conducted using a survey ($n = 21$) and a focus group discussion ($n = 7$) to explore their international value.

Results: Local consensus for all nine EPAs was reached in the second round of the Delphi study. The international survey showed a consensus for relevance and usefulness of all but one EPA but not for clarity and comprehensiveness of the EPAs. The international expert consultation revealed a need to tailor the EPA specifications to local contexts.

Conclusion: We found international consensus for the relevance and usefulness of EPAs for university teachers in HPE but local tailoring for each EPA is needed to acknowledge contextual differences.

KEYWORDS
Entrustable Professional Activity; health professions teachers; faculty development

Introduction

Most teachers in health professions education (HPE) have received extensive training in their own domain of expertise. This is in sharp contrast with their preparation for the domain of teaching for which most teachers receive no or limited training and supervision when they start teaching. Once academics have substantial teaching experience a structure supporting continuous professional development and career opportunities in education is also uncommon. While many teachers nevertheless perform well, the quality of education could benefit if they would be better trained, mentored, qualified, and valued. Besides enhancing the quality of education, institutional support would likely increase teacher well-being and motivation. Being unprepared for teaching is increasingly considered unacceptable by the field and there are many calls to take teaching as seriously as other academic tasks for at least 40 years (Jason 1978; Dewey et al. 2017).

Several frameworks have been developed that focus on what makes a good medical teacher. Foundational work in this area is that of Harden and Crosby (2000), who described twelve roles of medical teachers, later updated and elaborated by Harden and Lilley (2018). Other key examples include the framework by Hesketh et al. (2001) focusing on teacher excellence, and the framework of Molenaar et al. (2009) focusing on teaching competencies in the health professions. These frameworks are highly clarifying, but it remains a challenge to link these to actual teaching activities and use them to support the development and recognition of teaching in HPE (e.g. Steinert et al. 2009; Kumar et al. 2011). In response to these challenges, some authors have proposed the use of Entrustable Professional Activities because they could help to create systems that relate to teaching practice (Dewey et al. 2017; Iqbal and Al-Eraky 2019).

Practice points

- A set of nine EPAs was developed as a foundation for improving the initial and continuous professional development of university teachers in health professions education.
- Teaching EPAs may serve as a building block for systems of training, certification, and career opportunities.
- International consensus was found for the teaching activities but local tailoring for each EPA is needed to acknowledge contextual differences.

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Supplemental data for this article can be accessed here.

EPAs have been described as 'units of professional practice, defined as tasks or responsibilities to be entrusted to the unsupervised execution by a trainee once he or she has attained sufficient specific competence' (ten Cate 2013, p. 157). So far, they have predominantly been used for the assessment of trainees in the health professions (ten Cate 2019). The task-focused approach of EPAs aligns well with the conceptualization used in research into professional expertise (Ericsson et al. 2018) as well as teacher expertise in higher education (van Dijk et al. 2020) and primary and secondary education (Grossman 2018; van der Schaaf et al. 2019). The elements of entrustment and supervision, unique features of the EPA concept, have not been applied in teaching. Supervision levels as used in medical education (ten Cate and Scheele 2007) are not common in teacher training in HPE. In a university context, most schools entrust tasks to teachers who have not been educationally trained. Therefore, within the scope of this paper, we will limit the discussion of EPAs to their use as a task-based approach to describe teacher expertise.

Authors that have proposed EPAs argue that they – like for health professions students – can help to assess baseline competencies as well as recognize proficiency and expertise (Dewey et al. 2017). An additional argument for EPAs for health professions teachers stems from the 4 C-framework as proposed by van Bruggen et al. (2020), which identifies four areas that are important for supporting the continuous professional development of teachers: competence, context, community, and career. EPAs could make a significant contribution in all four areas. A set of EPAs could serve as a foundation for training and qualification (competence) as well as career opportunities (career). Around the set of EPAs, resources could be provided (context) and connections between teachers could be stimulated (community) to support health professionals' development in teaching.

It is important to note that EPAs could be used as building blocks for creating systems of professional development, evaluation, and recognition of teaching as well as to improve already existing systems. Several examples of existing systems in different countries are described by Irby and O'Sullivan (2018), including the University Teaching Qualifications (UTQ) in the Netherlands. Although all Dutch universities have implemented nationally recognized teaching qualifications since 2008 (de Jong et al. 2013), their use is not yet optimal for teachers in HPE. While health professions teachers are university teachers, their teaching often substantially differs from other university teachers. In HPE, teaching tasks also include teaching and supervising students at the workplace and some teachers only have limited quantity and variety in teaching tasks. EPAs offer the possibility to tailor and break down teacher training and certification to the teaching tasks that are most relevant for an individual teacher.

To foster professional development, standards, recognition, and rewards for teaching in the health professions, a set of teaching EPAs relevant for the breadth of health professions teaching would be useful. Other studies have already presented teaching EPAs, but these are all at a more granular level and for specific groups of teachers. These studies have defined EPAs for small group facilitators (Iqbal and Al-Eraky 2019, e.g. 'managing group dynamics'), for residency/fellowship program directors (Varaklis and Bing-You 2007, e.g. 'prepare and review program reports'), for advanced health professions educators (Gruppen et al. 2016, e.g. 'develop a proposal for organizational change') as well as one EPA for bedside teaching (van Dam et al. 2021). In contrast, this study aims to define a set of EPAs rendering teaching tasks most university health professions teachers perform. This makes them suitable for creating and refining systems of training, certification, and career opportunities in HPE contexts. This study is guided by the following research question: *What is a suitable set of EPAs for university teachers in the health professions?*

Methods

This study was conducted in three phases. The first phase focused on defining an initial set of EPAs. The second phase focused on developing this set further via a local expert consultation using a Delphi study among experts until consensus was reached. The third phase focused on evaluating the value of the developed EPAs beyond the local context using a survey and a focus group discussion with international participants. Both phases two and three were approved by the Netherlands Association of Medical Education (NVMO) Ethical Review Board (phase 2: NVMO-ERB#999; phase 3: NVMO-ERB#2020.3.6). All participants provided informed consent.

Phase 1: Development of an initial set of EPAs

An initial set of ten EPAs, with titles, specifications, and limitations, was developed by the research team using the certification criteria of the Dutch national university teaching qualification (UTQ), in addition to the literature about roles and tasks of medical teachers (Molenaar et al. 2009; Hesketh et al. 2001; Harden and Lilley 2018), examples of teaching tasks occurring in resumes of teachers, and discussions within the research team. Describing the specifications and limitations for the developed teaching tasks is the first step to come to a full EPA description as recommended by ten Cate and Taylor (2021).

Phase 2: Local expert consultation

A Delphi study was conducted between May 2018 and July 2019 with the aim to reach a consensus on the proposed set of EPAs. Invited participants were 77 faculty members of UMC Utrecht who had obtained an Advanced University Teaching Qualification.

The question of whether the preliminary EPAs were suitable for university teachers in HPE was operationalized using four parameters: (1) clarity, that is, clearly formulated also for a novice teacher, (2) relevance within the context of HPE, (3) comprehensiveness, that is, covers all relevant aspects of the task, and (4) usefulness for teaching qualification programs. The fourth criterion focused specifically on teaching qualifications to capture the sense of 'general' usefulness in the context of an academic medical center. In both rounds, participants received a Word document with all EPAs and were asked to indicate their agreement on an 8-point Likert scale on all four parameters. Additionally,

they were asked to suggest improvements for individual EPAs as well as the whole set and propose editorial suggestions using 'track changes.'

Consensus for each of the EPAs was determined using two measures. The first standard for consensus was set at 80% of participants or more scoring at least 6 on an 8-point scale on all four parameters. The second standard for consensus was set at 'high' for the level of agreement on all four parameters. This level of agreement was calculated using the method of de Loe (1995) adjusted for a 7-point scale by van der Schaaf and Stokking (2011): high (H – 70% of the ratings in one category or 80% in two adjacent categories); medium (M – 60% of ratings in one category or 70% in two adjacent); low (L – 50% of ratings in one category or 60% in two adjacent categories); none (less than 60% in two adjacent categories). Means, standard deviations, and skewness were additionally calculated to give insight into support for each of the parameters of the set of EPAs. After the second round of the Delphi study, a Wilcoxon signed-rank test was conducted in SPSS which compared the scores of participants for each criterion for all EPAs to estimate a non-coincidental increase of consensus in the set.

In between the rounds of the Delphi study, the set of EPAs was improved based on a thematic analysis of the comments of the participants. As many editorial suggestions of participants as possible were incorporated if deemed useful. In case of contradicting suggestions, the research team decided which to incorporate.

Phase 3: International expert consultation

An international expert consultation was conducted to explore the applicability of the set of EPAs in other institutional and national contexts. This aimed to add to the local expert consultation by providing insight into the perceived international value of these EPAs as well as the possible points for improvement for use in other settings. The consultation consisted of two parts: a survey and a subsequent focus group discussion.

Survey

The outcome of the local Delphi study was the input for an international survey, conducted in May and June 2020. Twenty-one experienced health professions educators with an interest in faculty development participated in the survey. Participants were recruited by email amongst 68 current participants and alumni of the International Medical Educators Exchange program (IMEX) (ten Cate et al. 2014) and 112 members of the listserv of the Special Interest Group on Faculty Development of the Association of Medical Education in Europe (AMEE).

Participants were asked to rate the set of EPAs on the same four parameters and on the same scale as used in the Delphi study and to suggest improvements for each EPA in an open question. Additionally, participants answered three open questions about improvements for the set of EPAs, missing EPAs, and general comments and remarks. They also provided information about their occupation and employer.

Participants' scores on the four parameters were analyzed using the same methods as used in the local Delphi study. The first and second authors together interpreted answers to the open questions and, when possible, grouped the answers into themes.

Focus group discussion

At the end of the international survey participants were asked if they would be willing to participate in a 90 minutes online focus group discussion in June 2020 for further interpretation of the survey. Seven participants additionally participated in this online focus group discussion. For the focus group discussion, a list was used with four topics related to the four parameters from the survey and one about the set of EPAs. The discussion focused on presenting and interpreting the results of the international survey on the four parameters for the EPAs and possible improvements for the entire set of EPAs.

The focus group discussion was conducted and recorded using the videoconferencing service Zoom and subsequently transcribed. The transcript was analyzed using thematic analysis (Braun and Clarke 2006): the first and second authors first independently analyzed the data by coding excerpts to identify possible themes for each of the topics from the topic list, after which the differences were discussed to reach consensus on the themes and create final codes. Examples of themes are 'teacher reflection' for the topic usefulness and 'attention for educational concepts and theories' for the topic possible improvements.

Results

Delphi study

The initial set of ten preliminary EPAs was presented for local expert consultation at UMC Utrecht in a Delphi study. Results for the Delphi study are presented in Table 1. The first round of this Delphi study included 23 participants: 20 clinicians, 2 basic scientists, and 1 faculty developer from various departments at UMC Utrecht. There was a lack of consensus for two EPAs after the first round: supervising clinical interns and bedside teaching. The EPA supervising clinical internships was improved by merging it with the EPA assessing (clinical) internships, because comments from participants revealed they considered this an inseparable task, as illustrated by the following quote: *'I miss the part about assessment of a student at the end of an internship. I see this is now a separate EPA, but I question whether that is necessary'* (D1-3). The EPA bedside teaching was improved by elaborating the description for this EPA based on participants' comments. Additionally, the descriptions of lecturing, teaching small groups, and teaching lab classes and skills education were changed in two ways based on the participants' comments: diminishing the role of teachers in the design of this type of education (e.g. by removing 'contributing to course manuals') and clarifying educational 'slang' that was unfamiliar to participants (e.g. replacing 'constructive alignment' with 'monitoring the relationship between the lecture and other parts of the education').

Table 1. Level of consensus in the 2-round Delphi study (UMC Utrecht) and the survey (international) for the EPAs for health professions teachers.

	Delphi study round 1 (UMC Utrecht)							Delphi study round 2 (UMC Utrecht)							Survey (International)						
	n		Support			Consensus		*n*		Support			Consensus		*n*		Support			Consensus	
EPAs	Valid	Missing	*M*	SD	Skewness	% 6–8	Level*	Valid	Missing	*M*	SD	Skewness	% 6–8	Level*	Valid	Missing	*M*	SD	Skewness	% 6–8	Level*
Lecturing																					
Clarity	23	0	6.6	0.8	−0.8	87	H	13	0	6.9	0.9	−2.9	92	H	21	0	6.6	1.3	−0.3	**76**	H
Relevance	22	1	7.1	0.8	−0.2	100	H	13	0	7.1	0.6	−0.1	100	H	21	0	7.1	1.4	−1.3	86	H
Comprehensiveness	23	0	6.7	1.0	−1.7	91	H	13	0	6.9	0.6	−0.1	100	H	21	0	6.6	1.8	−1.9	**76**	H
Usefulness	23	0	7.0	0.8	−0.6	96	H	13	0	7.4	0.5	0.5	100	H	21	0	6.6	1.8	−1.9	86	H
Teaching small groups																					
Clarity	23	0	6.6	1.1	−0.7	83	H	13	0	6.9	0.6	−0.1	100	H	21	0	6.6	1.2	−1.1	86	H
Relevance	23	0	7.3	0.6	−0.5	100	H	13	0	7.0	0.7	0.0	100	H	21	0	7.2	1.0	−1.1	90	H
Comprehensiveness	23	0	6.6	1.2	−1.5	83	H	13	0	6.9	0.7	0.2	100	H	21	0	6.8	1.4	−1.4	86	H
Usefulness	22	1	7.1	1.0	−1.6	96	H	13	0	7.3	0.5	0.9	100	H	21	0	7.0	1.7	−2.1	91	H
Teaching lab classes and skills education																					
Clarity	22	1	6.7	0.9	−0.3	91	H	13	0	6.9	0.7	−1.6	83	H	19	2	6.5	1.5	−0.6	**69**	H
Relevance	22	1	7.4	0.7	−0.5	100	H	13	0	7.2	0.4	1.5	100	H	19	2	6.7	1.6	−1.7	84	H
Comprehensiveness	22	1	6.9	0.8	−0.8	91	H	13	0	6.5	1.0	−2.1	85	H	19	2	6.3	1.6	−1.3	84	H
Usefulness	22	1	7.3	0.7	−0.6	100	H	13	0	7.2	0.4	1.5	100	H	19	2	6.8	1.8	−2.2	84	H
Bedside teaching																					
Clarity	17	6	6.1	1.8	−1.1	**76**	**M**	11	2	7.0	0.8	−1.6	91	H	19	2	6.2	2.1	−1.3	**74**	**M**
Relevance	17	6	7.1	1.2	−2.6	94	H	11	2	7.5	0.5	0.2	100	H	19	2	7.1	1.2	−0.8	84	H
Comprehensiveness	16	7	5.9	2.1	−0.8	**63**	**M**	11	2	6.9	0.8	−1.1	91	H	18	3	5.6	2.2	−0.7	**61**	**M**
Usefulness	17	6	7.0	1.2	−2.3	94	H	10	3	7.3	0.5	1.0	100	H	19	2	6.5	2.3	−1.8	84	H
Mentoring and tutoring																					
Clarity	22	1	6.7	1.2	−1.7	91	H	13	0	7.0	0.6	0.0	100	H	19	2	5.9	1.9	−1.0	**63**	**M**
Relevance	22	1	7.0	0.9	−0.8	91	H	13	0	7.1	0.8	−1.5	100	H	19	2	7.5	0.8	−2.0	95	H
Comprehensiveness	22	1	6.7	1.2	−1.9	86	H	13	0	7.0	0.7	0.0	100	H	19	2	6.0	1.9	−0.7	**69**	**M**
Usefulness	22	1	7.0	1.0	−1.4	96	H	13	0	7.0	0.9	−0.8	92	H	19	2	6.9	1.9	−2.2	84	H
Supervising (clinical) interns																					
Clarity	23	0	6.6	1.4	−1.2	**74**	H	13	0	7.1	0.8	−1.5	92	H	19	2	6.0	1.9	−1.2	**69**	**M**
Relevance	23	0	7.3	0.9	−2.3	96	H	13	0	7.4	0.5	0.5	100	H	19	2	7.1	1.3	−1.4	90	H
Comprehensiveness	23	0	6.4	1.4	−1.1	**74**	H	13	0	7.0	0.6	0.0	100	H	18	3	6.1	2.0	−0.9	**67**	H
Usefulness	23	0	7.0	1.2	−1.6	87	H	13	0	7.5	0.5	0.2	100	H	19	2	6.7	1.9	−1.9	84	H
Assessing written work of students																					
Clarity	23	0	7.0	0.7	0.0	100	H	13	0	7.2	0.8	−0.3	100	H	19	2	6.2	1.8	−0.9	**69**	H
Relevance	23	0	7.4	0.7	−0.6	100	H	13	0	7.2	0.9	−1.3	92	H	19	2	6.5	1.5	−1.2	**79**	H
Comprehensiveness	23	0	7.0	0.7	−0.1	100	H	13	0	6.9	0.8	0.1	100	H	19	2	6.3	2.1	−1.2	**68**	**M**
Usefulness	23	0	7.3	0.6	−0.5	100	H	13	0	7.2	0.8	−0.3	100	H	19	2	6.7	1.8	−2.0	**74**	H
Designing and developing a course																					
Clarity	21	2	6.8	0.7	−0.5	95	H	10	3	7.1	0.7	−0.2	100	H	19	2	6.4	2.0	−0.8	**74**	**M**
Relevance	21	2	7.4	0.6	−0.3	100	H	13	0	7.4	0.7	−0.6	100	H	19	2	6.9	1.2	−1.9	90	H
Comprehensiveness	21	2	6.6	1.2	−1.6	86	H	13	0	6.5	0.9	−0.6	85	H	19	2	6.1	2.3	−0.9	**68**	**M**
Usefulness	23	0	7.6	0.6	−1.0	100	H	13	0	7.6	0.5	−0.5	100	H	19	2	6.8	2.0	−2.2	84	H
Developing and administering tests and establishing results																					
Clarity	21	2	6.7	1.1	−1.8	95	H	12	1	6.7	0.9	−0.1	92	H	19	2	6.5	2.1	−1.6	**79**	H
Relevance	21	2	7.2	0.8	−1.2	95	H	13	0	7.3	0.6	−0.3	100	H	19	2	7.2	1.0	−1.3	90	H
Comprehensiveness	21	2	6.7	1.3	−2.3	90	H	13	0	6.9	0.8	0.1	100	H	18	3	6.6	1.9	−2.1	83	H
Usefulness	22	1	7.4	0.8	−1.5	95	H	13	0	7.3	0.6	−0.3	100	H	19	2	7.1	1.6	−3.2	95	H
Assessing (clinical) interns																					
Clarity	22	1	6.8	0.7	0.3	100	H	Merged with 'Supervising (clinical) internships' after round 1 of the local Delphi study.													
Relevance	22	1	7.4	0.7	−0.5	100	H														
Comprehensiveness	22	1	6.8	0.8	−0.3	95	H														
Usefulness	22	1	7.3	0.8	−1.1	96	H														

*Level of Agreement: High, Medium, Low according to de Loe's metric (van der Schaaf and Stokking 2011).
All outcomes that did not meet our criteria for consensus are bold.

Thirteen of the 23 participants in the first round also participated in the second round, including 12 clinicians and 1 basic science teacher. After the second round there was consensus for the remaining final set of nine EPAs: (1) lecturing, (2) teaching small groups, (3) teaching lab classes and skills education, (4) bedside teaching, (5) mentoring and tutoring, (6) supervising (clinical) internships, (7) assessing written work of students, (8) designing and developing a course and developing and (9) administering a test including establishing test results. The EPAs as established after round two of the Delphi study can be found in Supplementary Appendix A.

Although most consensus scores increased, some scores also slightly decreased. We therefore statistically examined the data using a Wilcoxon signed-rank test using the Legacy method in SPSS. In this method negative Z-scores indicate higher scores for the criteria from the second round. The results of the test showed that overall scores among participants who participated both in the first and second round ($n = 13$) improved slightly and significantly for: clarity ($M_1 = 6.65$, $M_2 = 6.95$, $Z = -2.69$, $p = 0.01$), comprehensiveness ($M_1 = 6.57$, $M_2 = 6.83$, $Z = -2.27$, $p = 0.02$) and usefulness ($M_1 = 7.08$, $M_2 = 7.31$, $Z = -2.55$, $p = 0.01$) of the set of EPAs. Relevance also scored slightly higher, but this improvement between round 1 and 2 was not significant ($M_1 = 7.21$, $M_2 = 7.23$, $Z = -0.51$, $p = 0.61$).

As there was consensus for all EPAs and a lack of remarks pointing at a need for improvement, we decided to consider the Delphi study completed after round two after addressing suggestions for textual changes to the EPA descriptions.

International survey and focus group discussion

The 21 participants in the international survey expert consultation were employed by organizations in different parts of the world: Europe ($n = 8$), North America ($n = 8$), Asia ($n = 2$), Africa ($n = 1$), and unknown ($n = 2$). They all worked in HPE in one or more of the following roles: health professions teacher ($n = 10$), program director/management of HPE programs ($n = 10$), and educationalist or faculty developer ($n = 7$). Two participants did not indicate their role. Seven participants additionally took part in the online focus group discussion.

Results for the international survey are presented in Table 1. There was consensus amongst the survey participants with respect to the relevance of the EPAs for HPE and the usefulness of the EPAs for a teaching qualification for eight of the nine EPAs that resulted from the local Delphi study.

This was also confirmed in the focus group discussion. Regarding the relevance of the set of EPAs, participants agreed that the set of EPAs is applicable to most teachers, although not all teachers will perform all tasks. As one participant of the focus group discussion (IF-0) said: '*I see many people, interested educators, who will do* most *of those tasks. But for those who are maybe with a more formal role, that certainly would do* all *of the EPAs.*' A possible explanation for consensus about the usefulness of EPAs for teaching qualifications was also offered in the focus group discussion. Most participants assumed broad buy-in for using the concept of EPAs for teaching qualifications because it is already familiar in medical education. A focus group participant (IF-12) explained: '*So I do think it's kind of, it's like a parallel with our faculty, with what we expect with our students. And if we're expecting an EPA approach with our students, with our faculty it would work equally well.*' Focus group participants also indicated that besides teaching qualifications, EPAs could also be useful for other ways of setting standards for teaching as well as for stimulating teacher reflection, giving direction to possible faculty development activities, and rewarding teaching accomplishments.

The EPA assessing written work of students scored just below the standard for consensus of 80% participants scoring at least 6 on the 8-point Likert scale (69–79%) for all criteria. Analysis of the comments for this EPA in the survey shows that this may be because the EPA is limited in scope and because it is unclear what types of assessments are included. Some participants also noted that this EPA might not be relevant for all health professions teachers, in particular clinical teachers, as illustrated by the following quote taken from the survey comments for this EPA: '*This may be one context for an assessment EPA, but the narrowness of this EPA, and it's [lack of] relevance for all teachers in health professions education likely makes it not useful as an EPA in many contexts*' (IS-4). Suggestions to improve this EPA included adding assessment of students' writings in patient health records and evaluating reflections from trainees.

While in the international survey all parameters for all EPAs showed more than 60% of the participants scoring at least 6 on the 8-point Likert scale, consensus (>80%) for comprehensiveness was only found for three EPAs (teaching small groups, teaching lab classes and skills education and developing administering tests and establishing results) and consensus for clarity was only found for one EPA (teaching small groups). The lack of consensus for comprehensiveness clearly shows in the survey comments and in the focus group discussion. A wide variety of suggestions for improvement of the title, description, and specifications of the EPAs was brought forward, with little overlap between different suggestions and conflicting suggestions about the ideal lengths of the descriptions. Regarding clarity of the EPAs, our analysis of the survey comments and the focus group discussion showed that how EPAs and their specifications are best worded seems to differ per national and institutional context. For example, one participant in the survey (IS-6) explicitly commented: '*Mentoring and tutoring would not be understood in all contexts and settings.*' In the focus group, another participant (I-F8) made a similar comment about the meaning of the term course: '*I think the other thing to consider is that the developing of course, I have found that that's a confusing task as to what a course means. So, it might be better to use a more broad term, like curriculum.*'

With regard to the overall set of EPAs, survey participants and focus group participants also indicated that some EPAs might be less or more relevant for specific groups of teachers. For example, some teachers may not be involved in clinical teaching, student assessment, or educational design, making EPAs on bedside teaching, assessment, or curriculum design less relevant. In the international survey, a total of thirteen participants suggested additional EPAs. Based on an analysis of these suggestions, we distinguish three possible categories. First, participants

suggested that some components of proposed EPAs could serve to be EPAs on their own, being digital teaching, providing feedback to students, and professional development as a teacher. Second, they suggested new EPAs for clinical teaching, for example, facilitation and debriefing for simulations and teaching procedures and training clinical skills. Third, participants suggested new EPAs that could be relevant for more senior teachers, including the scholarship of teaching and learning, educational leadership, and curriculum development.

Concerns about a task-focused approach by local and international experts

In the comments from the Delphi study and international survey and in the international focus group discussion there were concerns about the task-focused approach of the EPAs. Using such a perspective could mean that other relevant aspects of teaching may not receive enough attention. One participant in the focus group discussion summarized this as follows: *'Just because something isn't a task doesn't mean that it's not important'* (I-F10). Aspects that were explicitly mentioned by participants are reflection on and substantiation of decisions in teaching, educational concepts and theories that are important for different teaching tasks, relationships between teachers and students, and teamwork in teaching and teacher responsibilities.

Discussion

This study aimed to develop EPAs suitable for university teachers in HPE. A set of nine EPAs was developed in one academic medical center using a local expert consultation via a Delphi study, followed by an international expert consultation consisting of a survey and an online focus group discussion. The set was perceived by participants in both the Delphi study and the survey as relevant for health professions teachers and as a useful foundation for teaching qualifications. For qualification for distinct teaching tasks. One EPA (assessing written work) reached the predetermined degree of consensus for relevance and usefulness in the local expert consultation but not in the international expert consultation. However, consensus for relevance (79%) and usefulness (73%) in the international survey was quite close to our standard of 80%. Analysis of the comments showed that broadening the description and specifications of the EPA could potentially improve this EPA, according to participants.

Our finding that the task-focused perspective provided by the EPAs is valuable aligns with expertise literature from other professional contexts (Ericsson et al. 2018, Grossman 2018, van Dijk et al. 2020). However, our analysis also shows concerns about a task-focused approach, and therefore we argue this is important to take into account in further research, development, and implementation of EPAs in HPE. We found that, in addition to serving as a foundation for teaching qualifications, EPAs may also be useful to guide faculty development and to improve recognition for teaching achievements, at least in our participants' opinion. This supports our argument that EPAs can contribute to 'competence' and 'career' as two important areas for improving the professional development of HPE teachers (van Bruggen et al. 2020).

Consensus about the comprehensiveness and clarity of the specifications for the EPAs was reached in the Delphi study at UMC Utrecht but was not found in our international survey. Based on our analysis we suggest this may be caused by different definitions and appreciation for specific aspects of teaching tasks and the use of different wordings in specific national educational contexts. This may partly be semantic, but also seems to reflect organizational and cultural differences. This is in line with Stigler and Miller (2018) who explain that definitions of teacher expertise are influenced by culture. Our results suggest that, while EPAs are universal at their core, they need tailoring to local environments to align optimally with the specific contexts. To facilitate modifications to local contexts, we have added a summary of comments about the EPAs from the international survey in Supplementary Appendix B to serve as suggestions for local adaptation.

This study has defined a set of EPAs that covers the breadth of core teaching tasks of university teachers in healthcare education, which can be used to shape or refine systems for professional development, evaluation, and recognition of teaching. EPAs developed in other studies are less suitable for this purpose, because they only focus on EPAs for educators in senior teaching positions (Gruppen et al. 2016; Varaklis and Bing-You 2007) or on one specific teaching activity (Iqbal and Al-Eraky 2019; van Dam et al. 2021). The teaching activities that Iqbal and Al-Eraky (2019) and van Dam et al. (2021) focus on are also included in our set as the EPAs small group teaching and bedside teaching respectively, and there are many similarities between our description of these EPAs and theirs. As such, these studies provide additional support for the relevance of the EPAs developed in this study as well as resources for further development. An important difference with the study of Iqbal and Al-Eraky (2019) is that they define several EPAs for small group teaching (e.g. 'planning a small group learning activity'), while we define small group teaching as one EPA and include many of the EPAs by Iqbal and Al-Eraky (2019) as specifications. This points to a need for further discussions about the preferred granularity of EPAs for health professions teachers.

A limitation of our study is that the Delphi study was conducted at one local hospital in the Netherlands. In the Netherlands, there are mandatory teaching qualifications, which differs from most other national contexts. The international survey and focus group allowed us to explore international consensus for the EPAs and their use for faculty development. However, it was difficult to find a mix of experts that is representative of the whole HPE community. Our international expert consultation included participants mostly from North America and Europe, which can be considered a limitation for its representativeness. Another limitation related to the international expert consultation is the low response rate in the international survey (12%). Even though this may be explained by the timing of the survey during the COVID-19 pandemic, we cannot exclude this may have led to a response bias.

We concentrated this research on identifying relevant teaching tasks suitable as EPAs by elaborating specifications and limitations as a first step to constructing EPAs.

Further elaboration is needed to define relevant competency domains for each EPA as well as information to serve training, assessment, and supervision of the EPAs (ten Cate and Taylor 2021) and assess the content and quality of these EPA components (Taylor et al. 2017). Further research could also focus on how the entrustment concept can be used in the context of teaching. This is an important area of research because entrustment *before* engaging in teaching tasks is often uncommon in HPE. Future research also could explore modification and implementation of EPAs in various local contexts, for example using a participatory action design approach as used by Iqbal et al. (2020). Finally, based on the suggestions in the international survey about missing EPAs, we suggest developing additional EPAs, dedicated to specific groups of educators (e.g. advanced) or educational settings (e.g. clinical workplace-based).

We conclude that the nine EPAs presented in this study are commonly recognized by local and international experts to serve as a relevant and useful foundation for a sustainable system of professional development, setting standards, and reward and recognition that suits the vast majority of teachers in HPE. For optimal use, EPAs for health professions teachers should be adapted to national or local contexts.

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Glossary

Entrustable Professional Activities (EPAs) have been described as 'units of professional practice, defined as tasks or responsibilities to be entrusted to the unsupervised execution by a trainee once he or she has attained sufficient specific competence' (ten Cate 2013, p. 157). So far, they have predominantly been used for the assessment of trainees in the health professions.

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